Abstract

Previous research in computer-mediated communication's effect on social networks has generated questions about the role of weak ties in what was assumed to be a unique affordance of strong ties—obtaining effective social support. Eighty-eight college students completed a questionnaire based on their most recent Facebook status updates and the comments and likes those updates generated. Items queried participants' perception of each response as well as the participants' relationships characteristics with the responder. Strong ties were perceived to have significantly closer relationships and provided significant social support. However, weak tie relationships were more numerous than strong ties and were perceived by participants to provide social support that was equally significant. While the use of Facebook did not erode the importance of strong ties, this study found that traditional understandings of weak ties do not account for the strong social support afforded by weak tie relationships when mediated through social network sites.

The Weakness of Strong Ties: Online Social Support from Networks via Facebook

1. Introduction

The ability and benefit of one's social network to provide social support has been well-established. Earlier studies indicated the benefit of having nearby family and close friends (Adelman, Parks, & Albrecht, 1987; Griffith, 1985), while more recent research has identified the value of family and close friends for emotional well-being even at long distances (Johnson, 2001; Johnson, Becker, Craig, Gilchrist, & Haigh, 2009). However, the Internet has radically increased access to and exchange of social support (Cummings, Sproull, & Kiesler, 2002), particularly as users are given the ability to access multiple and geographically disparate social networks (Marwick & boyd, 2011). Research examining developing Internet tools like social network sites presents a need to reevaluate how— and more importantly from whom—social support is obtained via social media.

Strong ties have long been heralded as means of obtaining social support (Albrecht & Adelman, 1987; Granovetter, 1973). However, recent literature has emphasized the accessibility and utility of weak ties for social support, particularly online. For example, Rains and Keating (2011) found bloggers were able to receive social support from commenters even while connecting with relatively few strong ties. Although the initial conceptualization of strong ties included their unique ability to provide social support (Granovetter, 1973), findings seem to increasingly attribute social support to weak ties as well. This emerging discrepancy in the nature and affordances of ties calls for the re-exploration of strong ties and raises the question: Are SNSs altering the function of strong and weak ties?

This research sought to answer this question and resolve theoretical discrepancies that have emerged in tie and social support research by exploring access to strong and weak ties via a

social network site (SNS), Facebook. As SNSs connect individuals to both strong and weak ties

(Valenzuela, Park, & Kee, 2009), sites like Facebook afford a unique opportunity to empirically

assess how individuals are contacting their broad networks for social support. Exploring social

support in a popular SNS also presents a means to explore how and from whom social support is

received online—an area scholars (Wright, Rains, & Banas, 2010) have noted merits further

research. Examining social support receipt and seeking behaviors on SNSs presents implications

for network theory as well as social support and its resultant health benefits.

2. Literature Review

2.1 Tie Strength and Social Support

2.1.1 Tie strength. Weak-tie theory (Granovetter, 1973) has been helpful in

understanding various aspects of personal relationship behaviors based on the tie strength

connecting two network actors. Granovetter (1973) posited the relative strength of a relationship

between two individuals could be determined as strong, weak, or absent through the measure of

four variables: time spent together, the emotional intensity they share, the intimacy present

between the two, and the mutual service (often in the form of providing reciprocal support) they

provide each other. *Strong-tie* relationships are high in all four variables and marked by high

levels of trust, relational intimacy, and support; these ties often require close geographic

proximity to be maintained. Contrarily, *weak-tie* relationships are lower across the four

variables, and more easily (though infrequently) maintained between geographically distant

individuals than strong ties (Garton, Haythornthwaite, & Wellman, 1997). Finally, *absent ties* are

relationships for which all four variables are null. Generally, strong ties include close friends

and family members, weak ties include acquaintances and a broader friend network (Ballard-

Reisch, Rozzell, Heldman, & Kramer, 2011), and absent ties include individuals with whom communication is not maintained.

Granovetter (1973) articulated weak-tie theory to advocate for the underappreciated benefits of weak ties, and particularly their ability to offer access to diverse perspectives as well as connections to information generally unavailable from a person's strong-tie network. Though Granovetter (1973, 1982) repeatedly advocated the strength of weak ties for increased access to information and, in turn, greater social capital (cf., Putnam, 1995), strong ties were specified as unique and critical for facilitating social support between relational partners. Indeed, most research on social support has focused on the strength of strong ties (Rains & Keating, 2011; Wright & Miller, 2010), and has operated under the assumption that strong ties are uniquely able to provide social support.

