# A STUDY ON THE MOTIVES OF HIGH SCHOOL AND UNDERGRADUATE COLLEGE STUDENTS FOR USING THE SOCIAL NETWORK SITE FACEBOOK

## Dissertation

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#### **ABSTRACT**

An online survey conducted at a mid-Atlantic university and two high schools located in close geographical proximity sought to determine the motives for using the social network site Facebook.com. A redesigned instrument based upon the Interpersonal Communication Motives (ICM) scale used in past uses and gratifications research measured motivations for Facebook use. Motives of undergraduate college students and high school students for using Facebook attempted to predict attitudinal and behavioral outcomes of Facebook use. The study compared the descriptors of the behavioral and attitudinal outcomes of high school students to the descriptors of the behavioral and attitudinal outcomes of undergraduate college students. High school students were motivated to visit Facebook to pass time. In contrast, relationship maintenance was the most salient motive of undergraduate college students to visit Facebook. Four of six behavioral and attitudinal questions on the instrument failed to produce statistical significant differences between undergraduate college students and high school students. The amount of Facebook use, frequency of Facebook use, satisfaction with Facebook, and attachment to Facebook were not notably different. Two of the six behavioral and attitudinal descriptors did show statistically significant differences. These included the duration of Facebook use and amount of Facebook friends. Undergraduate college students had been using Facebook for a longer period than high school students. High school students had significantly more friends on Facebook than undergraduate college students.

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# A STUDY ON THE MOTIVES OF HIGH SCHOOL AND UNDERGRADUATE COLLEGE STUDENTS FOR USING THE SOCIAL NETWORK SITE FACEBOOK By Michael J. Hart

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#### **CHAPTER 1: INTRODUCTION**

Rapid growth of popular online communication mediums has introduced new ways for students to communicate. The vast array of social communication changes introduced by the relatively young prologue of social network sites mandates persistent and voluminous research. This study assessed the differences between the gratifications and the uses of high school students and undergraduate college students on the social network site Facebook. Specifically, it attempts to collect the uses and gratifications of students during a unique period of their life. It also seeks to find if there are differences between the behavioral and attitudinal outcomes produced by their underlying motives. Prior research suggests that further studies are necessary to determine if uses and gratifications are relational to students at different levels of education.

#### Background of the Study

New types of communication influenced by rapidly changing Internet-based technologies have spurred research on mass communications theory (Ruggerio, 2000). During the period of 1988 to 1998 the Internet grew nearly 100 percent every year. As of January of 1998, it was estimated that 102 million people were using the Internet globally (Bastian, 1998). In 2007, the Pew Internet & American Life Project forecasted that between 165 and 210 million users were surfing the Internet in the United States alone (Fallows, 2007). Between November of 2006 and December of 2009, the Pew Internet and American Life Project found that teenagers and young adults were consistently the highest users of the Internet. Research from September of 2009 showed that 93% of teenagers ages 12 to 17 were using the Internet while a study from December of 2009 indicated 93% of young adults ages 18 to 29 were using the Internet. During the same

time, 81% of adults ages 30 to 49 were using the Internet and 38% of users over the age of 65 were using the Internet (Lenhart, Purcell, Smith, & Zickuhr, 2010).

In a study published in August of 2000 by the University of California, Los Angeles (UCLA), the Internet was rated higher than both television and radio for information seeking. Over two-thirds or 67.3 percent of respondents believed the Internet was an important or extremely important source of information. Television ranked second at 53.1 percent and radio third at 46.8 percent. UCLA researchers concluded that after only five years of prevalent use as a communications tool, the Internet was already an important source of information for online users (UCLA, 2000). Furthermore, Valkenburg, Peter, and Schouten (2006) reported that the Internet has multiplied the opportunities for adolescents to form and maintain relationships. Social network sites, in particular, have provided a prominent medium for relationship formation (Valkenburg, Peter, & Schouten, 2006).

As the Internet quickly grew, many key online technologies began to take shape. In 2008, social networking sites were among the fastest rising most visited websites. CBC News reported that the popular social networking website Facebook jumped from the 60<sup>th</sup> most visited website to the 7<sup>th</sup> most visited website in 2008. ComScore, a leader in digital measurement and benchmarks, found that social networking sites were among the most significant growing websites worldwide at the time of its research (Skiba, 2008). During this same year, the search engine Google announced that it had collected and indexed one trillion unique Web addresses (Stross, 2010).

In January of 2009, the Pew Internet and American Life Project expected that the number of American adult Internet users with a profile on an online social network site

had quadrupled over the past four years from 8% to 35%. Of online users, 75% of adults 18 to 24 had a social network profile. As the age of online users grew, the number of social network users steadily declined. Over half or 57% of online adults ages 25 to 34 had a social network site profile while only 10% of online adults 55 to 64 had a profile (Lenhart, 2009).

One social network site in particular has become one of the most visited Internet websites in the world. Initially started in February of 2004 by Mark Zuckerberg, the social network site Facebook.com has become largely popular. Its mission has been to "give people the power to share and make the world more open and connected" (Facebook.com, 2009). Millions of users are empowered to communicate with friends, share information such as photographs and videos, and learn more about the individuals they meet on Facebook every day (Facebook.com, 2009).

At the time of data collection for this study Facebook.com had over 400 million active users. Approximately 50% of Facebook's active users log into Facebook on a given day. In addition, users have historically spent over 500 billion minutes per month on Facebook (Facebook, 2010). As of spring of 2010, Facebook had become the most popular social network site in the world. Internet market research performed by Google AdPlanner compiled data from a number of different sources released in April of 2010 that identified Facebook.com as one of the most visited websites in the world. The research revealed that the popular social network site had accumulated 540 million unique visitors worldwide and collected 570 trillion page views (Bosker, 2010).

Growth associated with this online movement influenced communication scholars to use a prior communications model labeled as the Uses and Gratifications Theory.

Uses and gratifications are the motivations behind why an individual makes a media selection and the satisfaction that the individual obtains from this choice (Joinson, 2008). The Uses and Gratifications Theory assumes that individuals use media to gratify wants or needs. Its primary dependence is on the motives for certain types of media use, the factors that influence these motives, and the outcomes from media connected behavior (Papacharissi & Rubin, 2000, p. 176). Essential to the uses and gratifications theory is the activity of an individual. Motives are fundamental components of audience activity and are the universal dispositions defined by uses and gratifications theorists that influence an individual's actions. Scholars argue that user motives influence the actions users take to fulfill a need or want (Papacharissi & Rubin, 2000, p. 178).

Research identified interpersonal needs in particular to study people's motives for using the Internet (Papacharissi & Rubin, 2000). Rubin, Perse, and Barbato (1988) developed the Interpersonal Communication Motives (ICM) scale based upon previous research that identified six motives for interpersonal communication. These include escape, relaxation, control, inclusion, pleasure, and affection. In addition to these interpersonal needs, Flaherty, Pearce, and Rubin (1998) found that people use computers to meet needs met by traditional media such as entertainment, passing time, and information seeking. Sheldon (2008) found many people use the social network site Facebook to meet similar needs including relationship maintenance, entertainment, and passing time.

Social and psychological factors influence motives for communicating according to past uses and gratifications theory (Papacharissi & Rubin, 2000). Scholars have tried to comprehend how dispositions and attitudes influence audience behavior in addition to

gratifications sought and obtained. Papacharissi & Rubin (2000) found user perception of the Internet and certain psychological and social factors influence Internet use. Their research sought to find if the psychological and social factor antecedents of contextual age and unwillingness to communicate as well as media perceptions (e.g., social presence) relate to Internet motives. Relationships between Internet motives (e.g., information seeking) and psychological and social antecedents (e.g., unwillingness to communicate) support the use of the Internet as a functional alternative to other needs such as face-to-face communication. In other words, unwillingness to communicate or Internet users who avoided face-to-face interaction chose the Internet as a functional alternative to fulfill interpersonal needs in Papacharissi & Rubin's (2000) study. Subsequent studies have identified that demographic factors influence motives for communicating on new online media. Sheldon (2008) found that certain demographics among college students influence motives for communication on the social network site Facebook. These included gender, age, and level of education (Sheldon, 2008).

Papacharissi & Rubin's (2000) research identified that attitudes and exposure are important factors for using media. Perse, Burton, Kovner, Lears, & Sen, (1992) connected the types and amount of computer use to more optimistic attitudes of computer use. Weekly computer use and social presence both positively predicted higher levels of computer mediated communication (Perse et al., 1992). In addition to attitudes, behavior is also an important factor to uses and gratifications research because it influences the patterns of media use. The perceived importance of communication behavior has some positive connections with Internet motives (Papacharissi & Rubin, 2000).

Past Internet studies have reported that Internet users less satisfied with their life have the perception that the Internet is an important communication medium more than other users studied. It is hypothesized that the ability to create a new online identity and circumvent elements such as physical appearance allows users to have more liberty to express feelings. Researchers also argue that it may make communication less stressful (Papacharissi & Rubin, 2000). Further studies on social network site media have applied similar variables as Papacharissi & Rubin (2000) used to measure behavioral and attitudinal outcomes of media use. Sheldon (2008) found that certain social network site motives were greater predictors of behavioral and attitudinal outcomes than demographics such as gender. For example, maintaining relationships and passing time predicted the number of hours students spend on Facebook.

Ruggerio (2000) argues that the uses and gratifications approach is a fundamental theory to consider when studying computer-mediated communication (e.g. social network sites such as Facebook). Past research has also suggested it as a framework by which to study new media technologies (Papacharissi & Rubin, 2000). Historically it has consistently provided a progressive theoretical foundation for the introductions of new mass communication mediums that include newspapers, radio, television and subsequently the Internet (Ruggerio, 2000).

Research on computer-based messaging technologies like Facebook has confirmed that user motivations for using it are flourishing through multi-functional mediums of communication once only thought to be present in traditional media.

Empirical affirmation that the Internet is now a viable multidimensional communication forum suggests that research needs to continue to progress in assessing how user needs

are fulfilled within Internet-based technologies (Flanagin, & Metzger, 2001). The vast array of interpersonal messaging technologies present on social network sites in particular provides a compelling platform for studying developing forms of multidimensional communication. New patterns of communication that social network sites induce have already instigated an array of new studies that examine the uses and gratifications of Facebook (e.g., Bonds-Raacke & Raacke, 2010; Joinson, 2008). Ongoing changes to the applications, tools, functionality, and methods of communication by Facebook mandate enduring and persistent research for social communication scholars (Facebook, 2010).

Growing numbers of online social network site users as well as the increasing frequency of use suggests a continued importance for studies to determine the motivations individuals seek and obtain from their usage (Sheldon, 2008). The features and functionality offered by social network sites allowing new forms of communication such as posting a short message on a friend's "wall" or uploading pictures allow dynamic flexibility in communication style. Social and personal needs that are met from this flexibility are important determinations that should be made (Bonds & Bonds-Raacke, 2008). Despite numerous emerging studies on the uses and gratifications that users attain from social network sites, further research is necessary to fill many ongoing gaps in current research (see Bonds-Raacke & Raacke, 2010). In particular, Sheldon (2008) has recommended that research be performed which compares the motivations for Facebook use between different schools as well as between high school and college students. Dr. Sheldon's study uses a sample inside a single university. Expanding the levels of students and using additional schools broadens the sample size (Sheldon, 2008).

#### Purpose Statement

Certain user motivations for using the social network site Facebook and to a lesser degree demographics influence behaviors and attitudes of Facebook users (Sheldon, 2008). Cummings et al. (2006) noted there could be a number of important relationship maintenance dynamics during the transition of students from high school to college. As Sheldon (2008) identified, no comparisons exist between high school and college student motives for using Facebook. Research has identified a number of social network site motives for college student use (Bonds-Raacke & Raack, 2010; Sheldon, 2008). The most salient of these motives is maintaining relationships in Sheldon's (2008) research and looking for information in Bonds-Raacke & Raack's (2010) study. In addition to other Facebook motives, relationship maintenance has significantly predicted a number of behavioral and attitudinal outcomes of college student Facebook use. However, many of these factors are unknown for high school student Facebook use. With hundreds of millions of users now using the social network site Facebook, it behooves researchers to determine why. Determining the motives of high school students and undergraduate college students may help better explain whether grade level is an important predictor of the behavioral and attitudinal outcomes of Facebook use.

#### Statement of the Problem

The purpose of this study is to examine high school student and undergraduate college student motives for using the social network site Facebook and their behavioral and attitudinal outcomes from these uses and gratifications. Specifically, research needs to determine the underlying structure of both high school student and undergraduate college student motives for using Facebook. It is also essential to identify if variances

exist between high school student predictive behavioral and attitudinal outcomes of Facebook use and undergraduate college student predictive behavioral and attitudinal outcomes of Facebook use. Lastly, it should determine any differences in the behavioral and attitudinal descriptors between high school and undergraduate college students. The following research questions attempt to measure these requirements.

Research Question 1: What are the motives for using Facebook for high school students and the motives for using Facebook for undergraduate college students?

Research Question 2: What motives of high school students predict behavioral and attitudinal outcomes of Facebook use and what motives of undergraduate college students predict behavioral and attitudinal outcomes of Facebook use?

Research Question 3: Is there a significant difference between certain behavioral and attitudinal descriptors of high school student Facebook users and certain behavioral and attitudinal descriptors of undergraduate college student Facebook users?

In parallel to behavioral and attitudinal outcomes defined by previous researchers (e.g., Papacharissi & Rubin, 2000; Sheldon, 2008), the following null hypotheses measured the attitudinal and behavioral descriptors of Facebook use:

- $H_03.1$ : There is no statistically significant difference between the amount of Facebook use of high school students and the amount of Facebook use of undergraduate college students.
- $H_0$ 3.2: There is no statistically significant difference between the frequency of Facebook use of high school students and the frequency of Facebook use of undergraduate college students.

- $H_0$ 3.3: There is no statistically significant difference between the duration of Facebook use of high school students and the duration of Facebook use of undergraduate college students.
- $H_0$ 3.4: There is no statistically significant difference between the amount of friends high school students have on Facebook and the amount of friends undergraduate college students have on Facebook.
- $H_0$ 3.5: There is no statistically significant difference between high school student satisfaction with Facebook and undergraduate college student satisfaction with Facebook.
- $H_0$ 3.6: There is no statistically significant difference between high school student attachment to Facebook and undergraduate college student attachment to Facebook.

#### **Definition of Terms**

<u>Domain names</u> refer to the sequential characters that are usually alphanumeric which identifies a group of online resources (such as a person or a company) that makes up an Internet address (domain name, 2010).

Computer-mediated communication (CMC) involves electronic forms of communication that can be synchronous or asynchronous such as computer conferencing and mail. Electronic forms of group meetings in traditional Computer-mediated communication research are distinct from physical face-to-face group meetings (Walther, 1995).

