The effects of social networking sites on the acquisition of social capital among college students: A pilot study

George Konetes
Matthew McKeague
Indiana University of Pennsylvania

Keywords
social networking, social capital, networks, actors, structural agents, SNS.

Abstract
This pilot study aims specifically to explore whether or not university social networking site (SNS) users are making networking decisions to further their social capital or to create more balanced networks by making decisions based on common traits and interests. This study centers on the hypothesis that graduate student use SNS more to acquire social capital than undergraduates and that undergraduate students use SNS to form balanced social networks based on commonalities more so than graduate students. Differences are expected based off of demographic and psychographic variations between undergraduate and graduate students. For the investigation, an online survey was sent out via university email to undergraduate and graduate students inquiring as to their basic demographics, SNS use and delivering a social capital and commonalities instrument. Despite directionality in the data, no significant differences were found between undergraduate and graduate student networking decisions in terms of social capital and common interest acquisition habits. However the social capital instrument was found to have a high degree of reliability and potential for further use.

Introduction
Goal of the Study
As college students have been found to utilize social networking sites over nine times more than the average population (Raacke & Bonds-Raacke, 2008), this study was prompted to examine various social aspects of that high degree of use. The goal of this pilot study is to determine how students are using SNS in terms of advancing social capital and furthering common interests. This investigation is designed to test a research methodology and two instruments measuring whether or not networking decisions are made in order to obtain social capital or to achieve more balanced networks via seeking commonalities. The critical focus is centered upon the concept of social capital acquisition habits measured through SNS with social balance theory acting as an analytical lens to classify various societal effects. This study targets college students both graduate and undergraduates in an attempt to better gauge the differences and similarities of their networking habits within the theoretical framework defined. Both of these student populations have been included based off of previous social networking studies showing that the proportion of undergraduates versus graduates in higher education is unequal (Gross & Acquisti, 2005). While undergraduate students are typically coming out of high school, graduate students are returning to an educational environment for reasons ranging from higher wages (AAUW Foundation, 1999) to the changing job market (Bishop, & Spake, 2003). These differences in demographics and psychographics have led the researchers to believe that graduate students will use SNS for more practical purposes related to acquiring social capital, while undergraduates use SNS for more of the social aspect of communicating with friends based on shared interests and commonalities.
**Definition of Terms**

The following terms are defined to unify the concepts and research presented hereafter.

*Social networking sites*. Referred to as SNS, they are online virtual spaces where people of related interests gather together to share ideas, have discussions and further the pool of individuals from whom they have access to communicate with (Raacke & Bonds-Raacke, 2008).

*Balance Theory*. A social psychological theory developed by Heider (1946) which states that individuals generally seek relationships that are balanced in terms of shared positive relationships and attitudes, as well as shared negative attitudes. Where in essence, people with common likes and dislikes tend to group together and form social bonds (Robins & Kashima, 2008).

*Social Capital*. Refers to the general benefits one receives from their own social relationships that can be manifested in terms of emotional well being, physical comfort, academic and professional advantages, as well as overarching, less personal indirect effects, such as improved public health and reduced crime rates (Steinfield, Ellison, & Lampe, 2008).

**Significance of the Problem**

Information garnered from this investigation will provide insight concerning social behaviors in the quickly developing field of online social networking. In learning more about the relationship of social capital and balance theory to networking habits, information is gained that may lead to a deeper understanding of the impact of the pervasive use of SNS on society and behavior. In general this study applies balance theory and social capital to better understand why and how students are using SNS from a perspective that may be transferable to other populations. Gaining deeper knowledge in this specific area may help explain some of the practices of the college population which uses online social networking sites over nine times more than the world average (Raacke & Bonds-Raacke, 2008). Individuals between 18 and 24 years old report spending more time with new media than watching television (Broeck, Pierson, & Lievens, 2007) as it can become a part of a stable routine and ever-present online community (Taylor & Harper, 2003; Boyns & Stephenson, 2003). Interacting and forming online friendships is changing the ways in which humans communicate.