2.1.2 Social support. Social support is a critical element and goal of human interaction. *Social support* can be defined as information and actions that cause a person to believe she or he is "cared for and loved… esteemed and valued… [and] belongs to a network of communication and mutual obligation" (Cobb, 1976, p. 300). Cutrona and Suhr (1992) conceptualized support in two broad categories encompassing five types. Action-facilitating support involves helping solve problems for the stressed person through advice, facts, or feedback (informational support) and/or providing needed goods or services (tangible support). Nurturant support provides comfort and consolation through expressions of caring and concern (emotional support), providing a sense of belonging with those of similar concerns (network support), and/or expressing the distressed person's value to others (esteem support). Social support research within the field of communication has been particularly interested in informational and

emotional support due to their frequency in support groups (Braithwaite, Waldron, & Finn, 1999) and communicative nature.

Vaux (1988) suggested social support is not only a set of behaviors but also a process of seeking, offering, and evaluating supportive behaviors. Whether understood as behaviors, a process, or both, it is clear social support is mediated through personal relationships (Gottlieb & Bergen, 2010).

2.1.3 The strength of strong ties. Strong ties have been repeatedly indicated as the primary providers of social support (Albrecht & Goldsmith, 2003; Griffith, 1985). Most commonly, strong ties have been conceptualized and operationalized as family and close friends (Albrecht & Adelman, 1987; Albrecht & Goldsmith, 2003). Access to and support from strong ties has been empirically associated with reduced loneliness (Serovich, Kimberly, Mosack, & Lewis, 2001) and reduced depression (Metts, Manns, & Kruzic, 1996). Fortunately, "strong, intimate ties can be maintained online as well as face-to-face" (Wellman & Gulia, 1999, p. 181) and allow individuals diverse opportunities to access strong ties for social support. Though strong ties can be maintained both online and offline, individuals are increasingly turning to the Internet to connect with other individuals from whom support may be obtained (Craig & Johnson, 2011; Wright & Miller, 2010).

2.2 Social Support via Social Network Sites

Research has indicated social support can be obtained from both strong and weak network ties via computer-mediated communication (Boase & Wellman, 2006; Valenzuela et al., 2009). Though previous research has documented the social support afforded by discussion forums (Walther & Boyd, 2002) and blogs (Rains & Keating, 2011), less research has explored social support via SNSs and the unique access to strong and weak ties they afford. Social

network sites are web tools that "enable users to articulate and make visible their social networks" (boyd & Ellison, 2008, p. 211). Significant research has indicated SNSs are not used to identify and establish new connections, but rather to maintain extant ties commonly created offline (e.g., Ellison, Steinfield, & Lampe, 2007; Haythornthwaite, 2005). As recent research (Ellison, Steinfield, & Lampe, 2011) has indicated social support may be sought and provided via Facebook, it is of particular interest how social support may be provided by the strong and weak ties available through the popular SNS.

Ellison et al. (2011) noted, "Close friends who connect through Facebook are likely to find it an efficient way to keep in touch" (p. 5). Indeed, findings by Subrahmanyam, Reich, Waechter, and Espinoza (2008) indicated about one in five SNS users reported their SNS use brought them closer to their friends, and Ross et al. (2009) reported social support as a primary motivation associated with Facebook use. Consequently, Facebook seems an excellent tool to access strong ties and, in turn, the social support they provide. In addition to strong ties, SNSs also facilitate weak ties.

Donath and boyd (2004) were among the first to acknowledge the ease of weak-tie connections with online SNSs communication partners. Their claim that weak-tie relationships are the primary target of social network communication has since been demonstrated and validated empirically (e.g., Steinfield, Ellison, & Lampe, 2008; Wright & Miller, 2010). As many users' hundreds of Facebook "Friends" (Tong, Van Der Heide, Langwell, & Walther, 2008) exceeds the total close friends one may meaningfully and cognitively manage at a given time (Dunbar, 1998), it makes sense that weak ties are predominant in SNSs. Studies have demonstrated how users often turn to Facebook to obtain new and diverse information or

perspectives (Ellison et al., 2011; Smock, Ellison, Lampe, & Wohn, 2011), a defining outcome of weak ties.

