Social Side of Rural Internet Use:  
Online Communication, Social Support,  
and Community Satisfaction in a Rural Area  

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**ABSTRACT**

The purpose of this study was to examine how rural residents’ online communication with friends and family is related to perception of social support and community satisfaction. Using the survey data (n = 325) collected in a South Texas rural community, the present study investigated dynamic relationships between online communication and perceived social support by looking at interaction effects relative to extroversion and size of social networks. The hierarchical regression analysis presented the explanatory power of extroversion and size of social networks in the variance of perceived social support. In addition, the regression model showed the significant relationship between the amount of online communication and perceived social support, while online communication is not significantly related to community satisfaction. The significant interaction of extraversion and online communication was measured as well. That is, respondents who have more extraverted personalities are more likely to perceive higher levels of social support than less extraverted ones.

**Key words:** Online communication, Rural community, Social support, Community satisfaction, Network size, Extroversion

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I . INTRODUCTION

For the most part, people with higher levels of access to the Internet are residents of urban areas (Strover, 2001). Rural areas are often framed as “have-nots” in the digital age even as electronic networks are dramatically changing the mode of communication and information delivery. Fifty percent of rural Americans had high-speed Internet connections at home, while 68 percent of non-rural residents had high-speed Internet access in 2009 (Horrigan, 2010). This unequal physical access to the Internet might result in the various technological disparities and between rural and non-rural resident groups. However, the recent statistics show the growth of broadband penetration rate in rural communities. The fifty percent of the rural broadband penetration rate in 2010 is remarkable increase when considering that only nine percent of rural residents used broadband services in 2003 (Horrigan, 2006).

Despite the growing Internet adoption in rural areas, little research provides an understanding of specific usage of the Internet and illuminates multifaceted social outcomes associated with computer and Internet access for rural communities. Social and geographical isolation are key challenges of life in rural and remote regions. Residents of such localities rarely see friends and family who live at great distances and they have limited local and non-local connections with others. Online activities create more opportunities to increase communication and contacts with friends and family and to develop social capital by supporting social networks (Stern & Adams, 2010). The Internet, therefore, has the potential to help to mitigate social and physical distances of rural populations from other people and foster inclusion in a broader society (Collins & Wellman, 2010).

The goal of this study is to examine the positive consequences of rural residents’ Internet use for communication purposes. In order to achieve the major aim of this study, this study first examines the relationship between rural residents’ online communication, and perceived social support and community satisfaction to determine what effect, if any, online communication may have on the two positive consequences for the rural community. A second aim of the study is to determine if extroversion personality and personal network size might influence frequency of online communication. Finally, a third aim of the study is to explore how extroversion and network size might moderate the relationship between online
communication and perceived social support and community satisfaction. The findings are expected to provide understanding about how Internet use is situated in rural community life and what the potential benefits of online communication are in rural contexts.

II. LITERATURE REVIEW

1. History of Social Technology Use in Rural Communities

Communication technologies have been thought to solve the problems of isolation, reducing distance and making all places and users the same (Carey, 1989). The example of rural technology adoption demonstrates how technological needs of rural communities could fit the design of communication technologies. Previous research has repeatedly demonstrated how rural communities have been using social technologies (e.g., Fischer, 1992; Larson, 2007). Living in rural America means more than geographic or social isolation. A number of social indicators characterize rural life. Rural Americans tend to be older, less educated, less wealthy, and less mobile than urban Americans (Bell et al., 2004). The deficiency in infrastructure and public services has brought about disadvantages for the rural poor or those without ready access to private transportation (Parker et al., 1992). Therefore, it makes sense to look at the role of social technologies through the lens of rural life.

Rural Americans enthusiastically adopted the first widespread social technology: telephone (Fischer, 1992). They appropriated it in ways unique to their settings (Umble, 1991). Examples in the previous studies demonstrate that the telephone has played a role as a communication technology to make farm life enjoyable, cooperative, and modern by facilitating community interaction and increasing community attachment among people. In regions of isolated farm houses, the telephone could compensate for the sense of loneliness and insecurity felt by farmers’ wives and help with the solidarity of a small country town (Fischer, 1992).