**Contextual Background Literature**

**Synthesis of the Literature**

The use of SNS has been found to have positive effects with the development of personal identity, self-esteem and social capital. Social networking sites are being used as a place to build personal identity, self-esteem and social capital, however along with the benefits of these sites come new concerns, issues and anomalies. SNS have become staging grounds to test and implement personal identity among youth who desire a safe zone where they can experiment free from the scrutiny of authority figures. An increased level of self-esteem, especially among users with poor self-esteem, is also a trend that is stemming from increased use of Facebook and other sites. In addition, the development of social capital seems to be more heavily reliant upon small network clusters, which are just as prevalent offline as online, revealing that SNS are only of small value for building social capital.

**Body of the Literature**

Personal identity development and projection is a trend that SNS are helping to facilitate in new ways, and with it comes unique social issues and concerns. Affinity for self-presentation is often a mark of adolescence, and SNS use has made it possible for one’s own display of personality to reach a larger audience than previous generations (Livingstone, 2008). High school and college students are using SNS as a means to display their own personal identities to the world (Boyd, 2007). However in addition to projecting identity, SNS are being used as a proving ground to try out various identities and to sift through cultural and contextual cues (Greenhow, et al., 2009). Students are using Facebook and other channels to develop their identities,
beliefs and stances on various issues such as politics, religion, and work, as well as to pioneer and develop intimate relationships (Pempek, Yermolayeva, & Calvert, 2009). These SNS are being used for various reasons, one of which is because they offer a type of safe zone where their choices and forms of self-expression do not fall under the scrutiny of parents, teachers and unwitting peers (Greenhow, et al., 2009). And though much of this behavior is considered somewhat natural, various factors such as unseen audiences are altering social dynamics and creating complications in personal interactions offline (Boyd, 2007).

Self-esteem, personal validation and value are positively affected by the use of Facebook for many users, especially those who have a low self worth. Among SNS, the use of Facebook in particular has been found to increase users sense of personal belonging among college students. Also, this sense of belonging has in and of itself been positively correlated with academic performance (Greenhow, Robelia, & Hughes, 2009). This effect is seen both from increased personal self-esteem as well as increasing the social capital of each student (Steinfield, et al., 2008). However the users who benefitted the most in terms of self-esteem as a result of using Facebook were those who had low self esteem prior to using SNS (Ellison, et al., 2007). Users with high self-esteem saw little benefit from Facebook use, but those who had low self-esteem benefited much more. One explanation for this effect is that SNS help reduce barriers that may hinder students with lower self esteem from networking (Steinfield, et al., 2008). Offline feedback from networked associates is considered of value and comfort due to the nature and relationships associated with the information (Wellman, 2007). Feedback and comments obtained from networked friends on Facebook seem to have a similar effect of self-validation despite the value of the comments or the relationship with that particular posting. This anomaly points toward emotional and identity development based upon the views and perceptions contained in the feedback of others. Though this concept is not limited to SNS, it is notable that when online, the source of the feedback becomes less valuable than the feedback itself (Pempek, et al., 2009).

Despite the increased use of social networking sites, smaller communal circles which often form using the principles of balance theory, are responsible for the majority of added value and social capital. Small social networks have stood and continue to stand as the foundation of social networking in terms of individuals that are trustworthy, helpful and add value to one’s own life (Wellman, 2007). Even with the advent of large scale SNS, smaller clusters are emerging from the large networks of college students, as students spend a significant amount of their SNS time networking with close friends and associates (Ellison, et al., 2007). According to Steinfield, Ellison, & Lampe (2008) many college students do use Facebook to generate social capital by maintaining relationships with individuals that would fade away without the help of SNS, however according to Wellman (2007) the greatest value comes from a few close friends that would remain close regardless of SNS use. These few close connections are usually made up of individuals with homogeneous key attributes that subsequently endear them to their friends (Faiers, Cook, & Neame, 2007). Small clusters of network connections begin to form around common ideals, attitudes and beliefs where people feel secure going to one another for advice, counsel and comfort (Goodreau, Kitts, & Morris, 2008). These connections result in network relationships that model balance theory, as the common positive connections create higher levels of network stability and lower levels of social dissonance (Faiers, et al., 2007; Levitan & Visser, 2009).