2.3 Weakness of Strong Ties In SNSs for Social Support

One challenge represented by the conceptualization of a SNS as a tool to access broad and multiple network resources is that it minimizes the role of strong ties accessed online. As Facebook allows users to access and interact with distant and diverse networks of individuals (Ellison et al., 2007; 2011), the popular social medium has altered the nature of interactions and relationships (Walther et al., 2010). Web tools like Facebook have altered how individuals spend time together and reciprocate support, and necessitate a reexamination of Granovetter's (1973) claim that social support is a unique affordance of strong ties.

2.3.1 Time spent together online and offline. Online, individuals can maintain a wide range of weak and strong ties to access to "a wide variety of resources" (Wellman & Gulia, 1999, p. 173). SNSs are excellent media to access weak tie networks and, "it is probable that the majority of Facebook friends are weak ties" (Stefanone, Kwon, & Lackaff, 2012, p. 458). For example, Manago, Taylor, and Greenfield (2012) found that among college students, Facebook friend networks were comprised of 21% close connections (friends, romantic partners, family), 18% maintained connections (old friends and romantic partners), and 51% casual relationships (acquaintances, classmates, coworkers, etc.). Consequently, we predict that because college students' Facebook friends are composed of more weak-ties than strong ties, a greater proportion of time on SNS is spent interacting (which we conceptualize as commenting and liking others' status updates) with weak ties online.

H1: A greater proportion of weak ties will respond to a user's posts with likes and comments than strong ties on a social network site.

In addition to accessing and interacting with a greater proportion of weak than strong ties, it is likely users spend more time interacting offline with weak than strong ties they have on SNSs. Haythornthwaite (2005) cautioned that SNSs are unlikely critical channels for close ties given the large number of other available channels As Ellison et al. (2007) explain, SNSs like Facebook allow users to maintain weak ties "cheaply and easily" (p. 1146) across great distances, and this specifically seems to be true in college student populations. Although SNSs may not be critical channels, it is still likely interaction on SNSs is echoed offline as well. Further, Antheunis, Valkeburg, and Peter (2010) found many users of the Dutch SNS Hyves use the site to learn about extant friends to guide future face-to-face interactions. Given the importance of time spent together to Granovetter's (1973) theory, SNS's unique weak tie connecting ability prompts us to hypothesize about tie interaction offline. As individuals have and can access more weak ties than strong ties both online and offline, we expect that (controlling for distance) offline, individuals will interact more frequently with weak ties than strong ties with whom they interact on Facebook. Consequently, we predict:

> H2: Individuals interact more frequently offline with weak ties who provide
>
> support on Facebook than strong ties who provide support on Facebook.

2.3.2 Reciprocity. Offline interaction has additional implications for online interaction. Because "Internet use supplements face-to-face and telephone contact" (Wellman, Haase, Witte, & Hampton, 2001, p. 444), we expect network ties may utilize multiple channels for interaction. Building on hypothesis 2, we extend our argument to predict increased reciprocation of support among weak ties online. As Wellman and colleagues (1996) suggest, those who connect online are often socially distant from one

another (p. 222). Considering Granovetter's (1973) claim that mutual service is a defining factor of strong ties, we alternatively suggest that because online interaction is known to occur frequently with socially distant, weak ties:

> *H3: Individuals more frequently reciprocate online interaction with weak ties than stronger ties from a social network site.*

2.3.3 Effectiveness of Support. A final reconsideration of the uniqueness of strong ties stems from the role of mutual service, and the ability of weak ties to readily provide effective social support, even in a lightweight manner. Because social media like Facebook encourage interaction from all participants (Walther et al., 2010), acquaintances only weakly affiliated with an individual may be able to readily provide significant but lightweight social support by simply posting a brief comment rather than expending significant social capital to provide support (Ellison et al., 2007). While one may need to expend significant time and resources to provide mutual service with a face-to-face strong tie (e.g., meeting a friend for coffee, co-commiseration), considerably less is required to be able to reciprocate service or social support via Facebook. Recent work (Rains & Keating, 2011) has suggested weak ties can provide effective social support in blogs; and the lightweight interaction in SNSs that allow weak ties to thrive suggests those weak ties may provide substantive social support. Guided by implications from previous studies, the final hypothesis predicts that, on Facebook, weak ties provide more effective social support thank strong ties.