<u>Facebook</u> is a social utility that helps people communicate more efficiently with their friends, family and coworkers (Facebook, 2010). The social network utility develops technologies that facilitates real-world social connections and allows anyone to participate within a trusted online atmosphere (Facebook, 2010). It offers its users an

online environment that contains at its foundation a profile page in addition to Inbox, network, and friend applications. Numerous other applications provide functionality to the user that includes groups, events, posted items, notes, photos, and videos (Facebook, 2010).

<u>Facebook profiles</u> are at the time of this research, the first page that users see when they login to their Facebook account. This page contains a picture of their selection that identifies their profile along with a number of other customizable modules. Some of the modules at the present moment can include a wall that contains recent updates, short messages, and information about the user's actions, information such as current city, phone number, and relationship status, friends, photos, and video (Facebook, 2010).

HTML stands for HyperText Markup Language. HTML language is used in conjunction with the Internet to create documents containing text, graphics, hyperlinks, sound, and video (html, 2010). It allows tags to be used such as <h1> and </h1> to format text into headings, links, paragraphs, and a number of other related structures on a website. It is a non-proprietary language that can be developed and processed using a wide array of tools from simple text editors to more complex editors with numerous functions (What is HTML?, n.d.).

Motives are general dispositions that influence an individual's actions that are taken to fulfill a want or need (Papacharissi & Rubin, 2000, p. 179). Motives are fundamental components of audience activity and are the general dispositions defined by uses and gratifications theorists that influence an individual's action. Scholars argue that user motives influence the actions users take to fulfill a need or want (Papacharissi & Rubin, 2000, p. 178).

MySpace is a free online social network site that allows people to establish their own personalized websites and share its contents with other people. Founded in 1993 by Chris DeWolfe and Tom Anderson, MySpace incorporates interactive video, pictures, music, blogs, and groups to be posted on the user's profile (Magnuson & Dundes, 2008, p. 239).

Social Capital is the ability of individuals to work together toward common goals within the context of both organizations and groups. Trust closely correlates with social capital. Communal trust and shared ethical values must exist for trust to be developed (Kelleher, 1998).

Social Network Sites (SNSs) are defined as web-based services that allow individuals to create a profile within a restricted online system that can be either public or semi-public in nature, develop a list of users that share connections, and track the activity of others within their lists of connections (Boyd & Ellison, 2007).

Social Networking Websites are virtual places that cater to a specific population in which people of similar interest gather to communicate, share, and discuss ideas (Raacke & Bonds-Raacke, 2008, p. 169). The term "social networking websites" has been used synonymously with the term "social network sites" and generally refer to the same type of online environment such as MySpace or Facebook.

Social network site friends that users add to their profile have been defined as mere acquaintances, but can range to much more intimate and actual friends (Boyd, 2006).

<u>Telecommunications</u> is a word used to describe communication at a distance (Cummings, Lee, & Kraut, 2006, p. 813).

<u>Uses and Gratifications</u> are the motivations behind why a media selection is chosen and the satisfaction that is obtained from this choice (Joinson, 2008). The Uses and Gratifications Theory presumes that individuals use media to gratify wants or needs. Its primary dependence is on the motives for certain types of media use, the factors that influence these motives, and the outcomes from media connected behavior (Papacharissi & Rubin, 2000, p. 176).

#### Significance of the Study

Research dating back to the 1930s has supported the theory that physical nearness amplifies the potential development of romantic relationships and friendships.

Cummings, Lee, and Kraut (2006) postulate that two factors add to the depreciation of an initial relationship when there is geographical distance between friends or romantic others. First, communication between the two individuals is complicated by the distance. Second, time and efforts redistribute from older relationships to develop and facilitate new relationships (Cummings, Lee, & Kraut, 2006).

Social Networks facilitate relationships that increase or decrease through the exchange of social resources (Cummings et al., 2006). Distance has typically been a factor in hindering the augmentation of relationships. However, new telecommunication technologies have assisted in maintaining long distance relationships. Cummings et al. (2006) argue that when high school students move away from home, distances diminish their sense of emotional relationships with old friends as well as their communication. Research suggests that psychological proximity does necessarily cause communication to decline. However, communication slows the regression in psychological nearness (Cummings et al., 2006).

Students that continue their education at a college away from home lose the nearness they once had with their high school friends. Longitudinal data from a study performed by Cummings et al. (2006) determined that communication over a computer correlates with less attrition in social relationships. Nonetheless, communication via phone conversations was not connected to less attrition. Conclusive to this new pattern was that communication frequency trumped communication quality. Constant communication in shorter periods of time revealed additional value to students communicating at a distance with past high school friends (Cummings et al., 2006).

New patterns of constant communication in shorter periods of time that social network sites are capable of providing may influence a number of elements typical of messages delivered via a computer. According to Raacke and Bonds-Raacke (2008), this fact is even more poignant in the most recent trends of social networking communication. As this new technology gives students more types of media choices, satisfaction and motivation become even more critical to analyze (Ruggiero, 2000). The range of social networking that LinkedIn provides, the music community that MySpace has supported, the vast college and work network that Facebook has facilitated, and the romantic relational entities that Friendster was designed to provide create a wealth of new information. This new array of knowledge suggests further research is necessary into the social communication patterns that influence offline and online connections (Ellison, Steinfield, & Lampe, 2007).

Some scholars believe that the social network site Facebook.com, in particular, has developed an online environment that provides a prosperous set of data researchers can access to study societal connections (Ellison et al., 2007). An emergent trend in both

Internet and social network site use seems to suggest a continued focus on their implications toward communications research. Longitudinal research from 2006 to 2007 found that university students increased their Internet usage on average by over an hour more per day. During the same year, Facebook use virtually doubled growing by an average of 21 minutes per day (Steinfield, et al., 2008). The online social network phenomenon presents just one new medium in which students correspond. The majority of these users are adults 18 to 24 years old (Lenhart, 2009). With such a large percentage of users in this age range accessing this content, it is important to determine their motivations for using it as well as their behavioral and attitudinal outcomes for using it (Sheldon, 2008). Furthermore, changes in the patterns of communication within high school and college student telecommunications require further consideration (Cummings, Lee, & Kraut, 2006). Within education, the specific age range of adults 18 to 24 years old is categorically older high school students and undergraduate college students in the United States. Furthermore, Steinfield et al. (2008) argue that in every regard the specific social network site Facebook has become a progressively more vital element in the lives of students.

Finally, Singer (1998) argues that the Uses and Gratifications theory is one of two equally valid theoretical constructs applied to interactive media from an audience perspective. In particular, this theory is correlated with viewing the Internet as a foundation with the capacity to empower the individual in regards to the information he or she seeks to acquire and the information he or she creates (Singer, 1998). Numerous scholars postulate that the uses and gratifications theory is well suited for studying the Internet (e.g., Stafford & Stafford, 2008; Ruggerio, 2000) and more specifically have

applied its application to social network sites (e.g., Bonds & Bonds-Raacke, 2008; Joinson, 2008).

#### Organization of the Dissertation

This dissertation is organized into five separate chapters. Chapter 1 contains the background of this study, the statement of the problem, definitions for terms that may be unclear, and the significance of this study.

Chapter 2 contains a review of the related literature. It reviews the different forms of the uses and gratifications theory, a brief review of its history, its limitations, and its resurgence in modern studies. Brief timelines and developments of many popular social network sites personify the history of this new medium of communication. Studies on social network sites important to the purpose of this study include those utilizing the Uses and Gratifications theory. Limitations on social network site research followed by a summary of the literature review, finalize this chapter.

Chapter 3 contains the methodology incorporated within this study. It contains the restatement of the purpose, research questions, design of the study, population and sample, instrument, data collection, data analysis, validity of the design, and reliability of the design. Also included in this section are discussions of how the formal research procedures that were carried out to ensure safety of human subjects and the integrity of the data collection procedures utilized.

Chapter 4 presents the results of this study. It contains the statistical and non-statistical procedures used on the data collected. Findings on each research question are displayed within this section of the dissertation.

Chapter 5 provides a holistic overview of this study. This includes a restatement of the problems investigated, the purpose of the study, and the exploratory procedures used to further the research of uses and gratifications of social network sites.

#### CHAPTER 2: REVIEW OF THE RELATED LITERATURE

#### Introduction to the Chapter

This literature review discusses a brief history of the uses and gratifications theory and the implications of its application to modern computer-mediated communication mediums. The review also addresses limitations of the theory and the response of scholars to its relevancy for modern application to online technologies. Its application in this study is to the online social network site Facebook. It defines social network sites and their brief history. An overview of relevant uses and gratifications studies on Internet and social network site mediums is given. In addition, it reviews the behavioral and attitudinal outcomes of Internet and Facebook use. Finally, it reviews limitations of current research on social network site motives and behavioral and attitudinal outcomes.

### **Uses and Gratification Theory**

New mass media that included listening to music and radio, as well as reading and children's interests in comics perpetuated early research to identify the motives and selection tendencies of audiences (Ruggiero, 2000, p. 4). According to Katz, Blumler and Gurevitch (1973), two objectives propelled the initial studies on the uses and gratifications theory. First, audience needs required refinement in response to previous studies focused on the influential intents of communicators. Open-ended methods were used to identify media functions. Second, audience conditions were necessary as intercessory effects of conventional communication (Katz, Blumler & Gurevitch, 1973, p. 518). Elihu Katz first symbolized the Uses and Gratifications approach in 1959 (Siraj, 2007). However, the Uses and Gratifications Theory became more refined through the

contextualization of Katz, Blumler and Gurevitch (1973). Katz, Blumler and Gurevitch (1973) proposed the following five functions:

- i. To match one's wits against others
- ii. To get information and advice for daily living
- iii. To provide a framework for one's day
- iv. To prepare oneself culturally for the demands of upward mobility
- v. To be reassured about the dignity and usefulness of one's role (p. 20)

#### Forms of Gratifications

Traditional Uses and Gratifications theories studied the gratifications of individuals that retain interest in a specific type of media content. Psychological and social needs met by media content were the determining factor in the early Uses and Gratification theory (Cantril, 1942). Researchers tend to concur that early gratification studies were individualistic and deficient in hypothetical rationality. Some early scholars had difficulty with sociological needs and the coinciding identifiable gratifications. Scholars qualitatively attempted to categorize gratifications with labels; however, they overlooked the rate of distribution within the population. Relationships of gratifications and media functions suffered from this omission. Further discovery of media gratifications structure may develop in the absence of this oversight (Ruggiero, 2000, p. 5).

Various forms of gratifications exist. Content gratifications define the actual substance of the media. Examples could include information from the nightly news on TV or entertainment from a game. Experts relate content gratifications with the repeated use of a particular media site. How often users of the media revisit its contents affect

content gratifications. Process gratifications are a second form. Process gratifications are the tangible and repetitive experiences of using a particular form of media (Joinson, 2008).

Current researchers use the term content gratification to relate to how a site is able to attract the repetitive use of a particular form of media (Joinson, 2008). Early uses and gratifications research attempted to assess the holding power that the media contained once the user began viewing the content (Stafford, Stafford & Schkade, 2004). McGuire (1974) distinguished this holding process. He postulated that it was more important to determine how to keep a user engaged for an interlude of time than it was to magnetize the user to the content in the first place. Modern Internet studies have theorized content as a more gratifying motivation than the process gratifications associated with web browsing. Stafford, Stafford and Schkade (2004) argue that operational definitions and measurements restricted to the content are necessary to distinguish between content and process gratifications specific to the Internet.

Despite the functions of content and process gratifications in traditional media usage, new types of media uses have presented additional challenges. In contrast to older media such as television, media presented by the Internet and social network sites facilitates interaction as well as communication (Joinson, 2008). Scholars have postulated that the Internet may assist in both transactional and communicative principles. New dimensions of this social process led Stafford et al. (2004) to hypothesize a third form of gratification labeled as a social environment. According to researchers, the traditional dual dichotomy of content and process gratifications has the potential to neglect the new constructs of communicative and transactional purposes presented by

Internet mediums. Internet social gratifications provide the necessary constructs to better assess the social contingencies that have emerged from online technologies (Stafford, Stafford & Schkade, 2004).

#### **Brief History**

According to Ruggiero (2000) some scholars disagree upon the beginning foundation of the Uses and Gratifications theory. Numerous psychological and social variables added new dimensions to the theory. Katz and Foulkes (1962) highlighted the perception that mass media offers society what they want. Individual choices are the determining factor in media selection. Elevated media contact coined as *high exposure* was a reason to *escape* from everyday conditions (Katz & Foulkes, 1962, p. 382). *Escapist Content* draws from fictional individuals. The audience fantasizes in a dream world that contains differentiated environments such as a higher social class. This staged environment contains the fictional characters successes and failures. Katz and Foulkes (1962) argue that the social context of the media exposure could provide reason for escape. Since socially defined contexts exemplify all content, it may perhaps be a starting point in identifying uses and gratifications (Katz & Foulkes, 1962).

Klapper (1963) believed in the continual progress of both observed uses and the consequences of the use by the content user. Although he did not directly argue against prior research in entertainment or the escape model proposed by Katz and Foulkes (1962), he called for the exploration of a richer cultural media (Klapper, 1963). He believed that if uses and gratifications studies are to be useful, the researcher must be a functional analyst that clearly portrays the gratifications studied. In order to construct useful gratifications and this richer media, experimental research must determine motives

through observing the media tastes and reactions of the user before, during, and after the study. As the audience dynamically changed, he believed in the proper assessment and identification of the gratifications (Klapper, 1963).

Following the 1970s, the research of Katz, Blumler and Gurevitch (1973) suggested that research should study human needs that not only sought, but also obtained from media. In doing so, Katz began to question what individuals do with mass media ranging from books to film. He argued that, "instead of depicting the media as severely circumscribed by audience expectations, the uses and gratifications approach highlights the audience as a source of challenge to producers to cater more richly to the multiplicity of requirements and roles that is has disclosed" (Katz, Blumler, & Gurevitch, 1973, p. 521). Researchers were challenged to discover how often the media adds to both the creation and satisfaction of human needs. Katz et al., (1973) found the uses and gratifications approach to be audience oriented but not constrained in its scope of social functions that prior research had suggested.

A number of concerns about the adequacy of the uses and gratifications theory developed throughout the 1970s. Eilliot (1974) purported that it inherited the repetitious rhetoric that all functional theories contain. Swanson (1977) introduced a number of critical flaws in the uses and gratifications approach. These included the theory's inability to determine the audience perception of media content, deficiency in conceptual development, too perplex in its descriptive facility, and an unclear hypothetical framework (p. 1-2 as cited in Palmgreen & Rayburn, 1978). In addition, Greenberg (1974) argued that the determination between gratifications sought and gratifications obtained remained unclear. He believed it was difficult to determine the actual desires of

the media user from the responses obtained by researchers. The theory failed to determine the similarities and incongruities of actual gratifications and gratifications sought (Greenberg, 1974).