Theoretical Framework
The major theoretical concept driving this study is the application of social balance theory to college demographics’ online social networking habits. According to social balance theory, individuals make networking decisions based upon common traits and interests in order to form networked groups that tend to be more comfortable and homogeneous in various ways (Robins & Kashima, 2008). The major hypothesis of this study states that graduate student use SNS more to acquire social capital than undergraduates and that undergraduate students use SNS to form balanced social networks based on commonalities more so than graduate students. This
deviation is hypothesized to stem from a developing desire to increase one’s social capital which is experienced as students mature and become more aware of the value of having network contacts which may offer professional or academic benefits. Undergraduate students are also likely to have had more exposure to SNS growing up and have had more experiences regarding identity and social development (Greenhow, et al., 2009) causing them to view SNS as a common social outlet while graduate students may be using the sites with a more specific intent for value adding networking decisions. In order to test this hypothesis a comparative analysis approach was adopted which compares graduates to undergraduates using a commonalities instrument and a social capital instrument. This technique is designed to discern if there are differences between the two groups concerning the two created instruments and ultimately evaluate this conceptual application of social balance theory and social capital acquisition.

Critique of the Literature
Though much research has been done concerning each primary aspect of this study including commonalities, social capital, balance theory and social networking sites, no research could be found that ties the areas together. Within the current literature base there is also a deficit of quantitative investigations. The field of social networking and the theories involved date back to before Heider’s (1946) work concerning social balance theory, however, the rapid if not overwhelming development of online social networking has outpaced research efforts in various areas due to the magnitude of potential networks and subjects available. This study seeks to add to the conceptual void in the literature and pioneer into the quantitative aspects in order to encourage additional research in this area.

Methods
Sampling
In order to test the research hypothesis, 500 undergraduate and graduate students were surveyed and given the social capital and social commonalities instruments designed to ascertain the degree to which they create new network ties on SNS to further their social capital and the degree to which they make network ties to obtain more balanced networks based on reinforcing their own common interests or disinterests. The survey was engineered to provide quantitative data and was administered to a randomly selected sample of students at the Indiana University of Pennsylvania (IUP) via university email using Qualtrics research software. Qualtrics is an online based software application where various types of survey instruments can be developed and pretested before being distributed through individualized linked via the university email system. IUP is a university in western Pennsylvania with approximately 14,000 students, of which 2,380 are postgraduate. This university draws students with diverse demographics from across the tri-state area, providing a desirable mix of subjects that should yield transferable results. The sample was stratified to be comprised of approximated one-third graduate students (167), and two-thirds undergraduates (333). Upon university Institutional Review Board approval, the Applied Research Lab (ARL) on campus provided the random stratified sample from their database containing the master email list of the student body. The undergraduate and graduate students were proportionally selected in order to maximize undergraduate responses since they outnumber graduate students nearly 5 to 1, but also to return enough responses from graduate students to provide sufficient data for analysis comparing and contrasting the two groups.

Instrument
To address the hypothesis, the survey instrument consisted of 10 Likert-scale items that are available in Appendix A. These items required participants to rate a series of characteristics’ influence on whether or not they would add a new friend or contact to their social networking main page. Items included demographical attributes such as current job or education level as well as potentially beneficial qualities such as perceived advice or skills of a prospective new friend. Each of these items were on a 4-point scale from Strongly Influences to Does Not Influence. The researchers used Likert scales in order to investigate social capital because such
a research tool is an effective means to obtain precise information on beliefs, opinions, attitudes, and values of a group (Berger, 2000; Vogt, 2007). A forced, non-neutral response was selected to prevent respondents from selecting safe options when dealing with potentially sensitive issues of influences of adding a new contact (Lodico, Spaulding, & Voegtle, 2006).