> *H4: Weak ties will be perceived as providing more effective social support than strong ties on Facebook.*

3. Method

3.1 Procedures

We strategically conducted survey research into ties and social support among college students on Facebook. Using Facebook as a context for this research further allowed a naturalistic way to explore social support, commonly manifests as *comments*—text replies to an individual's status message publically-posted for the individual and others to read. Participants were asked to come to a research lab, where they were assigned a desktop computer and asked to use two separate browser tabs to sign into their Facebook account and begin an online survey. Participants were then asked to copy each of their last three Facebook status updates and paste the content of each update into an open-text response field in the online survey. For each status update, participants supplied the time and date of the posting, and how many commented on the post (ranging from *zero* to *five or more*). Based on the number of comments, the online survey automatically generated fields to ask participants a series of questions about specific individuals who they reported had replied or commented. For each of the last five[1] commenters on each update, the participant answered a battery of survey items (see Measures section below) regarding the commenter and the participant's relationship with the commenter. Finally, participants were asked questions about their own Facebook use, social support seeking, strong-/weak-tie preference, and demographic questions. To increase validity and accuracy of responses, participants were encouraged to use their Facebook account to obtain information about commenters to copy directly into the survey engine. All identifying information provided by the participant in the course of completing the survey was either removed automatically by the software when the survey was closed or manually by researchers prior to analysis.

3.2 Participants

Eight-eight students enrolled in an introductory course offered by the Department of Communication at a large Midwestern university participated in this study, receiving either

required course credit or extra credit in return for participation. College students are an excellent

population for our research given their geographic mobility and the transitional life stage they

represent. College students have broken away from established high school ties while creating

new and unique ties at college (Ellison et al., 2007) and are preparing to establish new ties in the

workforce. Moreover, when asked to recall when they sought social support in a time of crisis,

many respondents identify college as a time when significant social support is sought and

provided (Barrera, Sandler, & Ramsay, 1981). Given their proclivity toward social support and

ubiquitous use of Facebook, we conducted a survey of college students inquiring about their

Facebook network to test hypotheses.

Participants' age ranged from 18 to 49 (M =20.14, SD = 3.46) and participants reported

using Facebook an average of 4.85 years (SD = 1.46). Most participants were female (n = 64),

with one participant not disclosing gender. Most participants were Caucasian (n = 69), but also

were of Asian (n = 6), African American (n = 3), Latin and Native American (n = 5), and other

or multiracial (n = 5) ethnicity. Participants were drawn from across academic standings, and

included freshman (n = 30), sophomores (n = 28) and juniors (n = 17). Participants were drawn

equally from those belonging to sororities or fraternities (n = 45) and those who did not (n = 42)

with one participant not reporting. These demographics reflect the composition of course

enrollment, save for oversampling Greek-affiliated students.

From these participants, 261 status messages were collected (as two participants had only

recently joined Facebook, and had not yet generated three status messages), garnering 333

comments from participants' Facebook friends. Users rarely comment on others' status updates

(Köbler, Riedl, & Vetter, 2010), and as such comments have been previously operationalized as

forms of social support (Livingstone, 2008), and therefore these other-created messages served as the corpus of data for analysis.

3.3 Measures

Tie strength was measured using a single-item pictographic measure derived from Aron, Aron, and Smollan's (1992) Inclusion of Other in Self (IOS) scale. The IOS consists of seven sets of two circles (labeled as "Self" and "Other") that do not overlap (*1*) and progressively overlapping until the final image (*7*) depicts almost complete overlap. Participants were instructed to "Select the picture below that best describes your friendship with [commenter's name]." Though a single-item measure, given its directness and simplicity it has been validated across several prior studies (Aron et al., 1992; Cropley & Reid, 2008; Johnson, Haigh, Becker, Craig, & Wigley, 2008), and Aron et al. (1992), suggest the IOS serves as a reliable proxy for longer more cognitively taxing measures of relational closeness.