Given the historical evidence, the distance between people in rural communities suggests opportunities and scenarios for the use of communications because they play a role in bridging the distance between people. Prevalent out-migration to urban areas broadens the distance and may aggravate the issue of decreasing social
interaction. As the consequences of rural out-migration, reduction in the sheer number of people available to make friends with or to have as part of a local social support network creates a uniquely challenging situation for rural residents (Larson, 2007). This rural character manifests the seriousness of inadequate social networks because they become the principal barriers to social interaction (Wilkinson, 1991). Wilkinson further predicted that quality of life would likely be threatened if social interaction is disrupted in rural communities.

In response to comments regarding the significant role of social technologies in bridging the rural distance, scholars have started to explore the relationship between new technologies, such as the Internet, and rural interaction. Rural access to the Internet has lagged behind rural and non-rural areas, but the gap is closing. Fifty percent of rural Americans had high-speed Internet connections at home, while 68 percent of non-rural residents had high-speed Internet access in 2009 (Horrigan, 2010). The fifty percent of the rural broadband penetration rate is remarkable increase when considering that only nine percent of rural residents used broadband services in 2003 (Horrigan, 2006). Scholars’ examination in implications of Internet use for rural community development reflects the growing Internet use in rural areas. For example, Larson (2007) explored rural residents’ conception of the Internet and found Internet use patterns unique to rural settings. The journal of American Behavioral Scientist covered diverse case studies of rural Internet use on its special edition in 2010. The articles investigated the role of rural Internet usage on various outcomes to ensure the viability of rural communities.

2. Social Support, Community Satisfaction, and Internet Use in Rural Communities

Recent studies indicate that community social capital may have unique implications for Internet use in rural communities (Stern & Adams, 2010; Gilbert et al., 2010). Social capital is defined as all those resources, real or virtual, accessible through direct and indirect social connections (Lin, 2001). Community social capital includes social networks that are active in the local community, including the material or symbolic resources flowing in those networks (Putnam, 2000). One important manifestation of social capital in the community is participatory social capital, referring to participation in locally based organizations that conserve and promote the quality of life (Mesch & Talmud, 2010). Grounding research in the
theory of social capital, scholars have investigated the role of Internet use in the development of a sense of community, community participation, and community attachment in rural communities (Stern & Adams, 2010; Collins & Wellman, 2010).

Those studies have developed theoretical models seeking to explain the relationship between Internet use and community social capital in small towns. With the growing rural Internet penetration rate, distance barriers to maintain strong social ties are indeed weakening. As shown in the evidence of previous research, rural people use the Internet in ways to build social capital. For example, rural people tend to use a social network site to maintain local online friendships (Gilbert et al., 2010). In addition, they use the Internet to connect to people outside the local community and for nonlocal shopping (Collins & Wellman, 2010). These findings imply the significance to recognize the place of communication technologies in rural people’s social lives. Despite the growing interest in the relationship between communication with social ties facilitated by the Internet and community social capital, a search for social support exchanged through social ties turns up almost no study in the rural community theory.

Social support provided by interpersonal relationships is a key component to generate positive emotions and subsequent well-being (Schiffrin et al., 2010). Social and geographical isolation are key challenges of life in rural and remote regions so that communication technologies should serve as a tool to reduce social distance and isolation for rural community well-being (Collins & Wellman, 2010). The value and anticipation of mitigating rural isolation rationalizes a research focus on the benefit of social support provided by social ties. The extensive body of research indicates that social support is central to relationship development and well-being. Social support has been defined as a system of beliefs that lead people to feel valued and loved and that provide a sense of belonging to a network of communication (Cobb, 1976). In comparison with urban communities, rural residents have stronger family ties and gain more support from family members (Millward, 1995). Therefore, they are likely to feel a sense of emotional isolation or loneliness when they lose supportive relations to talk with about experiences or problems (Larson, 2007).