In accordance with the assessment of Goodreau, Kitts, & Morris (2008) which describes grouping around shared attributes within the framework of balance theory, items were selected for the commonalities instrument that correlated with visible attributes displayed on the primary SNS of the day such as Facebook. The social capital instrument was developed by drawing from concepts discussed by Steinfield, Ellison, & Lampe (2008) concerning potential advantages that the subject may hope to acquire through the formation of a network connection. The instrument items were created with either direct ties to visible items displayed on the current incarnations of the primary SNS sites at the time of the study or with indirect ties which could be inferred based upon items that were visibly displayed.

Data Collection
Subjects received an email with an informed consent statement and a link to the online survey hosted by IUP’s Qualtrics service. Students who failed to respond to the email were automatically sent a reminder email containing the same information with the addition of a line of text reminding them to complete the survey. A total of three reminder emails were sent out during the one month data collection window in order to maximize student responses. Subjects were then asked to provide simple and brief demographic information such as sex, age, and student status. Subjects were asked if they use SNS and if students identify that they do not use online social networking sites in any capacity then the survey was immediately terminated at that point. Following these preliminary questions the primary instrument was delivered being comprised of two separate instruments which were blended together and then separated out again once the data had been collected. This measure consisted of a series of questions asking subjects to rank how certain factors impact their decisions to network with other individuals. One instrument attempted to gauge how commonalities influenced network decisions and the other attempted to gauge how social capital influenced networking decisions. Each survey response was then instantly and automatically downloaded to a secure database for analysis. The Qualtrics software protects the identity of all respondents making it impossible to determine who responded or what data they provided. In addition to protection of confidentiality, there were no significant ethical or safety issues to be dealt with. Dissatisfaction with coming to the realization of one’s time spent using SNS or reasons for making network contacts was the only significant concern identified.

Data Analyses
There was a 13.4% response rate from the 500 students surveyed totaling 67 subjects who started the survey. Of these, 50 total subjects reported using online social networks and completed the entire instrument. Of the respondents 73% were undergraduate students and 27% were graduate students. Of the two instruments used to gauge social capital and commonalities, the social capital measure was found to have significant internal reliability with a Chronbach’s Alpha of $\alpha = .858$.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Social Capital and Commonalities Means</th>
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<tbody>
<tr>
<td></td>
<td>Social Capital Mean</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>2.6147</td>
</tr>
<tr>
<td>Graduate</td>
<td>2.5688</td>
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</table>

The commonalities instrument, which was designed to measure the application of balance theory was not shown to have significant reliability and after singling out the strongest available questions of the measure an interclass correlation of .423 was found. In measuring the influence
of making network connections based on furthering social capital, undergraduates returned a mean score of 2.6147 while graduate students returned a mean score of 2.5688, as shown in Table 1. A lower value constitutes greater importance placed on social capital, however no significant difference was found between graduate and undergraduate students. In measuring commonalities, undergraduates returned a mean of 2.5855 and graduate students returned a mean of 2.6719. A lower value indicates greater importance placed on commonalities, however again no significant difference was found between graduate and undergraduate students. Despite there being no significant differences determined, directionality which indicates a potential trend that is not statistically significant, was found in favor of both aspects of the hypothesis. Additionally no significant results were found concerning various permutations of the ancillary data obtained in regards to the social capital or commonalities instruments.

Limitations of the Study
The limitations of the study include small sample size and a limited scope. A small sample is due in part to this being an pilot study, however despite the size, the stratified random sample and clear-cut survey methods add a measure of validity to the data. It should also be noted that at the time of this study the sampling limit imposed by the ARL was 500 total students and this limit was the number used. The response rates experienced in this study are also not a-typical for this university population when incentives were not offered, thus the lack of resources available to provide incentives functions as an additional limitation which may have impacted the sample size.

The narrow scope of this study is purposive in order to focus on specific aspects surrounding social capital acquisition. Though this does limit the ability to compare results with other studies, there is also general information gathered that is of a broader scope and can be evaluated within the context of the current literature. There is not a great deal of research from which to draw on in the area of social capital acquisition among online social networks, as it is a somewhat unique concept in a field that is rapidly developing.