Palmgreen and Rayburn (1978) believed that Elliot (1974) and Swanson (1977) hypothesized uses and gratifications more as a research strategy than an actual theory (Palmgreen & Rayburn, 1978, p. 1). Their study responded to previous arguments pertaining to gratifications sought and gratifications received by illustrating distinctions in non-viewers and viewers of public television. Measurements indicated that the uses and gratifications theory is a better predictor of public television viewing for respondents that make their own viewing decisions than many demographic variables. These included income, education, and number of children in a household (Palmgreen & Rayburn, 1978, p. 16). Through this observation, the study was able to substantiate the approach that utilizes gratifications sought and gratifications obtained. Capacity to differentiate between non-viewers and viewers was central to this determination. In addition, their research supported the uses and gratifications approach as valid in determining factors such as work schedules, social constraints, and media availability (Palmgreen & Rayburn, 1978).

The mass communication process research continued to be influenced by uses and gratifications following some of the earliest criticisms. Swanson (1987) believed that researchers continued to develop a generalized theoretical framework that could describe the effects of mass communication through studying the audience. By this time, he argued many good uses and gratifications studies had identified significant fundamentals of the psychological context in which experience with mass media occurs. Ideas

constructed by previous research on uses and gratifications had considerable significance in assisting alternative approaches to mass communication that included research of interpersonal communication and cultivation analysis (Swanson, 1987, p. 237). He called on future studies to focus on connecting media content and gratifications, identifying the relationship between gratifications and interpretive frames through which audiences comprehend media content, and the function of gratification seeking in user experience to mass media (Swanson, 1987).

Swanson (1987) refined the definition of the uses and gratifications approach to individuals motivated by social, psychological, and sociocultural influences to use mass media to achieve a specific end. Accomplishing a particular end is thereby considered a "gratification" (Swanson, 1987, p. 238). Swanson (1987) argued that elements of the received message might very well construct gratifications. The medium, genre, or the message itself do not necessarily persuade the gratifications an individual experiences. As a result, it can be inconclusive that the effects of the message control the active search for gratification at some level. Gratification seeking provides the explanatory framework by which the audience experiences messages. In other words, predicted gratifications are not the only factors in determining exposure to media. Gratification seeking attempts to determine media exposure decisions that most greatly influence media behavior (Swanson, 1987).

The uses and gratifications framework also needed to address the interpretive processes of the audience according to Swanson (1987). Swanson (1987) postulated that individuals identify and adjust to messages through interpretive frames. These frames are defined by a number of attributes that include diversion, focusing on relevant content

while obscuring less relevant content, representation of motives that guide individuals to concentrate on a message, and focusing on a certain organization of elements of the frame that grants further coherence. Use of an appropriate interpretive frame assists in directing the audience member toward a certain media message. Swanson (1987) states that audience members are resourceful by developing and applying a varied collection of interpretive frames, which can alter messages to serve an assortment of motivations.

# Limitations of Uses and Gratifications

Early limitations associated with the Uses and Gratification theory include that it relied upon self-reports too strongly, had difficulty with identifying the social origin of the needs that audiences bring to the media, was not critical enough of the dysfunctions for society and self of specific audience satisfaction types, and lastly was too mesmerized by the creative diversity of audience uses to focus on the constraints of the text (Katz, 1987, p. S37-S38). Due to the model being overly individualistic, it was difficult to make predictions beyond the subjects studied. Ruggerio (2000) suggests that societal implications of the uses of media therefore might be difficult to obtain. Research may also produce too many variances in the types of gratifications. Unclear definitions of the fundamental factors such as motives, needs, behaviors, and consequences added subjectivity to this theory (Ruggerio, 2000).

White (1994) upheld debates against the uses and gratifications framework. He argued that the uses and gratification theory allowed individuals to choose the media component and desired medium of interpretation without reservation. Despite variances in the interpretation of media messages and dependencies on certain messages, nearly every civilization subjects its culture and viewpoint of the world to its constituents.

Worldview thus undoubtedly manifests itself in the "preferred reading" that is fabricated into the media (White, 1994, p. 7). Traditional environments assume freedom of selection. Void of free selection, media use is decided upon more so by the availability of content than the individual. In addition, dependency on the psychological mindsets of audience members results in the propensity to theorize from the social background of subcultures that influence media selection (White, 1994, p. 7).

Ruggiero (2000) has identified five defects from previous research that have influenced the uses and gratifications theory. First, the theory's focus on audience use of media renders an idiosyncratic philosophy. Concentric to this ideology is the argument that it fails to embrace communal reasons for media use as well as individual use. Secondly, various studies on uses and gratification are too isolated. Varying and potentially detached motives are generated as a result. Subsequent research on this theory is vulnerable to being disconnected from a combined effort to add to hypothetical findings. Thirdly, many foundational entities such as motives, needs, behavior, and consequences are still in need of accurate elucidation. Fourth, scholarly interpretations of the central elements of the theory that include motives, gratifications, and uses lack the precision necessary of shared definitions. Fifth, assumptions of uses and gratification researchers that the data reported from the user are exacting and that an active audience always exists is presumptuous (Ruggiero, 2000).

Adding to the arguments of Ruggiero (2000), Rosenstein and Grant (1997) believe that uses and gratifications research has been futile in its attempts to generate relationships between the patterns of programming content and program selection. Self-reported data that is influenced by an individual understanding of self does not also

consider observable behavior. As a result, Rosenstein and Grant (1997) argue that individual interpretation that can be misconstrued takes the place of actual behavior. The failure of researchers to consider a position extrinsic to personal interpretation is further embellished by studies suggesting that self-reporting could be based upon a priori experiences. Habits of individuals are one particular solution that Rosenstein and Grant (1997) propose to the weaknesses associated with self-reporting. Accordingly, cognitive processes that influence and support media selection need to be strengthened by uses and gratification scholars to overcome problems associated with self-reported data (Rosenstein & Grant, 1997).

Uses and Gratifications Theory Resurgence

Albeit the decision of some theorists to label uses and gratifications as an approach rather than a theory, even critical researchers have recognized its observation that audience's perceptions of media messages could differentiate from user's intended meanings (Ruggerio, 2000, p. 26). Finn (1997) accentuated a renewed collaboration of research based on individual personality for mass media use. He argues that since earlier research in the 1970s, studies have continuously revealed relationships between media use and fundamental personality traits. In particular, it is important to recognize that the expansive range of personality traits in traditional uses and gratification studies has become a positive reinforcement within theory building (Digman, 1990; Finn, 1997; Ruggerio, 2000).

Supporting scholars identify the uses and gratifications theory as one of the most significant theories in communications research. Some of the earliest theories proved this in mediums such as television. Katz, Blumler, and Gurevitch (1974) found that the uses

and gratifications approach allows individual selections and patterns of media use to materialize within television viewing. Strength of the uses and gratifications theory lies within its capacity to give scholars the tools to research communication channels and content as well as psychological motives and needs within a cross-cultural framework. Yet, it has also continued to show its versatility across new types of communication media. Lin (1996) argues that the uses and gratifications theory has proven to be a patently obvious theory on the premise of its broad range of applicability toward mediated communication that range from print to software applications on the Internet. New communication that uses virtual reality, where visual images on a screen assist users in interacting physically within the electronic environment, posits an important medium for communication researchers to decipher the uses and gratifications of these experiences (Lin, 1996). Ruggerio (2000) believes the Uses and Gratifications approached must continue to be encouraged. In addition, it has developed a benchmark base of data for future studies to observe media use (Ruggerio, 2000, p. 12).

Although the Uses and Gratification theory lost popularity with many communication researchers for a number of decades, new online mediums of communication have invigorated its current use. Researchers suggest that telecommunications technology may be the very element that has stimulated its resurgence among scholars (Ruggerio, 2000). Numerous studies on Internet technology as its primary medium have applied the uses and gratifications theory. It is suggested that as a group these studies verified the theory's fundamental schema that gratifications sought explain individual media experience (Charney & Greenberg, 2001; Ferguson & Perse, 2000; LaRose & Eastin, 2004; LaRose, Mastro & Eastin, 2001; Perse &

Greenberg-Dunn, 1998; Raacke & Bonds-Raacke, 2008; Song, LaRose, Fastin & Lin, 2004; Sheldon, 2008; Stafford, Stafford & Schkade, 2004). The latter studies seem to have upheld Singer's (1998) suggestion that the uses and gratifications theory would be one of the primary models used to study Web-based mediums. Furthermore, Ruggerio (2000) argues that as communication technologies quickly develop the extenuation of possible topics for uses and gratification research multiplies. The flexibility the uses and gratifications theory offers is particularly significant as computer-mediated communication begins to saturate every facet of people's lives (Ruggerio, 2000, p. 28).

## Social Network Sites

Sheldon (2008) defines social networking websites as places where communication between friends occurs asynchronously within an online network of friends initiated by the user. This definition encompasses additional types of sites that include functions such as journal writing and blogging (Sheldon, 2008). Raacke and Bonds-Raacke (2008) define social networking sites as "virtual places that cater to a specific population in which people of similar interest gather to communicate, share, and discuss ideas" (Raacke & Bonds-Raacke, 2008, p. 169). Mazer, Murphy, and Simonds (2007) use slightly different terminology by referencing these sites as "virtual social networks." The social network sites Friendster, MySpace, and Facebook encompass the virtual social networks enlisted by Mazer et al. (2008).

Scholars have redefined the phrase used to label these virtual spaces. The term used by these scholars for the new online media that encompasses the website Facebook is a "social network site." Social network sites are online services that allow individuals to "(1) construct a public or semi-public profile within a bounded system, (2) articulate a

list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system." (Boyd & Ellison, 2007)

After much research (Boyd, 2004; Boyd, 2006; Boyd, 2007; Boyd & Ellison, 2007;

Ellison, Steinfield, & Lampe, 2006) Boyd and Ellison (2007) have redefined "social networking sites" to the new label "social network site." The reasons for this clarification are twofold: scope and emphasis. The phrase "networking" tends to focus on relationship instigation that often takes place between strangers. Networking does not set apart these sites from other types of computer-mediated communication and neither is it the primary practice of social network sites (Boyd & Ellison, 2007).

Social Network Sites (SNS) support a very diverse range of online social environments. Boyd and Ellison (2007), emphasize that most SNS users befriend one another having prior offline connections. Lampe, Ellison, and Steinfeld (2008) found that through surveys used in 2006, 2007 and 2008 users consistently used Facebook to maintain contact with users they had offline contact with on the site. Facebook communication tends to favor pre-existing relationships rather than communication with complete strangers (Boyd & Ellison, 2007).

Walther (1995) postulates that computer-mediated communication (e.g., social networks) offers additional opportunities for students with limited amounts of time for socialization to develop personal relationships than their face-to-face peers (as cited in Mazer, Murphy, & Simonds, 2007). Ramirez, Walther, Burgoon, and Sunnafrank (2002) further instantiate that variations in Computer-mediated communication and other technological advancements present new opportunities that face-to-face communication does not offer. Additionally, the educational contexts of computer-mediated

communication could have a positive effect on student-teacher relationships. Functions such as language and punctuation are capable of producing new constructs between the communication of teachers and students (Mazer et al., 2007).

Brief History of Social Network Sites

Based largely upon previous definitions, Boyd and Ellison (2007) argue that the first social network site was developed in 1997 by SixDegrees. SixDegrees.com was the first of its kind to combine features of those found on sites like Classmates.com, AOL Instant Messaging (AIM), and I Seek You (ICQ). Buddy lists found on AIM and ICQ were one aspect of this integration while Classmates.com added the ability to browse its network for other uses with certain types of affiliations. SixDegrees.com developed its website to allow users to create a profile, list friends, and browse through their listings of friends. Aside from SixDegrees.com, Boyd and Ellison (2007) identified the creation of a profile as one component that was foreign to many other earlier communication technologies.

Despite catching the attention of millions of users, SixDegrees was unable to remain in business and disintegrated in 2000. During the period of 1997 to 2001 subsequent sites that allowed some form of a profile to be created included BlackPlant, AsianAvenue, and MiGente. Guestbooks, online diaries, journals, privacy settings, and friend lists were among some of the features of early Social Network Sites. LiveJournal, Cyworld, and LunarStorm also offered some of these features.

Beginning in 2001 Ryze.com and subsequently LinkedIn, Friendster, and Tribe.net were developed. Ryze.com and LinkedIn.com were constructed with social network elements that distinctively assist users in finding and advertising jobs. Ryze.com

never gained a significant following while LinkedIn.com has become a dominant networking service for business professionals. As of June 2010, it had over 70 million members in over 200 countries with one new member joining the network approximately every 1 second (LinkedIn, 2010). Tribe.net supplemented the functional entity of adding listings and recommendations to online profiles. It remains an online community that allows membership or creation of online groups labeled as "tribes" (Tribes.net, 2010). Although some of these sites continue to influence different aspects of communications online, Boyd and Ellison (2007) believe that three central Social Network Sites have largely formulated the research, culture, and business background of the industry; Facebook, MySpace, and Friendster.

During the fall of 2002, Friendster commenced its first beta edition online.

Alternative and conventional media have assisted in the site's growth; however, for most individuals word of mouth is the largest point of advertising for the site (Boyd & Ellison, 2007). MOL Global Pte. Ltd. purchased Friendster in December of 2009 and it now holds a number of current patents on social networking. Friendster seeks to provide a global online social network that helps individuals stay in touch with friends and find new people and information important to them. Its goal is to provide an easy to use online interface for users to network with anyone around the world. According to their website, this includes support for Internet-ready mobile devices. Friendster has over 115 million members throughout the world. It contends that in collaboration with MOL it now has Asia's leading end-to-end content delivery and commerce network (Friendster, 2010).

In 2003, the social network site MySpace responded to sites like AsianAvenue and Friendster. Some argue that MySpace benefited early on from users leaving the

popular site Friendster. Rumors that Friendster would incur a fee-based system and its disintegration with early users could be reasons behind this trend according to past research. A newfound bond between music bands and MySpace provided additional relational elements that Friendster was not able to provide at the time. Bands were able to network and promote while users were able to receive attention as fans of their favorite band profiles. Users were also able to become associated with a certain identity through this online connection (Boyd & Ellison, 2007). In November of 2004, MySpace reached 5 million members (MySpace, 2010).

By 2004, MySpace was becoming largely popular among teenagers and in July of 2005 News Corporation acquired the social network giant for \$580 million (Boyd & Ellison, 2007). During the acquisition that occurred in July of 2005 MySpace had reached 20 million unique users (MySpace, 2010). User demands met by MySpace developers were an important factor in MySpace's early success among early adopters. MySpace allowed users more flexibility in creating customized profiles. Users could add customized HTML code into the forms that constructed their profile. At this time, Boyd and Ellison theorized that three different types of groups developed on MySpace. These groups consisted of the post-college metropolitan crowd, artists or musicians, and teenagers (Boyd & Ellison, 2007).