Frequency of interaction variables were assessed using two interval-level items. To assess how *frequently they interacted with each commenter face-to-face*, respondents used a 6-point scale ranging from Daily (1), Weekly (2), Monthly (3), Few times a year (4), Less than once a year (5), and Never (6), indicating frequency of face-to-face interaction. Responses were then reverse coded so that higher values indicate greater frequency of interaction. Additionally, we were interested how often individuals reciprocated social support in the form of reciprocating comments on other's Facebook profiles. Respondents were therefore asked to indicate *how frequently they responded to each commenter on Facebook* using a 5-point scale ranging from *Never* (1) to *Always* (5), indicating the frequency with which a participant reciprocates a commenter's behavior.

Effectiveness of social support received was assessed for each comment using a six item 7-point semantic differential scale created for this study. Item endpoint pairs included: "Not

Supportive/Supportive," "Not helpful/Helpful", "Hurtful/Not Hurtful," "Positive/Not Positive," "Encouraging/Not Encouraging," and "Not Insulting/Insulting," with the last three items being reverse coded. The scale was reliable ($\alpha = .83$) and higher mean scores indicate greater perceived social support received from a comment.

Geographic distance between a participant and each tie was assessed using a single, bivariate question asking, "Does [commenter's name] live more than 50 miles from your home?" This measurement bifurcated respondents' social networks into "near" and "distant," and following previous research's (Campbell, Marsden, & Hurlbert, 1986; Wellman & Wortley, 1990) assessment. Prior research has advanced 50 miles as a convenient cutoff for distinguishing when proximal FTF contact could be feasibly maintained on a daily basis (Johnson et al., 2008).

Finally, descriptive data and demographic information were collected. Respondents self-indicated their age, biological gender, ethnicity, and membership in a social Greek organization.

4. Analysis

The first hypothesis predicted a greater proportion of weak ties over strong ties would respond to an individual's SNS status message with social support, operationalized as comments. To test this hypothesis, we compared the total number of comments to a participant's status message from a weak tie to the total number of comments from a strong tie. To bifurcate weak and strong ties to test the first hypothesis, only relational ties identified by the participant as extremely *weak* (i.e., valued either 1 or 2 on the 7-point IOS scale) or extremely *strong* (i.e., valued either 6 or 7 on the 7-point IOS scale) were used for analysis. Fewer strong ties ($n = 54$) provided comments on participants' status messages than weak ties ($n = 102$). A chi-squared test

of difference revealed this difference was significant, χ^2 (1) = 14.769, $p < .001$, in the expected

direction. Thus, Hypothesis 1 was supported.

Due to the design of the data collection, there was concern that within-subject effects

may unduly influence results and conflate between-subject differences in subsequent analyses.

Consequently, analysis of covariance (ANCOVA) tests were conducted using each arbitrarily-

assigned participant's identification number as a covariate in the remaining hypotheses.

Covarying for the participant number enabled hypothesis testing for the predicted main effects

after controlling for intra-participant effects. Before conducting each ANCOVA, a test of the

homogeneity-of-regression assumption was used to evaluate the interaction between the

covariate and independent variable. The result of each test is reported with the appropriate

discussion.

The second and third hypotheses predicted relationships between tie strength and offline

and online interaction, respectively. To test H2, an ANCOVA was used to test for differences in

between weak and strong ties in their *frequency of face-to-face interaction*, covarying for

participant number and geographic distance (whether the person who liked/commented on the

post lived more or less than 50 miles from the participant). The interaction between participant

and frequency of face-to-face interaction was not significant $F(1, 322) = .248$, $p = .619$; however

distance did significantly interact with the frequency of face-to-face interaction, $F(1, 322)$

$=109.626$, $p < 001$, $\eta^2 = .254$. Controlling for the effect of geographic distance, participants

interacted more frequently face-to-face with social network site friends who were stronger ties,

$F(7, 322) = 22.282$, $p < .001$, $\eta^2 = .326$. Thus, H2 was rejected. Counter to our hypothesis,

participants interacted more frequently face-to-face with strong ties with whom they interacted

on Facebook than weak ties with whom they interacted on Facebook, regardless of geographic proximity.