The notion of social interaction influencing rural people’s perception of support from social ties raises discussion about the need for communication technologies in rural areas. Communication technologies are viewed as capable of facilitating and helping to maintain strong, intimate, and supportive human relationships.
Particularly, the capacity of the Internet to mediate people’s social relationships suggests that the Internet can be a useful medium for interpersonal communication with personal networks (Boase, 2010). In fact, scholars have examined the role of online communication in mediating social networks and the positive outcome of computer-mediated social networks (Kraut et al., 2002; Rheingold, 2000). For instance, email, reported to be the most frequently used tool for those connected to the Internet, has been found to have positive effects on the development and maintenance of social networks (Kraut et al., 2002; Raini et al., 2000). Kraut et al. (2002) explained that the Internet can have a positive social impact if communication, including contact with neighbors, friends, and family, and dominates Internet use for a majority of its users. They found that Internet use for communication is positively associated with increases in the sizes of respondents’ local and distant social circles and their face-to-face interaction with friends and family.

The social uses of the Internet show promise for enhancing rural residents’ perception of social support. Research indicates that using the Internet for social purposes is associated with better coping skills (Seepersad, 2004) and has a positive impact on social support (Schiffrin et al., 2010). The concept of social support is closely related to the concept of social networks. When people communicate with each other, a certain form of social network is constructed within a group of people, an organization, or social entity where people are connected by social relationships. These relationships oftentimes lead to friendship, cooperative work, and information exchange (Garton et al., 1997). Supportive social networks also serve as a resource for coping with negative feelings, such as stress or isolation (Cohen, 1988). In the absence of support from others, people tend to have fewer opportunities to mediate isolation and engage in activities that serve to form and maintain supportive interpersonal ties.

If online communication is contributing to exchanging social support in rural communities, it is important to consider the role of the Internet in rural communities. Previous research has suggested that physical distance between people is an important factor to predict the degree of social support they provide and obtain. The greater the social and physical distance between the support seeker and provider, the less likely that reciprocity will take place (Wellman & Gulia, 1999). There is little motivation for individuals to provide assistance, information, and support to physically and socially distant others. People are also less likely to
anticipate receiving help and support in return from others they hardly know in-person. Previous research has demonstrated that frequent interaction with strong personal ties has been positively associated with diverse types of social support (Wellman & Wortley, 1990). Strong ties provide opportunities to access timely to useful information, to convey trust and to form the basis for the informal exchange of the resources and favors (Granovetter, 1973). The Internet has been anticipated and valued as a new opportunity to increase perceived social support, by allowing and affording communication with personal social networks (Swickert et al, 2002; Schiffrin et al., 2010). Therefore, it is probable that online communication is positively related to perceived social support.

RQ1: Is there relationship between the amount of online communication and perceived social support in a rural community?

Life satisfaction is another factor to determine benefits of online communication for rural community life. This important indicator of quality of life reflects a general evaluation of one’s surroundings, an evaluation which may be positive or negative (Scheufele & Shah, 2000). Usually, researchers equate life satisfaction with subjective happiness or personal contentment (Diener et al., 1985) and they argue that frequent interpersonal communications that have positive affect are correlated to high life satisfaction and happiness (Diener et al., 1991). It means that individuals’ life satisfaction could be determined, in part, by their social ties (Kahneman & Krueger, 2006). This line of research on the relationship between interaction with social ties and life satisfaction has been discussed in academics investigating the effect of the Internet on life satisfaction. Scholars show that people who actively interact with their social contacts online are more likely to experience connectedness and feel happier (Valkenbur et al., 2006; Valenzuela et al., 2009).