MySpace's rapid growth starting in 2005 began to draw mass media attention in the United States and overseas; however, a number of other Social Network Sites proliferated across the globe during this same period. The social network site Facebook began opening its sites up to the public during this same timeframe. Although originally only students at Harvard University were eligible to use the site, starting in September of

2005 it began to include professionals of corporate networks as well as high school students. Membership of the social network site required an appropriate email address at an accepted Internet domain name to gain access. This limited participation in the online Facebook application to corporate businesses and high schools. In the United Kingdom, Australia, and New Zealand the site Bebo became a popular social network medium. Sweden utilized the social network site LunarStorm, Japan heavily swayed toward Mixi, Dutch users preferred Hyves, and Hi5 attracted countries in Europe, Latin America, and South America. Orkut became popular in Brazil before growing quickly in India. A prior trend-setting instant messaging service called QQ in China quickly rose to the top of the largest social networking sites after revealing friend lists and adding profiles (Boyd & Ellison, 2007).

Worldwide Spread of Social Network Sites

During the years of 2006 and 2007 social network sites grew at a rapid pace worldwide. ComScore, a global leader in measuring the digital world, performed a study on the growth of social network sites from June of 2006 to June of 2007. In 2006, MySpace had amassed over 66 million total unique visitors. Hi5 followed with more than 18 million total unique visitors. Trailing the leaders were Friendster with 14.9 million unique visitors, Facebook with 14 million, Orkut with 13.5 million, and Bebo with 6.6 million. In June of 2007, only one year later, MySpace had grown by 72% to 114 million total unique visitors. Facebook witnessed a large percentage growth during this period by accruing over 52 million unique visitors, representing a 270 percent increase in its user base. Bebo also saw a large percentage increase by expanding 172 percent to 18.2 million unique visitors. Hi5 grew to 28 million unique visitors, Friendster

to 24.6 million, and Orkut to 24 million. Tagged.com gained the most ground from a percentage standpoint by increasing 774 percent of its unique visitors from 1.5 million to 13.1 million (comScore, 2007).

As of Spring of 2010, Facebook had become the most popular social network site in the world. Google AdPlanner compiled data from a number of different sources in market research released in April of 2010 (Bosker, 2010). The market research produced a list that ranked Facebook.com as the most visited website in the world. It amassed 540 million unique visitors worldwide and accumulated 570 trillion page views. QQ.com ranked number nine under the categorization of Email and Messaging. MySpace.com was the second ranked website to Facebook.com under the social networks categorization. According to Google estimates, it had 72 million unique visitors and 27 trillion page views. MySpace was the 26<sup>th</sup> most visited website worldwide. Orkut.com was ranked number 45 with 45 million unique users followed by Linkin.com at number 56 with 38 million unique users and hi5.com at number 63 with 34 million unique users (Google, 2010).

## Facebook's Rise to the Top

Following its addition of high school networks in 2005, Facebook expanded to work networks in May of 2006. By April of 2007 Facebook had expanded to 20 million active users. Facebook doubled this number by the fall of 2007. Microsoft acquired a \$240 million stake in the company during this period in a deal that began to expand advertising on the popular site. Facebook began to further its advertising capacity by releasing Facebook Ads and subsequently co-sponsoring the Presidential Debates with ABC news in January of 2008. During February of 2008 Facebook publicized versions

of its social network site in French and Spanish followed by a German version in March. Facebook Chat became available in April along with a Translation application that reached an additional 21 languages. By the end of the 2008, Facebook Connect became available to general users. From January of 2009 to December of 2009 Facebook grew from 150 million active users to 350 million active users (Facebook, 2010).

#### Studies on Social Network Sites

Bonds-Raacke and Raacke (2010) have classified some of the most recent studies on social network sites into four respective groups. Groups include knowledge on the characteristics of users and nonusers (Hargittai, 2007; Raacke & Bonds-Raack, 2008), applications within education (Mazer, Murphy, & Simonds, 2007), examination of user profile content (Pierce, 2007; Walther, Van Der Heide, Kim, Westerman, & Tong, 2008), and the relationship of social network use with emotional well being (Ellison et al., 2007; Valkenburg et al., 2006). Psychological well being produced some of the initial studies on social network sites (Bonds-Raacke & Raacke, 2010). Valkenburg et al. (2006) determined that the frequency of visiting social network sites, information obtained from other users, and the well-being of the users all had a significant connection.

Psychological Well-being of Social Network Users

Valkenburg et al. (2006) studied adolescent well-being and self-esteem in an effort to determine their consequences on social network sites. According to some researchers, individual acceptance and interpersonal response are essential predictors of the well-being and self-esteem of adolescents. Valkenburg et al. (2006) believe that both individual acceptance and personal interaction are fundamental features of social network sites. Studies show that adolescents tend to rely heavily upon self-image and the

perception of others toward them. Social network sites open information to a more public audience. Valkenburg et al. (2006) deem this environment more conducive to the affluence of adolescent self-esteem. Similarly, Ellison, Steinfield, & Lampe (2007) claim that new types of relationship building are likely to occur on social network sites due in part to their development of technologies that include searches, friend lists, and photos.

Since the Internet has become a leisure activity, researchers have attempted to examine the consequences of self-esteem and social well-being that results from its use. Past research has shown a blend of positive, neutral, and negative results. Valkenburg et al. (2006) advocate that many studies on the well-being and self-esteem of adolescents has fallen short in the Internet realm. The researchers cite two reasons in particular. First, the independent variable "Internet use" has been utilized as a one-dimensional construct. In other words, the Internet has grown into a multi-faceted tool used for a number of reasons by a single person. Valkenburg et al. 2006 argue that it is necessary to divide Internet usage into non-social and social use. It is hypothesized that when the Internet is used for communication rather than information seeking, well-being and self-esteem are more likely to be affected. Secondly, researchers believe many have failed to specify how Internet use could be interrelated with well-being and self-esteem (Valkenburg et al., 2006).

Although research has not yet determined the exact cause, Valkenburg et al. (2006) state that recurring studies show that adolescent self-esteem strongly relates to social well-being. Despite this supposition, self-esteem theorists do not consider self-esteem to be an end in itself. The majority of researchers studying self-esteem do however tend to agree that well-being is the effect while self-esteem is the cause

(Baumeister, Campbell, Krueger, & Vohs, 2003). Valkenburg et al. (2006) hypothesized that self-esteem will predict social well-being and as an outcome arbitrate between the use of social network sites and well-being.

In an effort to determine this mediation, Valkenburg et al. (2006) conducted a study on adolescents ranging in ages of 10 to 19 years old. The study was performed in the Netherlands where a large percentage of Internet users already existed. During their research, they found that 96% of Dutch 10-19-year olds had home access to the Internet and 90% were already using Instant Messaging. At the time of the study, the country's populace of 10-19-year olds was at the top of Internet-based technologies. In 2006, the social network site CU2 ("See You Too") also had a concrete percentage of online users with approximately 415,000 profiles in this age range. This populace equated to 22% of the Dutch population in the age range of 10-19-year olds (Valkenburg et al., 2006).

Over three quarters or 78% of adolescents in the Netherlands frequently received positive feedback on their profiles within the study. Data showed that 7% of adolescents received negative feedback on their profiles the majority of the time. Self-esteem was influenced exclusively by the tone of the feedback placed upon the user's profile. Increased self-esteem correlated with positive feedback while degraded self-esteem paralleled negative feedback. Valkenburg et al. 2006 believe that social network sites are likely an effective means of improving self-esteem for users who primarily received positive feedback on their profile. Interestingly, the number of friends that users had accrued did not affect their self-esteem. Valkenburg et al. 2006 cite along with other relational theorists that the quality of relationships may be a stronger indicator of social changes then the number of relationships an individual has.

Social Capital and Social Network Sites

According to theorists, communities can be improved and social capital can be developed through the iteration of new information technologies. Studies on Internet use in neighborhoods are evidence of information technology's rich set of tools that can help facilitate relationships and increase social activity. Online and offline social encounters tend to increase in frequency through the use of online applications. Studies have determined that the range and quantity of neighborhood relationships is strengthened through online experiences (Hampton & Wellman, 2003). Studies on Facebook have led researchers to hypothesize that users do not search for individuals that they have no offline connection with as frequently as they search for users with whom an offline connection already exists (Lampe, Ellison, & Steinfield, 2006). However, the Internet has not necessarily filled a void within other forms of social communication (Hampton & Wellman, 2003).

A longitudinal study performed at Michigan State University from August of 2005 to January of 2006 found that college student Facebook users generally perceive that online peers view their profiles more than any other user group. Offline connections developed from social proceedings, class memberships, and preceding friendships dominated the personified audience of a user's profile. In addition, users verified that information on their profiles was an accurate illustration in reality of how they viewed themselves. Researchers state that users could be aware of their own actions in the actions of their friends on social network sites. Mindful of others performing similar patterns of information seeking, it is possible that profile creation reflects upon the users that they report are investigating them. Theorists have delegated the concept of

increasing knowledge about offline users in the social network site hemisphere as "social searching" (Lampe et al., 2006, p. 169). Perceptions from social searching may also play a role in variables associated with self-esteem.

Young adult relationship formation is significant in developing offline benefits. In particular, Lampe, Ellison, & Steinfield (2008) point out that the ages of 18 to 25 are important psychologically developing stages between adolescence and adulthood. Researchers label offline benefits concerned with using social network sites as the term social capital. Research argues that Internet applications can decrease and increase social capital. However, recent studies distinctively studying the social network site Facebook have found a positive relationship between its various uses and social capital. Specific components of social capital influence Facebook according to some researchers. These include bonding social capital and bridging social capital (Ellison et al., 2007). Bonding social capital focuses on "emotional benefits from strong ties to close friends and family" (Lampe et al., 2008, p. 435). Bridging social capital is the accentuation of "informational benefits of a heterogeneous network of weak ties" (Lampe et al., 2008, p. 435).

Undergraduate college students in a study performed by Ellison et al. (2007) used Facebook primarily to enhance or maintain existing offline relationships. Common classes or dormitory environments are offline examples. Facebook profiles indicated that users included information relevant to past relationships. This information exists in a format that past users could more easily find or search for past acquaintances. Many undergraduate students utilized Facebook to keep in touch with old high school classmates. Subsequently, the majority of participants believed that their high schools friends had viewed their profile at some time. Strength in offline connections tends to

show a different pattern than previous online community-based websites as well as computer-mediated communication. Ellison et al. (2007) also recommend that Facebook respond to the suggestion at least in part due to its structure. Since membership requires an email address and Facebook uses this email address to suggest common people and groups based upon this address, it assists in facilitating a user base that is close in geographic proximity to its connections (Ellison et al., 2007).

Through research on the intensity of Facebook use, bridging social capital relates with the conception of a "heterogeneous network of weak ties" (Lampe et al., 2008, p. 435). Some research suggests that these ties are straightforward to sustain due to their simplicity and inexpensiveness to use. Bridging social capital increased through Facebook may elucidate relationships that would likely remain dormant. Individuals that used Facebook less intensely had lower bridging social capital and self-esteem than users who used Facebook more intensely. Comparatively to Facebook intensity, this interaction was modest for users with high self-esteem. Researchers theorize that due to bridging social capital's ability to produce further knowledge and opportunity, Facebook users taking advantage of this receive more out of their college experience (Ellison et al., 2007).

Albeit not as strong as bridging social capital, bonding social capital indicated similar patterns in the student's satisfaction within the university, the intensity of Facebook usage, and self-esteem. Researchers suggest this weakness could matriculate because it does not develop the same closely-knit types of relationships that are characteristically connected with bonding social capital. Bonding social capital still lowered barriers for usage of Facebook and as a result had the potential to form weak

ties. Preservation of formerly secured relationships was theorized as a primary explanation for bonding social capital's strong coefficient for Facebook intensity. Lastly, Facebook intensity coincides with how college students cope with sadness. Sadness specifically correlates with the loss of old friends (Ellison et al., 2007).

Subsequent studies illustrate that bridging social capital is more closely interrelated with sustaining weak ties than it is close relationships. Two subsequent studies performed in 2006 and 2007 were combined in a longitudinal study to determine how Facebook use among college students changes over time. In addition, researchers attempted to determine if greater intensity equivocated to increased bridging social capital and directional patterns of bridging social capital and Facebook use. Through this longitudinal study, Steinfield, Ellison, & Lampe (2008) found that social network sites are able to assist college students in dealing with relationship continuance and creation during the transition from life at home to life at college.

After controlling for common Internet use, Steinfield et al. (2008) determined that Facebook use was a predictor of bridging social capital. This relationship was not a natural outcome of Internet activity, rather an exclusive attribute of social network site use within their study. Additional theories provide reasoning for this outcome. The design of Facebook allows users to transmit information to all of their friends rather than having to keep in touch with each friend individually. Broadcasting information to Facebook friends facilitates an easy method to stay in contact with distant relationships that drives bridging social capital. Subsequently, it also allows the observation of a broad array of friends. Short messages, updates to lists of friends, wall posts, pokes and other actions that Facebook alerts an individual's friends about provides the technology for this

communication to take place. Simplicity of friendship maintenance for past high school relationships, allows college students to also have the time to generate relationships encountered through their new localized environments. Information learned through browsing profiles and learning about others through Facebook could lower the barriers to instigating communication. Knowledge of shared interests and key information important to the initiation of communication both contribute to lowering barriers by removing reservations causal of rejection (Steinfield et al., 2008).

Examining User Profiles on Social Network Sites

Increased communication through social network sites has further implications when viewing the interpersonal impressions of users. Studies have shown that users not only believe close longtime acquaintances view their profiles, but also complete strangers. Ellison et al. (2007) found that about 80% of users believed strangers from their college campus had viewed their Facebook profile, slightly less than 40% of strangers from other colleges had viewed their profile, and approximately 15% of complete strangers not at a college had viewed their profile. Researchers believe that many times unacquainted individuals that meet offline at college seek common information and friends by investigation of their Facebook profiles. According to Walther, Van Der Heide, Kim, Westerman and Tong (2008), data matriculated on a user's profile has the potential to sway the impression of others.

Almost two decades of research has been conducted on the impressions that people develop through the use of computer-mediated communication (CMCs). Past research on CMCs has questioned nonverbal components of communication that instigate impressions offline. According to traditional CMC research, it is possible that some

nonverbal forms of communication are not present in certain online technologies including email, instant messaging, and discussion forums (Walther et al., 2008). Regardless, computer-mediated studies have since found that virtual communities are opening the door to new forms of communication and social interaction that previously was unknown (e.g. Soukup, 2004). Research by Walther et al. (2008) specifically sought to examine how a social network profile can influence various processes associated with previous impression formation studies. Important to this research is the examination of how data on a Facebook profile that is posted by peers influences how subsequent peers judge the profile owner (Walther et al., 2008).

Facebook wall postings performed by all users beside the profile owner influence the perception of others upon that person. Data from Walther et al. (2008) showed that the physical attractiveness of the friends of a Facebook user influence the perception of their own credibility and physical attractiveness to subsequent friends. Gratifying posts on the Facebook wall of the target user also enhanced the user's task and social attractiveness. Users did not achieve supplementary advantages from being more attractive than their peers are. However, users were elevated in their attractiveness simply by having physically attractive friends within their Facebook profile (Walther et al., 2008).