Hypothesis three addressed tie strength and online interaction through mutual commenting responses, predicting individuals would *more frequently reciprocate online interaction* with weak ties than strong ties. ANCOVA results revealed no significant interaction within participants, $F(1, 324) = 2.02$, $p = .156$, $\eta^2 = .006$. The ANCOVA also revealed a significant main effect of online interaction, but in the opposite of the expected direction. Counter to the hypothesis, participants reported responding more frequently to stronger ties via Facebook comments, $F(1, 324) = 18.267$, $p < .001$, $\eta^2 = .283$. Therefore, H3 was not supported with results in the opposite direction expected. A *post hoc* test revealed frequency of face-to-face interaction and frequency of online interaction were significantly correlated $r(333) = .263$, $p < .001$, indicating respondents reciprocated online interaction via mutual comments more frequently if they interacted more frequently offline.

Finally, our fourth hypothesis predicted weak ties provided more effective social support in a SNS than strong ties. An ordinary least-squares (OLS) regression was performed between the dependent variable (supportiveness of comment) and the independent variable (tie strength). Regression revealed the model significantly predicted supportiveness of comment, $F(1, 331) = 4.604$, $p = .033$, $R^2 = .014$, $R^2_{adjusted} = .011$, and that relational closeness significantly predicted the perceived supportiveness of the comment received, $b* = .125$. However, this effect was again in the opposite direction as intended, so that stronger ties provided comments that were perceived as more socially supportive. Thus, H4 was not supported. Interestingly, a *post hoc* one-sample *t*-test revealed that both strong and weak ties' social support efforts ($M = 5.72$, $SD = 1.28$) were perceived as significantly above the scale midpoint (*4*) in terms of supportiveness,

$t(332) = 24.536$, $p < .001$, indicating that comments from both weak and strong ties are generally perceived as supportive in a SNS.

5. Discussion

Taken together, the tests of our hypotheses provide an interesting perspective into the nature of network ties, their social support, and the role of Facebook in facilitating social support. To help make sense of the complex and partially-supported hypotheses, we begin our discussion of the results by briefly bridging hypotheses and addressing potential connections among concepts. Next, we focus our discussion on the theoretical implications of our findings, specifically with regard to implications for weak tie theory and for online social support. Finally, we examine potential limitations for the present research.

5.1 Interpreting the Results

Given the abundance of recent studies indicating the strength of weak ties, this inquiry sought to revisit the strength of strong ties to determine how online tools and access to diverse networks may affect the conceptualization and role of strong ties in network relationships. Our results revealed mixed support for the hypotheses, suggesting that conceptualizing and operationalizing tie strength in an SNS is a more complex and nuanced concept than predicted either by Granovetter's (1973) weak-tie theory or our novel hypotheses. Consequently, we begin our discussion by synthesizing our findings.

Within SNSs, network ties were not equally accessible: Participants received support from a greater proportion of weak ties than strong ties via Facebook (H1). This finding is a reflection of the greater proportion of weak ties in an individual's network (Granovetter, 1973), and the relative ease with which weak ties are accessed online (Ellison et al., 2007; Garton et al., 1997). Online tools allow individuals to transcend geographic and temporal boundaries through

their virtual and asynchronous traits (Short, Williams, & Christie, 1976), and these characteristics are allowing individuals to access multiple networks and diverse network ties via SNSs (Marwick & boyd, 2011). In this regard, our findings suggest that SNSs are strengthening weak ties by making them more accessible, while suggesting SNSs (which are assumed to make our social networks visible) are weakening strong ties due to the relative scarcity of strong ties within one's social network.

Moreover, SNSs seem to be altering how individuals access ties online, while not altering face-to-face access to ties. Specifically, individuals interact with strong ties who provide support through Facebook more frequently offline regardless of how far apart they are geographically (H2), indicating individuals still spend temporal and monetary resources offline with social ties for transportation, social events, and commiseration, and concurrently more frequently reciprocate social support with strong ties (H4), consistent with weak-tie theory (Granovetter, 1973). Moreover, comments provided by strong ties were perceived as more socially supportive than comments from weak ties (H4). However, online, individuals access different network nodes for similar purposes. Online, individuals more frequently receive (H1) social support from weak ties than strong ties; further, the support received from weak ties while less supportive than that from strong ties (H4), is still considered socially supportive, indicating that weak ties can provide substantive social support via the popular SNS Facebook and contrary to weak-tie theory. Consequently, our findings suggest weak ties are strengthening when facilitated by SNSs, though mixed results make it more complicated to interpret whether strong ties are weakening online or being similarly maintained via SNSs. These findings have implications for communication theory, both for their network implications and for how they alter our understanding of social support in SNSs. We address these implications in turn.