Extending this rationale to local community levels, an extensive literature has investigated satisfaction at the neighborhood and community levels of analysis. Previous research provides ample evidence to document the negative effects of dissatisfaction with the community, including the desire to seek other residential locations, community instability, and a lower quality of life (Filkins et al., 2000; Zuiches, 1981). In addition, an increasing level of community satisfaction leads to a greater degree of engagement in community activities (Dutta-Bergman, 2005). Based on its characteristic to promote community cohesion, community satisfaction is an important dimension of social well-being in rural community settings.
Tremendous consequences of community satisfaction for the status of the community call for research in the area of Internet effects on rural communities. Based on the interest in the linkages between communication and community life, previous research has examined how media use, including print, broadcast, and the Internet, positively influences community engagement and networking (Kang & Kwak, 2003; Shah et al., 2001; Carrol & Rossom, 2003). In research to investigate the effect of the Internet access on community life, Dutta-Bergman (2005) found that individuals who have access to the Internet are more likely to be satisfied with their communities than those individuals who do not have access. Since life satisfaction is one of the essential components to make up social capital (Scheufele & Shah, 2000), it is important to investigate a linkage between community satisfaction and Internet usage when scholars argue the effects of the Internet on rural social capital (Dutta-Bergman, 2005). Therefore, the second research question is asked:

**RQ2**: Is there relationship between the amount of online communication and community satisfaction in a rural community?

In addition to investigating the relationship between online communication and perceived social support and community satisfaction, this study explores the relationship between online communication and Internet users’ sociability. If the primary usage of the Internet is communication purposes, key variables that may influence the impact of the Internet on social capital are Internet users’ characteristics relating to social relationships (Schiffrin et al., 2010; Lee, 2009). An important factor that may affect the relationship between Internet usage and perceived social support is Internet users’ personality. The most frequently studied characteristic was the extent to which someone was introverted or extraverted (Kraut et al., 2002; Schiffrin et al., 2010; Lee, 2009). There is reason to believe that the degree of extraversion may be predictive of Internet use. For instance, it could be argued that individuals who are high in extraversion might be very attracted to online communication as an opportunity to meet and talk with other people.

**RQ3**: Is there relationship between the amount of online communication and extraversion personality?

The size of social networks is another important factor that may influence
socially oriented Internet use such as email, social media, or instant messaging (Zhao, 2006; Boase, 2010; Wang & Wellman, 2010; Hampton et al., 2011). Zhao (2006) found that Internet users had contact with a higher number of friends and relatives than did non-users. This finding was particularly strong among heavy users of social media as opposed to passive media. Since social technologies are significant means through which personal networks are generated and involved, they may be particularly influential for the use of Internet based communication. Boase (2010) confirmed this theory and presented that composition of personal networks is an important factor of rural Internet adoption. Rural people who have larger personal networks are more likely to adopt the Internet than those who do not, because online interaction needs people who are available online. On the other way, online communication provides channels to increase the size of social networks. Wang & Wellman (2010) found that the increase in the number of friends who see or speak at least once a week was higher for those who used the Internet the most. Most recent study confirms that the use of new technologies including instant messaging and social media has a positive relationship to network size (Hampton et al., 2011). Those findings imply that size of social networks could be an important variable to influence rural Internet use.

RQ4: Is there relationship between the amount of online communication and size of social networks?

In addition to addressing the association between online communication and sociability variables, a third goal of this study was to determine the potential moderating role that sociability might play between online communication and perceived social support and community satisfaction. Based on the “rich get richer” model, people’s sociability and the structure of initial social relationships are considered to significantly influence the way in which they engage in online communication, and subsequently, affect the social benefits that they obtain (Kraut et al., 2002; Swickert et al., 2002; Lee, 2009; Schiffrin, et al., 2010). This study seeks to determine how the relationship between online communication and social support and community satisfaction differs for individuals who exhibit varying degrees of extraversion and have created varying sizes of social networks.