Perceived negative or positive comments about a user on their own profile page also influenced their perceived physical attractiveness for users viewing their profile.

Focus groups in a Walther et al. (2008) study identified types of behaviors viewed in a negative and positive sense. Two extremely negative and two extremely positive phrases were tested and used as the messages within the study. Messages were specifically

tailored toward the target owner of the profile wall on which it was posted. Comments made on the profile walls of male users that were negative in context toward moral behavior increased their perceived physical attractiveness. On the contrary, comments made on the profile walls of female users that were negative in context toward moral behavior decreased their perceived physical attractiveness (Walther et al., 2008). *Applications of Social Network Sites* 

The online environment that social network sites provide also allows teachers to determine how they appear to their students. Facebook allows teachers to present themselves in a social format that is outside the traditions of the classroom. Studies performed in regards to teacher self-disclosure on Facebook indicate that students view their usage in a positive manner (e.g., Goldstein & Benassi, 1994; Mazer, Murphy, & Simonds, 2007). Teachers whom self-disclose some of the information that Facebook supports such as pictures, opinions, and messages from family and friends may further allow students to develop some connections with them. Prospective patterns of communication that social network sites could influence include those students who have some type of reservation about communicating with their teachers (Mazer et al., 2007).

Data from previous research on perceived teacher self-disclosure has postulated that significant positive correlations exist within students' willingness to participate in the classroom and the students' acuity of class participation. Teacher self-disclosure could potentially help class participation by clarifying information for students (Goldstein & Benassi, 1994). Subsequent self-disclosure research has hypothesized that self-disclosure correlates more distinctly with the behaviors that teachers lean upon to make an observation within their classroom. Researchers have observed strong relationships with

instructions on assignment completion and giving information to students about academic information specific to the university (Wambach & Brothen, 1997).

Students in higher self-disclosure positions support significantly more positive feedback toward their teachers. Students cite common attributes, honesty, and genuine relational elements as beneficial to teacher self-disclosure on Facebook (Mazer et al., 2007). Contrary feedback within the same participants in the higher self-disclosure positions warned that self-disclosure could also risk the preservation of a teacher's professional image. Positive results tend to mandate that teachers remain themselves on Facebook in parallel to their identity within the classroom. Students encourage teachers to use Facebook in order to better understand their personality and potentially open new doors for social contact before assembling in the classroom. Self-disclosure theorists argue that teachers must continue to keep their students best interests in mind when developing their social network site environment. Developing their profile in a manner that still presents their commitment and aptitude as a teacher is important for their students (Mazer et al., 2007).

Characterizations of Social Network Users and Non-Users

Although social network sites have witnessed tremendous growth in recent years (e.g. Facebook, 2010), research has not necessarily identified this definitive trend. A study on 1,060 first-year college students performed by Hargittai (2007) found that 78% used Facebook, 54% used MySpace, and 3% used Friendster. Though 99% of students had heard of Facebook, 14% had never used it and 3% had used it at one time but had stopped at some point (Hargittai, 2007). Amongst 116 participates from an East Coast university 87.1% had either a MySpace or Facebook account. Within the populace of

social network users, 90.1% had Facebook accounts, 83.2% had MySpace accounts, and 74.3% had accounts on both sites (Raacke & Bonds-Raacke, 2008). Subsequent research containing 175 student participants from an East Coast university performed by Bonds-Raacke and Raacke (2010) showed similar results. Approximately 87% of users reported having a Facebook account and 82% had MySpace accounts, and 70% had accounts on both sites (Bonds-Raacke and Raacke, 2010). In a study performed by Stafford (2008) 172 students at a large southern research university showed slightly higher percentages of Facebook participants. Of those studied, 93% of the students had a Facebook account and 7% did not have an account (Stafford, 2008).

Despite varying trends in usage, many demographic variables have shown significance for users and non-users of social network sites. Education, living situations, sex, and age seem to influence users and non-users of social network sites. In all but one modestly used social network site, Hargittai (2007) found that women had a higher chance of using social network sites than males. Stafford (2008) found that women are more likely to visit Facebook to preserve existing relationships, be entertained, and pass time than men. Men are more likely to visit Facebook to meet new people or develop new relationships than women. Raacke and Bonds-Raacke (2008) found that women changed their friend networking website appearance more often than men did. In their study women changed their profile 3.38 times while men changed their profile only 2.26 times. Women logged into their accounts less than men did despite making changes to their account at a greater frequency. Women logged into their accounts 3.45 times per day while men logged in 5 times per day (Raacke & Bonds-Raacke, 2008).

Raacke and Bonds-Raacke (2008) found significant differences in the social networking trends of the security settings of males and females. Privacy security settings disallow unaccepted friends from seeing the full user profile or pieces of personal information. Users are able to customize security settings to restrict access to different parts of their profile and information. For example, a security setting can allow all users or only friends to access the address and phone number information within a user profile. Of the female users, 63.5% set their profile security settings to private. Only 38.8% of males updated their security setting to private. Men were also more likely to have more friends linked to their account. In the study, the men averaged 280 friends versus 193 friends that women reported (Raacke & Bonds-Raacke, 2008).

Subsequently, Joinson (2008) found that most users were apt to change the default privacy settings on their Facebook profile. Their study suggested that less users made no changes to their Facebook profile than previous research had indicated. Approximately 23% of users made no changes to their profile and 9% made their profiles more open for any users to view their information. Contrary to users making their profiles less secure and thus less private from public access to their information, 10.9% of participants reported making their profile as private as possible. Another 25% of users made their profile to some degree more secure from the default security settings. Finally, 21% of participants made significant changes to make their Facebook profile much more secure (Joinson, 2008).

Lauren Dundes and Melissa Magnuson (2007) attempted to find whether significance existed between male and female identity formation on the social networking website MySpace. Femininity and Masculinity were both personified through semiotic

cues to determine whether male's identities or female's identities centralized more or less around significant others. Dundes and Magnuson argue that using MySpace technology removes many of the barriers in researching sense of identity. These include subjects' dishonesty, self-conscious, or inaccurate responses that are difficult to avoid in other forms of research on this subject (Magnuson & Dundes, 2008, p. 240).

Hargittai (2007) determined that little variance in the use of social networks existed within their study's late teen user population, however, older participants were less likely to be users. Approximately three in five individuals between the ages of 20-29 used a social network site while four in five 18-19 year-olds used a social network site (Hargittai, 2007). Research by Raacke and Bonds-Raacke (2008) also showed significance between the ethnicity and age of social networking users. Using chronological ordering nonusers tended to be older than users of social networking sites. Average age of users was 19.05 years while the average age of nonusers was 24.8. Research showed that among all ethnicities, Native Americans were least likely to use social networking sites (Raacke & Bonds-Raacke, 2008).

A significant relationship was found between the amount of education of user's parents and the choice of certain social network sites and their respective services. Users with parents that have a college education were more likely to use Facebook than users whose parents had not yet finished a college degree. Users whose parents had less education than a college degree were more likely to be enjoined with MySpace. Thus, a negative correlation seemed to exist between further education and MySpace use and a positive correlation existed between further education and Facebook use. In addition,

students still living at home with their parents were determined to be less probable users of Facebook then other students (Hargittai, 2007).

Time spent on social network sites has indicated the importance of its collective services for users. Participants from a southern university in Stafford (2008) spent an average of 47 minutes per day on Facebook. Over half of all users (54%) logged into the site multiple times per day with another 27% logging in at least once per day (Stafford, 2008). A different study found that approximately half of its participants had been members of Facebook for less than 6 months, continuing indications that demonstrate the rapid growth of social network sites in a short span of time. In this particular study of 241 college student Facebook users, only 10% of users had been members for more than 2 years. Most of the students visited Facebook several times per day (about 27%) or at least on a daily basis (about 38%). Slightly fewer students or approximately 22% visited the site numerous times per week and only 4.2% visited the site less than once per week (Joinson, 2008).

Raacke and Bonds-Raack (2008) found that students spent an average of 1.10 hours on other's accounts and 1.46 hours on their own account per day. In their study that followed, users spent over 2 hours per day on the profiles of others and their own profiles and logged into their social network site account on average 4 times per day (Bonds-Raacke and Raacke, 2010). Within Hargittai (2007), social network sites showed significance between their usage and the time a user spends on the Internet. MySpace and Facebook users both paralleled an increase in weekly Internet usage in their study. Furthermore, Steinfield et al. (2008) concluded that between the years of 2006 and 2007 its participants had almost doubled their usage of Facebook and were using the Internet

on average over an hour more per day. Longitudinal data has indicated both growing trends in usage and intensity of Facebook use. Steinfield et al. (2008) witnessed increases in the mean of Facebook intensity from 2006 (2.81) to 2007 (3.12). The number of minutes users spent on Facebook in 2006 garnered a mean of 32.56 and in 2007 this mean increased considerably to 53.76. Moderate increases were also seen in how sorry users would be if Facebook disappeared and Facebook as a part of daily routine (Steinfield, 2008).

User Motives for using Social Network Sites

Centric to the Uses and Gratifications Theory is audience activity.

Communication motives have been shown to be indicators of audience activity. Motives are the general characteristics that affect individual's actions taken to satisfy a need or want. Past research has identified interpersonal needs are fulfilled by Internet use (Papacharissi & Rubin, 2000, p. 179). Further research has indicated similar fulfillment through social network sites (Sheldon, 2008).

Sheldon (2008) found that female and the younger subjects in the study visited Facebook to maintain existing relationships. Older students were less motivated to visit Facebook in order to maintain existing relationships. Younger students who went to Facebook to maintain relationships had more friends than users who went to the site for other reasons. Passing time, entertainment, relationship maintenance, and coolness motives were all significant predictors for how often users logged into their accounts. Final factorial analysis identified six components. The first component that contained the largest variance (31%) included posting messages to a friend's wall and sending a message to a friend. With a total variance of 11%, passing time was the second

component. To occupy time and passing time because of boredom are examples of questions within the second component. The third component was labeled as virtual community. It represented 5% of the total variance and contained entities that included meeting new friends and using social network sites to feel less lonely (Sheldon, 2008).

A study completed by researchers in the United Kingdom on college Facebook users used raters working in teams to identify similar uses and gratifications. Data indicated that using the site to stay in touch was mentioned the most by participants.

Users believed they would have likely gotten out of touch with contacts without the communication that Facebook provides. The second most mentioned use related to social surveillance or "people watching" (Joinson, 2008). This was also defined as a passive form of contact and relates to watching and examination of the lives of Facebook contacts. Users can monitor the events of others by browsing through various alerts that Facebook offers. It has a number of surveillance features that track entities such as profile changes. This could include uploading new pictures, changing the current status on a profile, posting information to another contact's wall, or updating personal user information (Facebook, 2010). Tied for the third ranking were reconnecting with social contacts that communication had previously been lost with and communicating through posting to user's profiles or sending them private messages (Joinson, 2008).

Research on both MySpace and Facebook social network sites have shown similar uses and gratifications. Popular gratifications for participants in research performed by Raacke and Bonds-Raacke (2008) were staying in touch with old friends (96.0%) and staying in touch with present friends (91.1%). The lowest uses and gratification related to use for academic (10.9%) and dating (7.9%) reasons. Additional gratifications

included posting pictures (57.4%), developing new friendships (56.4%), and finding previous friends (54.5%). Data from the same study attempted to predict why non-users of social network sites existed. Respondents concluded that non-users did not desire to obtain an account (70.3%), were not proficient in technological applications (34.7%), did not have Internet access at home (51.5%), were too busy (63.4%), and finally thought it was a waste of time (60.4%) (Raacke & Bonds-Raacke, 2008, p. 171).

A later study administered by Bonds-Raacke and Raacke (2010) attempted to identify dimensions of social network site use. The study used principal component analysis with a varimax rotation. Significance identified a three-component solution for uses and gratifications. The first component was labeled as the information dimension. It drew approximately 22% of the total variance. The second component was defined as the friendship dimension. It comprised another 22% or approximately 44% of the total variance. Lastly, the third component was labeled as the connection dimension. This final component encompassed approximately 19% of the variance or 63% of the total variance. Examples of uses for the information dimension included for academic reasons, posting pictures, learning about events, and posting social gatherings. The friendship dimension contained keeping in touch with both old friends and new friends as well as to locate previous friends. Uses for dating reasons, feeling connected, and making new friends made up the final connection dimension (Bonds-Raacke & Raacke, 2010).

Supporting Scholars postulate that social network sites also rationally produce information dimensions. The nature of their technologies allows users to post information that is accessible concurrently by multiple users. Social network site users

receive gratifications from the sharing of information that connects them with others as well as with themselves. Social network sites tend to support the connection dimension due to their vast array of technology offerings that help to develop relations between individuals. In addition, friendship dimensions showing significance in research shows that social network sites are beneficial at upholding friendships (Bonds-Raacke & Raacke, 2010). It is suggested by Bonds-Raacke and Raacke (2010) that social network sites could possibly be one of the quickest and simplistic methods of locating old friends. *Behavioral and Attitudinal Outcomes of Facebook Use* 

A basic assumption of mass communication scholars has been that audience members are motivated by their selection of media content. Various social and psychological needs calculate exposure patterns and effects of media consumption (Garramone, 1984). Important parallels in studying these patterns can occur in both attitudes and exposure. Previous studies that have utilized the Uses and Gratifications Theory have found that attitudes as well as patterns of use including duration of use, amount of use, and types of use are relevant elements for studying the Internet and Facebook (e.g., Papacharissi & Rubin, 2000; Sheldon, 2008). Sheldon (2008) conceptualized behavioral and attitudinal outcomes of the social network site Facebook in particular. Facebook behavioral and attitudinal outcomes were measured through the amount, duration, and frequency of individual use as well as through user satisfaction, addictive use, and relationship development (Sheldon, 2008).

Studying the amount and types of media use correlates with positive outcomes in previous research. Computer-mediated communication studies on patterns of use have associated positive attitudes with computer use and higher levels of learning (Perse,

Burton, Kovner, Lears, & Sen, 1992). Perse et al. (1992) found that weekly computer use and duration of computer use correlated with benefits from computer-mediated communication. Regardless of prior experiences, college students who used computers regularly benefited from computer-mediated communication within their study (Perse et al., 1992). Papacharissi and Rubin (2000) found that entertainment and information seeking motives significantly predicted email use. Previous research on Facebook indicated that the motives of passing time and relationship maintenance also predicted the number of hours students spend on the social network site Facebook (Sheldon, 2008).

Previous researchers (e.g., Hecht, 1978; Papacharissi & Rubin, 2000) have associated relationship development with communication satisfaction. Similarly, attitudes about computers connect with the use of computers for various tasks. Research has indicated that negative attitudes reflect user anxiety that hinders the attainment of computer skills (Perse et al., 1992). Earlier research on television gratifications hypothesized that satisfaction was associated with gratifications that are sought (Palmgreen & Rayburn, 1985). Papacharissi and Rubin (2000) argued that variations and satisfactions should be an outcome of Internet use. Other research has measured user satisfaction and relationship development on the social network site Facebook. Sheldon (2008) correlated the amount of Facebook friends with the development of relationships.