5.2 Implications for Theory

     5.2.1 Weak tie theory. Granovetter's (1973) original conceptualizations of tie strength and relational effects do not cleanly map onto modern relationships mediated through SNS. The present findings indicate individuals receive more support from weak ties via SNSs, and social support is perceived effective whether it is offered by a strong or a weak tie. These findings suggest the need for a careful reexamination of the strength of strong ties given consistencies and inconsistencies with Granovetter's original explication.

     In some ways, strong ties still function as Granovetter proposed 40 years ago. Consistent with weak-tie theory, hypothesis 3 found individuals reciprocate communication with strong ties online significantly more than they reciprocate with weak ties online, just as they do in face-to-face relationships (H2). Because the same social resources are available both with and without Facebook, we find support for Ellison et al.'s (2011) claim that social interaction with strong ties are supplemented with the use of Facebook rather than harmed; in short, strong ties remain strong.

     However, our findings also suggest an inconsistency with weak-tie theory. Results (H4) reveal weak network ties exhibit characteristics traditionally associated solely with strong network ties. Although participants reported interacting more frequently with strong ties than weak ties, both online and face-to-face, even after controlling for the physical distance between the pair, our findings did not reveal difference in the social supportiveness of comments and likes from disparate network ties. Though hypothesis 2 and hypotheses 3 support previous conception of strong tie relationships, our findings illustrate weak ties can provide socially supportive communication (H4) through Facebook (H1), challenging weak-tie theory's explication of strong ties as requisite for accessing and acquiring social support (Granovetter, 1973).

These challenges to the traditional conceptualization of tie strength could be a function of the way we communicate with strong ties, with whom we presumably utilize more channels to communicate (Wellman et al., 2001). That individuals receive effective support from weak ties, with whom fewer channels are used to communicate, would be consistent with the propositions of electronic propinquity theory (Korzenny, 1978). As individuals' options for channels are limited, they make greater use of the remaining communicative channels to maintain perceptions of psychological closeness. That individuals maintain weak ties using the limited channel of a SNS would account not only for the increased propinquity (and therefore strength of weak ties) as compared to earlier studies, but also explain why comments and likes were equally-supportive from strong and weak ties, as the limited channels normalized the propinquity afforded through the channel of Facebook.

5.2.2 Online (SNS) social support. Individuals interact with ties via CMC differently than face-to-face (Cummings, Butler, & Kraut, 2002). However, our results are not wholly consistent with previous findings of online social support. Results indicate strong and weak tie connections both provide social support on a SNSs, contradicting the notion that online weak ties are not equitable with offline network ties (Cummings et al., 2002), and indicating individuals are able to readily access diverse ties online. Results support the idea that Facebook, and other SNSs, "lower the barriers to participation so that students who might otherwise shy away from initiating communication with or responding to others are encouraged to do so through Facebook's affordances" (Ellison et al., 2007, p. 1162). Our findings extend Ellison et al.'s conclusion by indicating SNSs do facilitate weak tie connections that can provide social support that is seemingly as effective as strong ties SNSs provided support.

We also find support for Haythornthwaite's (2005) claim that Facebook offer a multiplicity of channels to interact with strong ties, though this channel has strength in weak tie interaction as well. Facebook users interact differently with weak ties and strong ties; for instance, individuals respond significantly more frequently (H4) to strong ties on SNSs. SNSs are changing the way that we interact with those whom we consider close, supplementing offline interaction, but dividing time spent interacting online with weak ties, a division that does not favor the relatively rare strong tie.