The majority of studies supported the rich-get-richer hypothesis (Kraut et al., 2002; Valkenburg & Peter, 2007) which states that extraverted people tend to use the Internet for social purposes, resulting in positive consequences on social capital.
In other words, extraverts have been found to use the Internet for more social purposes and experience greater social support and satisfaction as a result compared to introverts. An extensive literature has also documented the significance of social networks in increasing social capital.

Cohen (2004) showed the positive relationship between the presence of close confidants and success in coping with adverse events, dealing with existing health issues, and reducing susceptibility to additional health problem. Comprised primarily of strong ties, core networks provide broad forms of social support, including emotional aid and companionship and help during a crisis (Wellman & Wortley, 1990). The informal support of core network members is also important during emergency situations (Klinenberg, 2002; Hampton et al., 2011). Those findings imply that extraversion and social networks could be important variables to influence relationships between online communication, and social support and community satisfaction.

RQ5: Does the relationship between the amount of online communication and perceived social support vary according to extraversion and size of social networks?

RQ6: Does the relationship between the amount of online communication and community satisfaction vary according to extraversion and size of social networks?

Ⅲ. METHODS

1. Descriptions of Sample

The geographic focus for this study is a South Texas rural community. The current study utilizes the dataset from the survey research, *Community Life in the Information Age*, sponsored by the USDA. The survey questionnaire focused on general information of Internet use and people’s perception of satisfaction of community life, social support, and community trust, and their intention to stay in or leave the town. The survey was based on a random sample of residential addresses obtained from a commercial mailing list vendor. Because of language and literacy issues, face-to-face survey was conducted to heads of households 18 years of age or older in 2008. A total 798 respondents participated in the survey with 34.3% response rate. The sample size used in the analyses was 325, excluding Internet non-users’ responses, missing values on variables, and incorrect responses.
2. Measures

*Online communication.* Information about rural residents’ online communication is drawn from questions to ask how frequently respondents communicate online (Boneva & Kraut, 2002). In the survey, they were asked, “Using email, instant messaging, or social network sites, to what extent do you communicate with friends and family from your local community and in other communities?” Four questions consist of the scale and respondents were asked the frequency using a 5-point scale ranging from 1 (not at all) to 5 (a great deal). The items were coded to a 0 to 1 range and then averaged to create an index of online communication (Cronbach’s $\alpha = .82$, $M = .54$, $SD = .13$).

*Size of social network.* The network size was assessed by a single item to ask the number of overall social ties that people currently have in their local community and/or in other communities. The item adapted the questionnaires used in previous research to ask size of local and distant social ties (Kraut et al., 2002). Because of skewness of the data, outlier values were screened and the distribution of the values was logarithmically transformed to increase normality ($M = 2.77$, $SD = .92$).

*Extraversion.* Bendig’s (1962) Extraversion-Introversion scale was used to measure rural residents’ extrovert and introvert personality. Respondents were asked their level of agreement with each of the following statements: “I like to have a lot of people around me,” “I really enjoy talking to people,” “I like to be where the action is,” and “I am a cheerful, high-spirited person.” The scale ranged from 1 (strongly disagree) to 7 (strongly agree). The items were recoded to a 0 to 1 range and then averaged to create an index of extraversion (Cronbach’s $\alpha = .79$, $M = .80$, $SD = .14$).

*Perceived social support.* In order to measure rural residents’ perceived social support, this study used Zimet et al. (1988) social support scales. Respondents were asked 8 items to rate their agreement with the statements, such as “I have a special person who is a real source of comfort to me,” “My friends really try to help me,” “I can count on my friends when things go wrong,” “I can talk about my problems with my family,” “I have friends with whom I can share my joys and sorrows,” “There is a special person in my life who cares about my feelings,” and “I can talk about my problems with my friends.” The scale ranged from 1 (strongly disagree) to 7 (strongly agree). The items were also recoded to a 0 to 1 range and then averaged to create an index of perceived social support (Cronbach’s $\alpha = .85$, $M = .84$, $SD = .12$).
Community satisfaction. Rural residents’ community satisfaction was measured by Theodori’s (2001) community attachment scale. Using a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree), respondents were asked how much they satisfied with their community in terms of different conditions including education opportunities, recreational services, the availability of Internet services, the medical services, employment opportunities, and so on. The items were recoded to a 0 to 1 range and then averaged to create an index of community satisfaction (Cronbach’s $\alpha = .86$, $M = .53$, $SD = .11$).