Uses and gratification research has measured that satisfaction of users by determining how much users are satisfied by the components they are seeking. Studies have shown that the information-seeking motive is a significant predictor of Internet satisfaction (Papacharissi & Rubin, 2000). Researchers determined that users who felt valued in their interpersonal environment viewed the Internet primarily as an

informational tool. Users who were generally more satisfied with life and more comfortable approaching others preferred information seeking Internet uses.

Subsequently, individuals that felt less valued in their face-to-face interaction relied upon the Internet as an interactional and alternative tool to interpersonal communication.

These same individuals that were also generally less satisfied were more apt to use the Internet to fill time (Papacharissi & Rubin, 2000).

Previous uses and gratification researchers have identified Internet addiction as a pathological behavior. Regardless, symptoms could possibly be present in normal populations according to Song et al. (2004). According to the results of the research, "mild" Internet addictions of normal Internet users were found (Song et al., 2004, p. 390). Gratifications from the study were positively related to attributes identified within Internet addiction. Consistent with prior uses and gratifications research, Song et al. (2004) argue that routine media behavior is the effect of previous selection processes of media. Gratifications found to relate to the tendency of Internet addiction included Virtual Community, Aesthetic Experience, Diversion, and Relationship Maintenance.

Identifying whether participants would miss Facebook if it disappeared measures user addictive or attachment tendencies. The number of Facebook friends students have never met in person and the number of friends a user has linked to their account determined relationship development. Data has found that the motives of entertainment, passing time, and relationship maintenance are all significant predictors of whether users would miss Facebook if it were to disappear. Past research found that women, more so than men, were more satisfied with the job Facebook was doing and would miss it more if it disappeared (Sheldon, 2008).

#### Limitations of Social Network Research

The scarcity of research on social network sites limits the causal claims that researchers can make according to Boyd and Ellison (2007). Further longitudinal and experimental studies are recommended to begin fulfilling this void. Changes in the use of social network sites over time is difficult due to lack of understanding caused by time gaps, however, it is important to determine changes in the same groupings of users (Steinfield et al., 2008). Experts still need further data on why these sites are being used, whom the users are, and for what purposes. More diverse populations of users and non-users are critical to expanding prior research. This includes research external to the United States (Boyd & Ellison, 2007). Using additional methods of experimental designs are encouraged to continue in the effort of developing a more broad landscape of interactions within social network sites (Steinfield et al., 2008).

Findings from Song et al. (2004) also suggest further limitations are present in determining certain attributes of Internet addiction and the corresponding individual. According to their research, the vast environment presented by online communication mediums could be a proliferated arena for harmful behavioral addictions. Learning mechanisms for these behavioral addictions are present in every individual according to previous studies (See Song et al., 2004). Still, the researchers found that research is limited in its ability to determine why some individuals are addicted to the Internet while others are able to control their media consumption behavior (Song et al., 2004).

Restrictive populations of social network site research are also a cause for additional studies. Raacke and Bonds-Raacke (2008) found limitations in the age of the student population it studied. College freshmen were the primary group surveyed.

Studying if the uses of friend networking sites changes as students continue their degree was a proposed solution to this limitation. Additional research on non-users was also a proposal of this study. Since there were such a small number of non-users, Raacke and Bonds-Raacke (2008) hypothesized, that research needs to determine why these users are not using social network site.

Bonds-Raacke (2008) suggested studying a larger sampling of this demographic. Subsequent studies by Bonds-Raacke and Raacke (2010) focused on first year college students. Social network dimensions identified in this study could change with a differing demographic populace. In addition, the frequency data on social network site users has the potential to change at varying times of the year. College students may increase or decrease their rates of usage when school is no longer in session (Bonds-Raacke & Raacke, 2010). Song et al. (2004) also used college students, specifically those enrolled introductory courses. Researchers from this study cited alternative populations as a need due to the generalization of their sampling (Song et al., 2004).

Changes in the social network site Facebook has been another cause for further studies. Facebook.com had only recently updated its access to allow the public to use it at the time of the research performed by Sheldon (2008). Larger samples from Facebook users could have placed lesser restrictions on the findings as well. Sheldon (2008) also theorized that their research did not include enough needs. Further development of the list of needs would have potentially changed the findings. Echoing other social network researchers, Sheldon (2008) argued that a further demographic characteristic comparison was necessary. Suggestions included the comparison of motivations between different

colleges and schools as well as between high school students and college students (Sheldon, 2008).

Past research that focuses on a particular community may be assisted by supplementary studies in different communities. Ellison, Lampe, and Steinfield (2007) used a large Midwestern university in their study. The researchers postulated that the community it facilitated disallowed the generalization of their findings. In addition, the college years were identified by the study as a unique phase of development within an individual's life that could also influence any generalizations. Facebook experiences could correlate with the special nature presented by certain offline communities. Ellison et al. (2007) believe further research is necessary to study Facebook use on other communities that include high schools.

Ellison, Lampe, and Steinfield (2009) also argue in subsequent research that social network sites invariably are changing the way relationships are formed and maintained. Their extenuating service needs further analysis. A large percentage of Adults 18 to 24 years old, 75%, are using social network sites (Lenhart, 2009). Ellison et al. 2009 state that life transitions to college are a key element that the social network site Facebook impacts. Research suggests that social network sites can assist in the maintenance and development of new relationships during student's transition to the college level of education from high school. Still, they state that their findings do not necessarily determine what features preeminently sustain these needs (Ellison et al., 2009). Regardless, little research is present that specifically targets high school students. Uses and gratifications of younger social network users and measured differences of uses and gratifications as age matriculation occurs are scarce and need further attention.

Cummings et al. (2006) ponder a number of unanswered questions existing during the transition of students between college and high school. This includes whether college is more satisfying than high school for students and whether relationship maintenance sustains college attendance. Despite not being able to answer these questions in their research, they hypothesize that relationships contribute to a positive quality of life for college students. In contrast to simply feeling close to an individual, communication through online technologies prevents relationships from becoming dormant (Cummings et al., 2006). Still, it is unknown what the motives are for high school students for visiting sites that facilitate this type of communication. Researchers do not know the satisfactions of high school students for using the social network site Facebook. It is also unknown whether relationship maintenance is as important as it is for college students in Cummings' et al., (2006) study.

# Summary

Past studies on the uses and gratifications of Facebook users have had the disadvantage of a young and newly developed Internet communication medium.

Facebook is still relatively young since its inception in February of 2004 (Facebook, 2009). As Sheldon (2008) indicated, it is important to continue studying the uses and gratifications of Facebook users as it becomes more inculcated into the lives of young adults. Furthermore, the hundreds of millions of additional users that have joined the social network site Facebook since the completion of initial uses and gratification studies provide new opportunities for more diverse samplings. Populations limited by demographics that included level of education, number of schools, and number of colleges studied are all factors to consider. Further studies are also necessary to compare

the needs and trends of students at different levels of education and life. Many studies have predominantly used undergraduate college students in their samplings to determine Facebook uses and gratifications (Bonds-Raacke & Raacke, 2010; Raacke & Bonds-Raacke, 2008; Sheldon, 2008) Supplementary inclusion of needs and differing samplings from a greater age range and level of education will broaden the current research on the uses and gratifications of social network sites. Finally, as Ellison et al. (2007) as well as Sheldon (2008) mentioned, crucial information on the uses and gratifications of students during the unique phases of an individual's life in both high school and college could have significant implications for further research.

## CHAPTER III: METHODOLOGY

# Introduction to the Chapter

The intent of this study is to examine the high school and undergraduate college student motives for using the social network site Facebook. It seeks to determine the motives of high school and undergraduate college students that predict the behavioral and attitudinal outcomes of Facebook use. Lastly, it measures differences in the behavioral and attitudinal descriptors of High school students and undergraduate college students. A survey approach answers the research questions developed to determine the motives and outcomes. The questionnaire matriculated from the instrument used by Sheldon (2008). Information seeking motives from Papacharissi and Rubin's (2000) study were the exclusive addition to the original instrument.

The purpose of this chapter is to describe the methodology used in this quantitative study. Chapter 3 consists of the following sections: restatement of the problem, research questions, design of the study, population and sample, instrument, data collection, data analysis, validity of the design, and reliability of the design.

## Restatement of the Purpose

Certain Facebook motives for communicating and to a lesser degree demographics influence behaviors and attitudes of Facebook users (Sheldon, 2008).

Cummings et al. (2006) noted there could be a number of important relationship maintenance dynamics during the transition of students from high school to college. As Sheldon (2008) identified, no comparisons exist between high school and college student motives for using Facebook. Research has identified a number of social network site

motives for college student use (Bonds-Raacke & Raack, 2010; Sheldon, 2008). The most salient of these motives is maintaining relationships in Sheldon's (2008) research and looking for information in Bonds-Raacke & Raack's (2010) study. In addition to other Facebook motives, relationship maintenance has significantly predicted a number of behavioral and attitudinal outcomes of college student Facebook use. However, many of these factors are unknown for high school student Facebook use. With hundreds of millions of users now using the social network site Facebook, it behooves researchers to determine why. Determining the motives of high school students and undergraduate college students may help better explain whether grade level is an important predictor of the behavioral and attitudinal outcomes of Facebook use.

# **Research Questions**

The following research questions study the motives of high school and undergraduate college Facebook users. The questions also seek to identify some of the behavioral and attitudinal outcomes of high school and undergraduate college student Facebook use. Finally, the questions determine any differences between the behavioral and attitudinal descriptors of high school student Facebook use and the behavioral and attitudinal descriptors of undergraduate college student Facebook use.

Research Question 1: What are the motives for using Facebook for high school students and the motives for using Facebook for undergraduate college students?

Research Question 2: What motives of high school students predict behavioral and attitudinal outcomes of Facebook use and what motives of undergraduate college students predict behavioral and attitudinal outcomes of Facebook use?

Research Question 3: Is there a significant difference between certain behavioral and attitudinal descriptors of high school student Facebook users and certain behavioral and attitudinal descriptors of undergraduate college student Facebook users?

This study identified and selected a number of Facebook patterns of use that past researchers used in both Internet and social network site studies to measure differences between the behavioral and attitudinal descriptors of high school and undergraduate college student Facebook users. In parallel to behavioral and attitudinal outcomes defined by previous researchers (e.g., Papacharissi & Rubin, 2000; Sheldon, 2008), the following null hypotheses measured the attitudinal and behavioral outcomes of Facebook use:

- $H_0$ 3.1: There is no statistically significant difference between the amount of Facebook use of high school students and the amount of Facebook use of undergraduate college students.
- $H_0$ 3.2: There is no statistically significant difference between the frequency of Facebook use of high school students and the frequency of Facebook use of undergraduate college students.
- $H_0$ 3.3: There is no statistically significant difference between the duration of Facebook use of high school students and the duration of Facebook use of undergraduate college students.
- $H_0$ 3.4: There is no statistically significant difference between the amount of friends high school students have on Facebook and the amount of friends undergraduate college students have on Facebook.

 $H_0$ 3.5: There is no statistically significant difference between high school student satisfaction with Facebook and undergraduate college student satisfaction with Facebook.

 $H_0$ 3.6: There is no statistically significant difference between high school student attachment to Facebook and undergraduate college student attachment to Facebook.

# Design of the Study

The design of this study is of the formal quantitative nature. Ary, Jacobs,
Razavieh, and Sorenson (2006), describes formal quantitative research as following the
scientific method and holding true to quantitative statistical results (p. 541). The study
incorporates two types of research designs: nonexperimental correlation and causalcomparative. The first purpose of the study is to identify the underlying components of
Facebook use. The second intention is to use the underlying motives of Facebook use to
predict behavioral and attitudinal outcomes of Facebook use. The researcher does not
attempt to manipulate variables while working to achieve these two purposes using a
nonexperimental correlation research design. The third purpose of this study is to
compare the behavioral and attitudinal answers of undergraduate college students to those
of high school students. Random assignment of subjects and manipulation of an
independent variable does not occur to achieve this purpose. As Ary et al. (2006) state, ex
post facto research occurs after variation in the variable of observation already transpires
in the natural course of events (p. 356).

#### Population and Sample

Past studies to date focused on exploring the underlying structures of college student Facebook use (Bonds-Raaacke & Raacke, 2010; Sheldon, 2008). Exclusion of certain populations such as high school students limits uses and gratifications research on

social network sites (Sheldon, 2008). As Ellison et al. (2007) identified, it is important to study students during important transitional stages of life. Sheldon (2008) specifically recommended comparing the motives of high school students and college students. In response, high school seniors and undergraduate college students 18 years of age and older were the target population of this research. Subjects from two school districts and one Division I University in the mid-Atlantic United States participated in this study. The schools were located within a 25-mile radius of one another.

The university consisted of over 10,000 undergraduate students and 50,000 online students from more than 50 foreign countries. It is located within the city limits of the nearest metro area of approximately 70,000 people. The estimated median household income was \$40,000 in 2008. Median house or condominium value in 2008 is approximately \$140,000. The approximate percentage of residents living at the United States government poverty level in 2008 is 19%. The one private high school was located in the same city limits as the university and consisted of the same socioeconomic demographics previously mentioned. The public high school is located in a nearby rural county with a population of approximately 60,000 people. The estimated median household income was \$50,000 in 2008. Median house or condominium value in 2008 is approximately \$200,000. The percentage of residents living at the United States government poverty level in 2008 is 6%. The State Department of Education recognizes both high schools as accredited institutions.

The study used a nonrandomized subjects, post-test only design. According to Ary et al. (2006), it is often not feasible to assign random subjects to treatment groups in an education-based environment. Absolute control of the sample population is not

present in this research design due to the prior assignment of students to the classes studied. Therefore, the study used purposive, nonprobability sampling.

Sample size selection paralleled similar uses and gratifications research on social network sites. Previous studies on social network sites used samples that consisted of 175 users (Bonds-Raacke & Raacke, 2010) and 172 users (Sheldon, 2008) respectively. Past research postulated that although no sample size is perfect for all factor analysis work, an approximate population of 200 is sufficient for generalized findings (Kaiser & Rice, 1974). Therefore, this study conducted pre-analysis data screening on a combined sample size of 363 participants. The studied carried out further analysis on the separate groupings of high school and undergraduate college students.

#### Instrument

An online survey was the primary means for obtaining data in this research.

Upon the approval and recommendations of P. Sheldon (personal communication via email, August 26, 2009) a tested instrument designed for studying individual motives for Facebook use and behavioral and attitudinal outcomes was redesigned for data collection. The redesign of the study removed Sheldon's (2008) Facebook motives for companionship. It added Papacharissi and Rubin's (2000) motives for information seeking.