Discussion
Outcomes
This study has laid the groundwork for a larger scale investigation by demonstrating that the hypothesis is viable and more significantly by developing and validating the social capital instrument. Considering the major limitation of sample size which was further broken down into the graduate and undergraduate groups, it is not surprising that the results were not found to be significant. This limitation also inhibits comparative results with similar studies measuring social capital and commonalities. There are however numerous studies from the literature, (Steinfield, et al., 2008), which discussed emotional and affective social behavior in high school and college students SNS practices that would tend to coincide with the directionality indicated in the data of the demographics’ networking practices. There is difficulty in drawing conclusions from these coincidental aspects without having significant findings. The literature also points towards the social capital acquisition based habits of adults in their networking practices which does seem to be supported by the directionalities of the data however again without a significant finding no firm statements can be made concerning this phenomenon. Though these directionality findings in the data are not statistically significant, they do add a measure credibility that suggest the hypothesis may still be feasible.

One of the most valuable results of this pilot study is the validation of the social capital instrument. With a significant Chronbach’s Alpha of $\alpha = .858$, this scale is useful for further research and testing in the field, (see Appendix A for complete instrument). Even though the commonalities instrument did not prove significant in terms of reliability, valuable information was obtained which may permit a purposeful redesign of the instrument for future research. Although the data obtained from both of these instruments did not prove significant, the mean of the data from both measures did support the hypothesis which again adds credibility and feasibility to the instruments and theoretical foundation. With additional research and testing the
Lessons for Future Research

In considering applications for future research along the lines if this study, it may be conceivable to duplicate this methodology and theoretical constructs with the following refinements: If the major limitation of sample size were to be alleviated and a more reliable commonalities instrument constructed then this study may be repeated to yield more insightful and valuable results. Collecting an equal or representative proportion of undergraduate and graduate students may also be helpful as the proportional selection factor may not be necessary in studying the intended traits. The commonalities instrument could be refined by taking a step backward and conducting a small open ended survey focused on asking the subjects which qualities and common traits they find valuable in selecting a new network contact. The traits discovered by the survey could then be cross referenced with those detailed in a thorough literature review specifically searching for those types of traits. This approach would act as an additional validity check as well as provide a list of relevant traits that are currently on subjects' minds within the target population. These traits could then be grouped and tested for reliability as an instrument.

A potential improvement for future methodologies in terms of response rates may be to alter the survey distribution method in order to include non-material incentives. A method to accomplish this change in distribution in order to offer these incentives may be to deliver the survey through individual course instructors who could then offer bonus points to participants or to enter participants into a drawing for a prize. This may serve to complicate distribution and instrument coding procedures, though it may greatly increase response rates and enable the researchers to better target the desired sample population. The link to the instrument being delivered by the instructor may in itself provide a higher degree of response without incentives due to aspects of familiarity and authority within the teacher to student relationship.

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References


Appendix

A. Social Capital Instrument

When considering whether or not to add a new friend/contact whom you do NOT know offline very well, How do the following things influence your decision?

<table>
<thead>
<tr>
<th></th>
<th>Strongly Influences</th>
<th>Influences</th>
<th>Somewhat Influences</th>
<th>Does Not Influence</th>
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<tr>
<td>Their current job</td>
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<td>Their career goals</td>
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<tr>
<td>Their level of education (i.e. high school, bachelors, masters, etc...)</td>
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<td>They have knowledge or skills that you consider valuable</td>
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<td>You feel they could give you good advice or council about something at some point</td>
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<tr>
<td>They have friends that you would like to communicate with at some point</td>
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<td>They are in a job or position that could benefit you at some point</td>
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<td>They have professional associations that you consider valuable</td>
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<td>Your relationship with them could be mutually beneficial</td>
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<tr>
<td>They have influence in social groups or activities you consider valuable</td>
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