IV. RESULTS

1. Descriptives

Before proceeding to the formal tests of the research questions, it was important to gain an understanding of the differences between those who did (n = 325) and did not (n = 400) use the Internet. Small differences would reassure us that the effects of Internet use tested in the subsequent multivariate analyses were not the result of a self-selection bias, that is, that those with higher positive attitude, extraversion, community satisfaction, and perceived social support happened to use the Internet more often.

Table 1 presents t-tests and chi-square tests between users and nonusers of the Internet on demographics, extraverted personality, network size, perceived social support, and community satisfaction. Ethnicity was not included in the comparison. Since the majority of the population in Zapata is Hispanic or Latino of any race (89.1%) and the sample reflects this ethnic ratio of the population, this sample is homogeneous in terms of ethnicity. There was no significant difference of gender between Internet users and nonusers. Not surprisingly, age, income, and education were highly correlated with being an Internet user. Younger rural residents are more likely to use the Internet than older residents. Rural residents who are currently using the Internet have higher level of household income. Higher levels of education were also positively related with Internet use. Most significantly, Internet users and nonusers did not differ in terms of their extraversion and community satisfaction. There was a difference, however, on perceived social support and size of social network, with Internet users reporting higher levels of social support and larger size of social networks.
Table 1. Differences between Internet Users and Nonusers in a Rural Community

<table>
<thead>
<tr>
<th></th>
<th>Users (n = 325)</th>
<th>Nonusers (n = 400)</th>
<th>Significance of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (female)</td>
<td>68.3%</td>
<td>71.1%</td>
<td>$\chi^2 = .73$, n.s.</td>
</tr>
<tr>
<td>Age (years)</td>
<td>37.01</td>
<td>51.51</td>
<td>$t = -12.29$, p &lt; .001</td>
</tr>
<tr>
<td>Income</td>
<td>3.79</td>
<td>2.10</td>
<td>$t = 14.71$, p &lt; .001</td>
</tr>
<tr>
<td>Education</td>
<td>13.51</td>
<td>9.45</td>
<td>$t = 17.12$, p &lt; .001</td>
</tr>
<tr>
<td>Perceived social support</td>
<td>.89</td>
<td>.85</td>
<td>$t = 3.61$, p &lt; .001</td>
</tr>
<tr>
<td>Community satisfaction</td>
<td>.55</td>
<td>.56</td>
<td>$t = -1.20$, n.s.</td>
</tr>
<tr>
<td>Size of social networks</td>
<td>2.98</td>
<td>2.67</td>
<td>$t = 4.49$, p &lt; .001</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.80</td>
<td>.81</td>
<td>$t = -1.15$, n.s.</td>
</tr>
</tbody>
</table>

2. Extraversion and Size of Social Networks

A correlation analysis was conducted to answer whether rural Internet users’ extraversion and size of social networks are related to online communication (RQ3 and 4). As shown in Table 2, extraversion and network size have positive relationships with the amount of online communication ($r = .25$, p < .01; $r = .12$, p < .05, respectively). The significant correlations were found between Regarding demographic variables and online communication. Age was negatively related to online communication ($r = -.30$, p < .01). It means that younger people are more likely to use the Internet for communication than older people. Income and education had also positive relationships with the time spent communicating online ($r = .19$, p < .01; $r = .12$, p < .01, respectively).