A 5-point Likert scale (5 = exactly, 1 = not at all) was constructed in parallel to the previous ICM instruments designed by Flaherty et al. (1998), Papacharissi and Rubin (2000), and Sheldon (2008). The survey asked participants if their motives for using Facebook matched each motive exactly or did not match it at all. Motives that match the line item exactly result in a rating of "5" on the Likert scale. Motives that do not match

the line item at all results in a rating of "1" on the Likert scale. Motives that only partially match the line item result in a rating of "2," "3," or "4" on the Likert scale. Similar 5-point Likert scales existed for the behavioral and attitudinal outcomes of satisfaction and attachment. Multiple-choice questions in the instrument measured duration of use and the frequency of use. Two open-ended questions existed to measure the amount of Facebook use and the number of Facebook friends. The online form only allowed numeric values in both of the latter fields.

The instrument is based upon a model of the uses and gratifications theory that suggests to measure gratifications through gratifications that are sought and gratifications that are obtained from the media consumption of an individual (Sheldon, 2008).

Traditional measurement on gratifications sought versus gratifications received applies to newspapers and television. The expectations of content developed in advance of exposure and the satisfaction obtained from consuming it are the two differences identified by past uses and gratifications researchers (Garramone, 1984). Palmgreen and Rayburn (1984) hypothesized that gratifications influence satisfaction levels. That is to say, the degree to which an individual obtains sought gratifications from media use adds to the individual's satisfaction with that experience (Palmgreen & Rayburn, 1984). The instrument redesigned for the social network site Facebook measures gratifications sought through determination of the subject's reasons for using Facebook. It measures gratifications obtained through the identification of what the subjects receive from Facebook use (Sheldon, 2008).

#### **Data Collection**

This study followed the application process of the Committee on the Use of Human Research Subjects at the university in which data collection occurred. The committee approved data collection at the university as well as two regional high schools (See Appendix A). Letters of intent, a link to a test instrument, and signed copies of the Institutional Review Board approval were sent to the required administrators and academic Deans of the undergraduate residential schools specific to the target population. Signed copies of the Institutional Review Board approval, a confidentiality agreement, letter of intent, and link to a test instrument were sent to the K-12 regional Virginia county superintendent office and the private K-12 school superintendent office. The academic and superintendent offices approved the study. Appendix B consists of the confidentiality agreement sent to the schools.

Data collection occurred from late spring to the summer of 2010. Scheduled times for completion were established with the individuals selected to administer the survey. The survey was self-administered using an online professional survey site. High school students took the survey during scheduled class time. Instructors gave verbal instructions on how to complete the survey. Completion of the survey occurred on both workstation and laptop-based computers. Before obtaining access to a computer, students were instructed that they must be 18 years of older to participate. In addition, the first page of the survey required students to confirm they were 18 years of age or older. Only participants confirming they were 18 years of age or older and clicking a confirm button were directed to the second website that contained the full questionnaire. Professors presented the same survey to undergraduate college students. Professors used

a mix of both online and residential courses. Students received the website link to the survey via email and could complete it during or outside of scheduled class time. The surveys remained open for a two-week period for each separate section of classes.

Computer Management Information Systems, Education, and English classes were all included in the final populace.

Separate website links containing the same survey were used for classes specific to the school and division to allow the surveys to be opened and closed at the proper times. The survey website tracked unique addresses of computers that accessed the survey. This provided an extra layer of security to assure only the assigned classes were accessing the unique survey. It also highlighted any unique computer addresses that took the survey more than once.

Instructions were given for each section of the online survey. Detailed information on the Interpersonal Communication Motives-based scale helped avoid inaccurate responses. The survey required an answer to each question for Facebook users. Intuitive feedback existed for incomplete questions on the survey. For example, students were asked how many minutes they spend on Facebook. If the student answered "1 hour," the website would respond by asking the student to use numbers only such as "60." These checks allowed 100% of data collection to occur.

## Data Analysis

Patterns among the motive loadings were observed using factor analysis. Student motives predicted the outcomes of the a priori behavioral and attitudinal outcomes.

Finally, Independent T-Tests compared the attitudinal and behavioral outcomes of high school with undergraduate college students. Principle component analysis with varimax

rotation determined components representative of Facebook motives. Stepwise multiple regressions calculated the predicted outcomes.

The professional online survey site offered exportation of the results into a Microsoft Office Excel format. Microsoft Office Excel version 2007 was used to compile the data collected by the instrument. Additional fields created in Excel coded the samples by school, Facebook users, Facebook nonusers, high school students, and undergraduate college students. After this coding, PASW Statistics, Release 18.0 was used to import the Excel spreadsheets. With the exception of the coding and table formatting, PASW 18.0 was the only application used to perform the statistical tests. PASW 18.0 also was used to create each of the tables. However, there was subsequent exporting of the tables into a format compatible with Microsoft Excel. Prior to placing the tables into Microsoft Word, Microsoft Excel version 2007 formatted and made minor design changes to the tables.

# Pre-Analysis Data Screening

Pre-analysis data screening used descriptive statistics to determine minimum values, maximum values, and missing values. Data assessment sought to identify any failures in the collection process. Development of the online form paid careful attention to completion of each question as well as potential data corruption. Upon form submission, the survey software verified the completion of each question. Missing data prevented completion. If incomplete, it directed participants to the place in the form where answers were missing.

In general, statistical tests are sensitive to outliers. If extreme enough, a single outlier can influence whether the results of a statistical test are significant (Mertler &

Vannatta, 2005). Thus, it is important to identify and treat outliers. Within the raw data, univariate outliers were identified on all ordinal variables by transforming the data to z-scores. Since normal distribution was assumed, 99% of the scores were approximated to lie within four standard deviations of the mean. Z-scores greater than +3.00 or less than -3.00 indicates an unlikely value and it thus treated as an outlier. Past research has considered extending Z-scores from the standard z > +3.00 and z < -3.00 to z > +4.00 and z < -4.00 when the population size exceeds n > 100 (Mertler & Vannatta, 2005).

Multivariate outliers were assessed using Mahalanobis distance. Hair, Anderson, and Tatham (1987) argue that one particular test, Mahalanobis distance, becomes more critical to apply to raw data when predictor variables increase. In addition, multivariate outliers can be particularly subtle and difficult to identify without proper screening. Researchers recommend Mahalanobis distance for this procedure since it is able to identify outliers of any type (Mertler & Vannatta, 2005).

Mahalanobis distance is assessed using a chi-square statistic with degrees of freedom equivalent to the number of variables within the analysis. Values of Mahalanobis distance were significant at p < .001. This was determined by comparing the data saved for each variable by running Mahalanobis distance with the chi-square critical value (Mertler & Vannatta, 2005). The standard chi-square table determined the critical values. Appendix C references the critical values. Critical values of chi-square were correlated with degrees of freedom, which were equivalent to the number of explanatory variables.

This study assumed normal distribution. Normal distribution was gauged using descriptive statistics that included normal Q-Q plots, skewness, and kurtosis. Maxwell

and Delaney (2004) have suggested that generating a typical range of kurtosis and skewness measurements can be more useful than other tests to identify data normalization. Acceptable departures from normality have varied in previous studies (Delaney, 2004). Satisfactory range has been considered at -1.0 to +1.0 for skewness and -2.0 to 2.0 for kurtosis (Harlow, 2005). Subsequent research implies -1.0 to +1.0 is satisfactory for both skewness and kurtosis (Mertler & Vannatta, 2005). Data analysis considered both ranges in addition to visual Q-Q plots to determine whether normalization should be rejected. Mertler and Vannatta (2005) state that the most common method for evaluating multivariate normality is generating scatter plots of all variables in relation to one another. Variable groupings that are normal will develop scatter plots with elliptical shapes (Mertler & Vannatta, 2005).

The assumption of linearity was assumed and tested for multivariate analysis within this study. The univariate assumption of homogeneity of variance and homoscedasticity were also assumed within this study. Homogeneity of variance was tested statistically using Levene's test. If Levene's test was significant or less than 0.05 (p < 0.05) the null hypothesis that the variances are equal was rejected. If Levene's test was not significant (p > 0.05), the variances were assumed approximately equal (Mertler & Vannatta, 2005).

In order for the assumption of multivariate normality to exist, Tabachnick and Fidell (1996) state that two variables must be homoscedastic. Nonnormality of one of the variables or a relationship with the transformation of the other variable are both cited as reasons why two variables are not homoscedastic (Tabachnick & Fidell, 1996). Due to the subjectivity of bivariate scatter plots in the identification of linearity, Mertler and

Vannatta (2005) have recommended that researchers use a more sophisticated method that compares standardized residuals to the predicted values of the dependent variable. Residual plots were used to examine the dependent and independent variables prior to multivariate analysis. An approximate rectangular allocation of residuals with a concentration of dots along the center is present when linearity, homoscedasticity, and normality are met. Residuals that are curved suggest nonlinearity while residuals that are clustered on the left or right side suggest heteroscedasticity (Mertler & Vannatta, 2005). Data Analysis of Facebook Components

The first research question asked, what are the motives for using Facebook for high school students and the motives for using Facebook for undergraduate college students? Factorial analysis was used to find the underlying structure of high school student motives for using Facebook and the underlying structure of undergraduate college student motives for using Facebook.

Factorial analysis utilized Principal Component Analysis as the extraction method. Varimiax rotation was used with Kaiser Normalization. Prior research suggests that Kaiser's Measure of Sampling Adequacy (MSA) is an important indicator of whether factorial analysis is an acceptable measurement of a set of data. Any matrix has the capacity to identify the validity of factor extraction (Cerny and Kaiser, 1977, p. 43). Research has found that  $0 \le MSA \le 1$ , and that the larger the Measure of Sampling Adequacy, the better the data is. Furthermore, an MSA that is less than .5 is unacceptable for factorial analysis (Cerny & Kaiser, 1977, p. 44). Research on determining an appropriate data set for factor analysis has indicated that the Kaiser-Meyer-Olkin (KMO) MSA may be one of the best methods available (Hair, Anderson, & Tatham, 1987, p.

285). McCroskey & Young (1979) also found that Kaiser's MSA was one of the best methods available to determine whether enough subjects were included. Kaiser and Rice (1974) constructed an MSA scale that determines to what degree variables belong together and are therefore appropriate for factorial analysis. The criterion in Table 1: Kaiser and Rice (1974) MSA scale, evaluates this appropriateness.

Table 1
Kaiser and Rice (1974) MSA scale

In the .90s is marvelous

In the .80s is meritorious

In the .70s is middling

In the .60s is mediocre

In the .50s is miserable

Below .50 is unacceptable

(Kaiser & Rice, 1974, p. 112)

The initial population of each grouping was 152 high school students and 186 undergraduate college students. In addition to past studies, researchers relied upon the subject-to-variables ratio (STV) prior to factorial analysis. In determining the number of subjects to use, scholars recommend the STV ratio for use with Principal-Components Analysis (PCA) studies. In order for the results of an analysis to be reliable, the STV ratio should be at least five times the number of variables (Bryant & Yarnold, 1997). Given the smaller populace size of 152 high school students, the maximum number of subjects that could be considered was 30. Prior research also suggests a ratio of subjects to independent variables within multiple regressions of at least 15 to 1 (Mertler & Vannatta, 2005). This particular study used a maximum of four independent variables and therefore met this ratio.

Three criteria allowed retention of the variables: eigenvalue, scree plot, and variance. Researchers heavily weighted the criterion models set by past research on

Facebook motives. Kaiser's rule states that only those components that have an eigenvalue greater than 1 should be retained. Scree plots graphed the magnitude of each eigenvalue on the vertical axis along with their ordinal numbers on the horizontal access. A conservative approach is to retain only those components in the steep descent of the plot before variables occur that level off into a straight line (Mertler & Vannatta, 2005). Lastly, the variance was considered. Some scholars have generally suggested retaining components that account for 70% of the variance (Mertler & Vannatta, 2005).

Data Analysis of Behavioral and Attitudinal Predictions

Stepwise multiple regressions calculated the undergraduate college and high school student motive predictions of the attitudinal and behavioral outcomes of Facebook use. Variances in the motives themselves, standardized labeling of the motives used, and inclusion of the sampling of high school students seemed to suggest non-sufficient data for other regression designs. Two studies identifying an underlying structure of Facebook use include Sheldon (2008) and Bonds-Raacke & Raacke (2010). Sheldon (2008) used the labels of companionship, coolness, entertainment, passing time, virtual community, and relationship maintenance. Bonds-Raacke & Raacke (2010) used the labels friendship dimension, information dimension, and connection dimension. College students were the subjects present in both samples. These inconsistencies led this study to select stepwise multiple regressions. Stepping method criteria used a probability of F with 0.05 for entry and 0.10 for removal. Analysis of variance was used to assess the overall significance of the model. Significance for the regression model was measured at p < 0.05. Subsequently, significance for regression coefficient variables was significant at p < 0.05.

Tolerance of independent variables was scrutinized before running each regression procedure. Multicollinearity was handled by removing problematic variables. Tolerance of zero indicates complete multicollinearity. Analysis identified any variable with a tolerance of < 0.1. Any regressions with independent variable tolerance results less than 0.1 were rerun without inclusion of the violating variable(s). Previous research has indicated this method as acceptable and the simplest in handling the problems associated with multicollinearity (Mertler & Vannatta, 2005).

Data Analysis of Behavioral and Attitudinal Differences

The third and final research question asked, is there a significant difference between certain behavioral and attitudinal descriptors of high school student Facebook users and certain behavioral and attitudinal descriptors of undergraduate college student Facebook users? T-Tests for independent samples were used to compare the means between high school student answers and undergraduate college student answers on the survey to the behavioral and attitudinal outcome related questions. Each sub null hypothesis for the third research question, there is no significant difference between certain behavioral and attitudinal descriptors of high school student Facebook users and certain behavioral and attitudinal descriptors of undergraduate college student Facebook users rejected p at  $\leq \alpha$ . Alpha  $\alpha$  was identified at .05, thus,  $p \leq .05$ .

## Validity of the Design

Scholars identify four types of design validity beneficial to quantitative research. These include internal validity, external validity, statistical conclusion validity, and construct validity (Parker, 1993).

# Internal Validity

Parker (1993) defines internal reliability as "the extent to which extraneous variables are controlled." Concluding that observations are the result of a certain independent variable is questionable when extraneous variables are not properly controlled. Internal reliability threats in the design of this study include testing and selection (Parker, 1993).

Parker (1993) makes the argument that pretesting has the potential to influence participant answers to the posttest instrument. It is possible that students could remember their answers to the survey and use these on the posttest. A posttest only design reduced this potential threat. Parker (1993) also states that the selection of subjects' poses additional risks when participants volunteer or are assigned to control or treatment groups based upon preferences. Participant selection did pose a threat to this study. As previously mentioned, a nonprobability sampling occurred within the design. Class type had no purposeful selection; however, selection of the specific college and high schools was purposeful (Parker, 1993). Student participation in each school was voluntary. Laptops at the back of the classrooms on non-assigned desks allowed students to participate throughout the class period only if they wanted to participate.