Strong ties were proportionately less socially supportive (H1) than weak ties when considering the number of Facebook comments; yet this difference should be interpreted cautiously as weak and strong ties did not differ in the amount of perceived quality of support they provided (H4). As the comments of weak and strong ties provide equitable social support, regardless of content, the greater access to weak ties has significant implications for research into online social support. In many situations, such as life transitions including starting or leaving jobs, moving away to college, or within blended families, individuals may seek social support from known acquaintances rather than rely on support from deindividuated anonymous others (Craig & Johnson, 2011), and Facebook provides a venue for such support.

Wright and Miller (2010) contend that while individuals with "pressing health challenges" prefer weak-tie networks, those who are "relatively healthy individuals should be much more likely to prefer strong-tie support networks" (p. 513). Indeed, previous research has suggested individuals seek out weak and strong ties disparately (e.g., Albrecht & Goldsmith, 2003; Griffith, 1985). Our research suggests that individuals receive effective and helpful social support from both strong and weak ties by communicating online, but with greater access to weak ties.

5.3 Limitations and Future Research

Although single-item measures are valid when assessing distinct concepts and when questions are easily-interpreted (e.g., Miller, Allen, Casey, & Johnson, 2000), the use of single-item measures to assess several key variables may have limited the reliability of individual construct measurement in the present study. Moreover, future work should seek to include additional variables not included in the present research (a component of a larger study) due to concerns of participant overload; specifically, the constructs of emotional intensity and intimacy present between ties, both additional and untested elements of tie strength, were omitted in the present study due to fatigue concerns.

A second opportunity for future research is to expand on the present operationalization of the forms of social support in SNSs and how individuals seek to obtain that support. Following previous research (Ballantine & Stephenson, 2011), this study used comments to one's Facebook status as a unilateral form of social support and without consideration for the dyadic effect of a status message on the receipt of support. Just as our findings indicate that comments vary in their perceived social support, so too may individuals alter their social support seeking strategies on Facebook, strategically posting status messages or content to elicit social support. Further research could investigate how varying responses are perceived as either more or less socially supportive as a result of sender intentions. Future work may seek to codify specific status messages and assess how specific messages in one's status may elicit varying degrees or types of social support while using a more comprehensive corpus of comments and likes beyond the limit of five of each imposed in our present research.

6. Conclusion

Grannovetter's (1973) weak-tie theory was articulated to explicate the strength of weak ties, detailing how individuals with whom we have only light, peripheral relationships can provide relational benefit by allowing access to new information and perspective. In subsequent years, Granovetter's theory has been applied to research the growing reliance on weak ties to bridge disparate social networks (Burt, 1982, 1992) and increase social engagement (Putnam, 1995). However, as technology alters connection strategies (Ellison et al., 2007), scholars have focused on the strength of weak ties (e.g., Ellison et al., 2007; Granovetter, 1982) without consideration of the effect of technology on strong ties. This research sought to redress this paucity by empirically comparing how strong and weak ties are accessed online, specifically in the popular social network site, Facebook, and how they are used to obtain social support. Our findings indicate that with regard to social support (a concept originally considered unique to strong ties), strong ties are not necessarily weakening--strong ties provided significant social support for our participants. However, as weak ties grow in strength (weak ties provided social support perceived as equally supportive to that provided by strong ties in the present data), our findings do demonstrate a weakness as strong ties are less frequent and accessible on the SNS than weak ties. With hundreds of ties from diverse networks available on sites like Facebook, there is a deficit of strong ties that suggests a relative weakness of strong ties as compared to weak ties online. Consequently, just as recent research has called for a reexamination of the concept of social capital in virtual networks (Burke, Kraut, & Marlow, 2011; Ellison et al., 2007; Ellison et al., 2011), our findings call for a reexamination of tie theory and the concept of weak and strong ties in virtual network. As the configuration of networks and access to their various ties change, so too does how individuals utilize these ties, and CMC affords new perspectives

and opportunities to further explore the nature of network ties unencumbered by geographic

distance or chronemic limitations.

Endnote.

[1]Given concerns of participant fatigue and that the study focused on between-subjects effects, certain constraints were artificially built into the research protocol. Specifically, we limited data collection to participants' last three status message to ensure an adequate sample of status messages were obtained, and network interactions were limited to five comments to obtain potentially socially-supportive interactions with others on Facebook. Although more data and interactions could have been selected, the protocol collected over a thousand data points and therefore allowed sufficiently for statistical hypothesis analysis.

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