Table 2. Correlations between online communication, and network size and extraversion

<table>
<thead>
<tr>
<th></th>
<th>The amount of online communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (1 = female, 2 = male)</td>
<td>.004</td>
</tr>
<tr>
<td>Age</td>
<td>-.302**</td>
</tr>
<tr>
<td>Income</td>
<td>.191**</td>
</tr>
<tr>
<td>Education</td>
<td>.115*</td>
</tr>
<tr>
<td>Size of social networks</td>
<td>.122**</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.25**</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01
3. Perceived Social Support and Community Satisfaction

As shown in Table 3, the total variance in perceived social support and community satisfaction explained by the regression models was 26% and 6.8%, respectively. The block of demographic variables had less explanatory power compared to the sociability block, due to the strong relationship between size of social networks and extraversion. The two sociability variables, network size and extraversion accounted for 14% in the variance of the perceived social support and were positively related to perceived social support ($\beta = .14$, p < .05; $\beta = .24$, p < .001, respectively). On the other hand, only extraversion personality had a positive relationship with community satisfaction ($\beta = .15$, p < .05). Most importantly, contribution made by online communication to perceived social support was statistically significant, while no significant relationship was found between online communication and community satisfaction. The amount of online communication was positively associated with perceived social support. Specifically, the model predicted that the index of perceived social support was 17 percentage points higher for those with the highest score in the index of online communication compared to those with the lowest value.

Table 3. Regression Model

<table>
<thead>
<tr>
<th></th>
<th>Social Support</th>
<th>Community Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$T$</td>
</tr>
<tr>
<td>Gender</td>
<td>-.08</td>
<td>-1.49</td>
</tr>
<tr>
<td>Age</td>
<td>-.16</td>
<td>-2.77**</td>
</tr>
<tr>
<td>Income</td>
<td>.13</td>
<td>2.15*</td>
</tr>
<tr>
<td>Education</td>
<td>.04</td>
<td>.67</td>
</tr>
<tr>
<td>R² (%)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Size of social networks</td>
<td>.14</td>
<td>2.60*</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.24</td>
<td>4.41***</td>
</tr>
<tr>
<td>R² change (%)</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Online communication</td>
<td>.17</td>
<td>2.49*</td>
</tr>
<tr>
<td>Online communication*size of social</td>
<td>.12</td>
<td>1.67</td>
</tr>
<tr>
<td>Online communication*extraversion</td>
<td>.17</td>
<td>2.38*</td>
</tr>
<tr>
<td>R² change (%)</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Total R² (%)</td>
<td>26</td>
<td>6.8</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001
RQ5 asked if the relationship between the online communication and perceived social support varied according to extraversion and size of social networks. To answer this question, a series of interactions between online communication, and extraversion and network size were entered into the model of perceived social support. For the model predicting perceived social support, the interaction between extraversion and online communication was small but statistically significant. Specifically, the amount of online communication had a stronger relationship on perceived social support among more extraverted participants compared to less extraverted participants ($\beta = .17$, $p < .05$). However, there was no significant interaction effect of network size and online communication on the relationship between online communication and perceived social support. RQ6 asked if the association between the online communication and community satisfaction varied according to respondents’ size of social networks and extraversion. Using the same approach of entering multiplicative terms in the model for community satisfaction, no interaction achieved statistical significance.

**Figure 1. Interaction Effect of Extraversion on the relationship between Online Communication and Perceived Social Support**
V . DISCUSSION AND CONCLUSION

This study presents that the extent of online communication had a positive relationship with the amount of perceived social support, but had no significant relationship with community satisfaction. The interaction effect measured in this study shows the varying relationship between online communication and perceived social support, depending on the level of extraversion. The result showed that rural participants’ level of extraversion affected the degree to which that online communication accounted for the variance in the amount of perceived social support. Since more extroverted individuals are likely to be more sociable than less extroverted people, they may tend to be eager for maintaining relationships with social contacts known to possess qualities of interpersonal familiarity.

The significance of this study exists in exploring the ways in which social technologies are structured in rural Americans’ lives and expanding literature of this research field. The existing literature shows that Internet users who spend less time in family communication tend to maintain fewer local social ties, receive less social support, and report higher level of stress (Kraut et al., 2002). The positive relationship documented in this study between online communication and perceived social support may be partly explained by the fact that frequent online contacts with socially close and intimate friends and family enhance supportive social relationships. The previous study reported that online communication did not contribute to a significant increase in the exchange of support to physically distant ties, because distance between network members makes it difficult to provide many goods and services (Hampton, 2001). However, the present study implies that this new communication practice provides opportunities to strengthen social ties among people in physical proximity or distance and to make them feel a sense of social support. Long distance relationships can convey social support that does not require in-person contact, including emotional support, although it is difficult to provide goods and services relying on more physical access.

Another contribution of this study is that the findings show evidence to support the conclusion that pro-social perception and activities are positively associated with each other and they are not significantly changed by online activities. The present study did not find significant relationships between online communication and community satisfaction. As shown in Table 1, the mean value of community
satisfaction that Internet users and non-users reported is .55 and .56. This finding raises the issue of the rural participants’ original dissatisfaction in community and the role of Internet use. The mean value presents that the rural participants feel only moderate satisfaction in social conditions of their community. Without positive perception and satisfaction of the local environment, Internet usage does not appear to have significantly changed the decline in community interest or satisfaction. Collins & Wellman (2010) argued that the Internet is unlikely to fundamentally change rural participants’ local socializing and voluntary participation in their community. They report that the time spent online from home or work is not correlated with the rural residents’ sense of community, the number of voluntary organizations to which people belonged, and local socialization activities such as going to regular hangout or talking with neighbors. This study confirms the point of view which has been raised in previous research. Regardless of Internet use, the more positively people feel about their community, the more social activities they undertake, the more voluntary participation they engage in, and the greater their sense of community.

Finally, the interesting finding of this study is no significant interaction measured in the network size and online communication. While size of social networks has a positive correlation to online communication, it does not explain the variance of perceived social support according to the level of online communication. Based on the social networks paradigm, personal networks are directly related to the number of people with whom one can interact online so that they influence the degree of Internet usage (Boase, 2010). However, simply network size does not lead to perception of social support, including emotional aid and companionship. The mutual understanding and trust among the networks rather than the size are more closely related to the feelings in coping with the problems and reducing social isolation (Cohen, 2004). The finding implies that consistent contacts with core networks based on the higher levels of trust are more likely to yield the positive consequences of new communication technologies.

Despite the significance of study, some limitations should be addressed in future studies. A set of sample used in this study was limited to the Texas rural community. It may be difficult to generalize these results beyond that one setting due to the unique social settings of the research field. For example, the current research field is located on the Texas-Mexico border, about 90% of the local population are of Hispanic origin who are strongly attached to their family
members. In this study, findings related to close family ties and support epitomize the characteristics of core Latino values. These distinct family values may influence different patterns of online behaviors and different benefits from those characteristics of residents of other rural areas in America. Therefore, the findings of this study may, in part, reflect the uniqueness of the South Texas rural community, although this research could provide a case study to understand the nature of Internet use for communication and social support in rural locations.

With the prevalence of the new technology in rural areas, the time has come to identify how online communication integrates offline relations into online environments and how it is likely to afford the greatest increase in exchange of support among social networks in a rural context. The present study suggests that the Internet has affected the ways in which people connect with each other, eliminating the financial cost of long distance communication and reducing the time cost of contacting people who live far away. The rewards of using the Internet to communicate appear to come in the form of a significant increase in feelings of social support from existing social contacts. However, the Internet may not be the ultimate solution for non-existent neighborhood ties and interactions. Although scholars have continued to emphasize the role of the Internet for enhancing community interaction in a rural community, motivation to engage in the community is the significant and permanent criterion for commitment and attachment to the local community. When commitment to social relationships going beyond kinship and friendship is manifested in offline social life, more active engagement in community could be enacted in the online sphere.

REFERENCES