# External Validity

External validity coincides with the scale to which findings become generalized across settings, times, and subjects (Parker, 1993). The incapacity to secure a sample that represents various ranges of times, a variety of settings, and is representative of the population threatens the external validity of the research. Interaction of the setting with

the treatment and interaction of history with the treatment posed threats to this study (Parker, 1993).

Treatments demonstrated in one environment may fail equivalent demonstration in a different environment. Thus, generalization of an effect to other settings threatens validity. The interaction of history with the treatment also threatens validity. The stress or anxiety level of students, for example, fluctuates if environmental scenarios such as poor weather occurred at the time of administration (Parker, 1993). This study has the potential to suffer from both of these threats.

The settings between undergraduate college students and high school students differed. High school students took the online survey on laptops at the back of their classrooms whereas college students took the online survey on their own computers in environments that were not necessarily within a classroom. Although there was not a time limit for completion, there could be more pressure for students to complete the survey more quickly in a classroom setting than other settings. Additionally, the non-familiarity of the laptops could influence the precision of responses. Since only one form existed with the primary questions, however, it is easy to change answers on the survey if incorrectly chosen. Therefore, mitigation of the threat occurs to some degree by the form's design.

As previously noted, the online form does require an answer to each question.

Descriptions are present for each section as well as for missed questions. The form also places students directly back at the first missed question upon submission if a missed answer exists or if the user loses Internet connectivity for some time during completion. If a user lost Internet connectivity for more than 60 minutes, they could not re-take the

survey using the same answers, however. Due to another threat of students taking the survey more than once, the survey administrator is required to clear a user's session if this happens. Regardless, this never occurred during the administration of any of the surveys in this study. The clarity of instructions on the form combined with the intuitiveness of the form's design helps participants to make the intended choice in the survey.

Although there are threats to external validity in this study, the intent is not to generalize its findings to students in other localities. It captures its results at a single point in time. Therefore, it will be up to those who read and review this research to determine whether the results are applicable to other settings.

# Statistical Conclusion Validity

Statistical conclusion validity refers to the appropriate use of statistics that determine whether to reject or accept the null hypotheses (Parker, 1993). The data analysis and forthcoming reliability of design sections of this chapter provide the steps taken to assure statistical conclusion validity. Review of related literature sought the proper statistical methods of many studies with similar research designs. As these subsequent sections of this study show, statistical testing significance levels follow numerous parallel studies. Meticulous and careful data collection, data coding in Microsoft Excel, and proper use of PASW 18.0 in statistical analysis helped accuracy and precision in the reporting of the results. Use of an instrument demonstrated to produce reliable results addresses measurement error. Lastly, systematic use of scholarly recommended pre-screening methods found in the data analysis section of this chapter addresses random irrelevancies that threaten statistical conclusion validity.

## Construct Validity

The construct validity of a variable relates to whether the procedures and instruments within the study accurately and sufficiently measure the variable. Legitimate constructs suggested as causes or effects must rule out all other constructs having a cause or effect (Parker, 1993). Design and use of the constructs in this study exist more extensively in the review of related literature chapter and the reliability of the design section of this chapter. Thorough definitions and documentation of reliability of these constructs is important to address this threat to validity. Regardless, not every variable in this study is capable of ruling out every possible outcome of the behavioral and attitudinal outcomes associated with Facebook use. Additionally, total variances in past studies using similar instruments clearly indicate that further explanation is necessary to determine every student motivation for using Facebook. Thus, the threat of construct validity possibly limited the extent to which this research was able to identify the complete cause and effect relationship of the variables.

# Reliability of the Design

Ary et al. (2006) define reliability of a measuring instrument as "the degree of consistency with which it measures whatever it is measuring (p. 254)." Random errors that result in mere chance threaten to interfere with participant scores in an unpredictable way (Ary et al., 2006). Thus, this study sought to use instrumentation that produces reliable results.

## *Reliability of the Instrument*

Rubin's (1988) Interpersonal Communication Motives (ICM) scale defines a number of fundamental motives for using media that many researchers have modeled and

shaped for application to modern online communication mediums. Among other earlier media research, studies have modeled interpersonal motive scales to study the Internet (e.g., Flaherty et al., 1998; Papacharissi & Rubin, 2000) and social network sites (e.g., Sheldon, 2008). Use of the ICM scale has proven to produce sufficient alpha reliability scores in past studies. Scholars have identified Cronbach alpha's that are above .70 as normally acceptable (See Ary et al., 2006). Flaherty et al. (1998) used a modified version of Rubin's (1988) ICM scale. Parallel to the instrument used in this study, participants ranked the extent to which the Internet was reminiscent of their own usage patterns with 1 equaling not at all and the number 5 equaling exactly. Alpha reliability outcomes for the modified ICM scale ranged from .44 to .91. The results had a larger range than past ICM-based studies that contained alphas ranging from .66 to .88 for three-item indexes rather than two-item indexes (Flaherty et al., 1998, p. 258). Barbato, Graham and Perse (2003) constructed an interpersonal communication motives instrument with a similar design. Alpha reliability ranged from .55 to .88 (Barbato, Graham & Perse, 2003, p. 130).

# Reliability of Facebook Motives

The uses and gratifications theory led to the identification of many interpersonal communication motives (Hullman, 2004). Some of the earliest studies sought to determine motives for using radio, newspapers, and television (Katz & Foulkes, 1962). Studies that are more recent also found a number of Internet and Facebook uses and gratifications. This study uses a collection of these a priori uses and gratifications (Flaherty, Pearce, & Rubin, 1998; Flanagin & Metzger, 2001; Papacharissi & Rubin, 2000; Sheldon, 2008). Sheldon's (2008) re-definition of these motives identifies

gratifications specifically applicable to college Facebook users. This research used 26 of these gratifications to meet the subject-to-variables ratio (STV). Scholars recommend a sample size of at least five times the number of variables for PCA (Bryant & Yarnold, 1997). Sheldon's (2008) research labeled the Facebook motives as entertainment, relationship maintenance, and passing time. Supplementary gratifications devised by Papacharissi and Rubin (2000) were added to the instrument that were not present in Sheldon's (2008) instrument. These were the motives labeled as information seeking by previous studies (Papacharissi & Rubin, 2000). Table 2: Facebook Motives contains the 26 gratifications used in the final redesigned instrument.

Table 2
Facebook Motives

It is entertaining	Because I am already online
To stay in touch with friends	To join a group that fits my interests
To communicate with my friends	To see other people's pictures
I enjoy it	To get away from what I am doing
Learn things about others	Nothing better to do
To read other people's profiles	To stay in touch with old friends
To post a message on my friend's wall	To send a message to a friend
To pass time when bored	To get information for free
To stay connected	To look for information
To find old friends	To interact with others through Facebook groups
To see who is in class with me	To see which people I know that joined Facebook
To occupy my time	Get through to someone who is hard to reach
The only way to stay in touch with my	Check my wall after I receive an email from
friends	Facebook

Sheldon's use of the instrument for this study explained 60% of the total variance after component retention (Sheldon, 2008). A subsequent study by Bonds-Raacke and Raacke (2010) was performed during the conclusion of this study's design. Upon completion of the components, 63.24% of the total variance was accounted for (Bonds-Raacke & Raacke, 2010). Joinson (2008) initially found nine components with

eigenvalues greater than 1 with 64.8% of the total variance. However, after scree plot and loading analysis the study determined a final solution of seven components that explained 59% of the variance (Joinson, 2008).

Cronbach alpha results for each of the a priori motives used in the instrument redesigned for this study, including relationship maintenance, entertainment, passing time, and information seeking render sufficient reliability scores. The first assessed motive is relationship maintenance. Song et al. (2004) defined relationship Maintenance as the preservation of relationships with acquaintances that are already in existence. Its primary focus in this study was on the development of relationships extrinsic to Facebook. Cronbach alpha for the relationship maintenance Internet motive ranged from .70 "get through to someone who is hard to reach" to .80 "get in touch with people I know" (Song et al., 2004). Facebook relationship maintenance motives ranged from .58 "get through to someone who is hard to reach" to .83 "to communicate with my friends" (Sheldon, 2008).

Sheldon (2008) used the entertainment label to define other motives in the redesigned instrument of this study. Despite a smaller variance, entertainment was an additional component from Sheldon's (2008) original instrument. Sheldon (2008) suggests that due to a high mean score, entertainment is a strong gratification sought by Facebook users. Sheldon (2008) found Cronbach alphas that ranged from .56 "it is entertaining" to .67 "to read other people's profile." Papacharissi and Rubin (2000) identified a Cronbach alpha of .85 for their Internet component labeled as entertainment.

A third component labeled as passing time by Sheldon (2008) was present in this study's instrument. Internet communication is a medium that is capable of fulfilling

needs that are not necessarily satisfied by face-to-face interaction according to past studies. Interpersonal communication and media motives predicted entertainment and passing time in past studies. The salient nature of passing time on Internet mediums was cause for future assessment (Flaherty et al., 1998; Sheldon, 2008). Passing time in previous Facebook research was found to have Cronbach alphas ranging from .61 "it is one of the routine things I do when online" to .74 "to check my wall after I receive an e-mail from Facebook" (Sheldon, 2008). Papacharissi and Rubin's (2000) passing time component produced a Cronbach alpha of .85.

The fourth and final component labeled as information seeking by Papacharissi and Rubin (2000) was the only addition to Sheldon's (2008) instrument to construct the redesigned instrument used in this study. A number of researchers have studied information needs from the use of modern technologies. Changing communication due to advances in technology led to further research on the needs fulfilled by these rapid changes (Flanagin & Metzger, 2001). Additional information motives added to the scale used from Sheldon (2008). Research on the information-seeking motive has produced an alpha reliability score of .87 for Internet specific motives (Papacharissi & Rubin, 2000).

In summary, a number of researchers have based their instruments on the ICM scale. The instrument used in this study replicates Sheldon's (2008) instrument.

Previously utilized ICM scales are the foundation of this instrument's design (e.g., Flaherty et al., 1998; Papacharissi & Rubin, 2000). Papacharissi and Rubin's (2000)

Internet motive of information seeking is the only addition to Sheldon's (2008) Facebook instrument. Each of the components used in the ICM-based scale used in this particular

study produced alpha reliability scores above .70. Scores above this mark are normally acceptable (Ary et al., 2006).

Significant Predictors of Behavioral and Attitudinal Outcomes

Sheldon (2008) designed questions to measure behavioral and altitudinal outcomes of the social network site Facebook that are present in past uses and gratifications studies. This section of Sheldon's (2008) instrument remains unchanged in the instrument of this study. Papacharissi and Rubin (2000) originally measured the behavioral and attitudinal outcomes of Internet users on their instrument. The behavioral and attitudinal outcomes in this study include the amount of Facebook use, the frequency of Facebook use, the duration of Facebook use, the amount of Facebook friends, the satisfaction of users with Facebook, and the attachment of users to Facebook. The instrument measured the amount of the participant's Facebook use by determining how many minutes' users spend on Facebook within a given day. It measured the frequency Facebook use by identifying how often participant's log into Facebook. The length of time a participant has had an active Facebook account measures duration of Facebook use. It measures the amount of relationships by asking participants to estimate the number of friends they have linked into their account. User satisfaction with Facebook measured the satisfaction outcome. Finally, how much students would miss Facebook if it disappeared measures student attachment to Facebook.

To measure the amount of time spent on Facebook, students approximated in minutes how much time they spend on Facebook on an average day. The question asked, "Approximately how many minutes do you spend on Facebook on an average day?" Papacharissi and Rubin (2000) determined the amount of Internet use by calculating the

total number of hours a user spends on the Internet in a given day. Their study found that information seeking ( $\beta$  = -.19) and entertainment ( $\beta$  = .20) were both significant predictors of email use (Papacharissi & Rubin, 2000). Sheldon (2008) used a similar question in the developed instrument. Results indicated that the motives relationship maintenance ( $\beta$  = .23) and passing time ( $\beta$  = .15) were significant predictors of the number of hours a user spends on Facebook (Sheldon, 2008).

Subjects noted how often they log into their Facebook account, which measures the frequency of Facebook use in this study's instrument. The single-item question asked, "How often do you log into your Facebook account?" Responses for the number of Facebook logins ranged from "several times per day" to "About once per month." Previous results pertaining to Facebook indicated that the motives of entertainment ( $\beta$  = .28), passing time ( $\beta$  = .60), and relationship maintenance ( $\beta$  = .50) were each significant predictors of how often a user logs into their Facebook account (Sheldon, 2008).

Papacharissi and Rubin (2000) measured duration of use by identifying the number of years and months subjects had been using the Internet. Similarly, to measure duration of Facebook use in this study, participants were asked how long they had a Facebook account. The single-item question asked, "How long have you had your Facebook account?" Responses ranged from "0-6 months" to "3 years or longer." Prior Facebook research found that the number of years a student was in college ( $\beta = 3.86$ ) significantly predicted the duration of Facebook use (Sheldon, 2008).

Participants were also asked how many Facebook friends they had. Previous uses and gratifications research suggested that the number of friends an individual has correlates with relationship development (Sheldon, 2008). Relationship maintenance was

a significant predictor ( $\beta$  = .37) of the number of Facebook friends a user had in addition to age ( $\beta$  = .23). Younger students and students who use Facebook to maintain relationships had more friends than other users (Sheldon, 2008).

In parallel to Papacharissi and Rubin (2000) as well as Sheldon (2008), a single-item question determines satisfaction of Facebook use. Past researchers sought to find satisfaction with Internet use while this study altered this item to seek satisfaction of Facebook use. Satisfaction was measured by asking participants how satisfied they were with the job Facebook was doing in providing them with the things that they were seeking. A 5-point Likert scale was used with the response options of "I am very satisfied" (5) and "I am not satisfied at all." Past studies found that the information-seeking motive positively predicts Internet satisfaction (Papacharissi & Rubin, 2000). Satisfaction with Facebook was more predominant for users who read other's profiles to occupy time when bored, used Facebook to be entertained, and used the social network site to communicate with offline friends. The motives passing time ( $\beta = .13$ ), entertainment ( $\beta = .20$ ), and relationship maintenance ( $\beta = .15$ ) were significant predictors of student satisfaction with Facebook (Sheldon, 2008).

In correlation with tendency of users to become addicted or attached to Facebook, Sheldon (2008) found that students who visited Facebook to be entertained, read other's profiles, and to see other people's pictures were most likely to miss it if it were to disappear. The question was asked, "If Facebook suddenly disappeared how much would you miss it?" The responses to this item started with 5 or "I would miss it allot" and ended with 1 or "I would not miss it at all." The gratifications of passing time at  $\beta = .41$ , entertainment at  $\beta = .58$ , and relationship maintenance at  $\beta = .48$  all positively predicted

how much students would miss Facebook (Sheldon, 2008). Previous uses and gratification studies also found that relationship maintenance ( $\beta$  = .136) significantly relates to Internet Addiction Tendency (Song et al., 2004).

Each behavioral and attitudinal question that resides on the instrument used in this study is present in past research. Inclusion of these outcomes identifies that the instrument used in this study has found that certain Facebook motives significantly predict behavioral and attitudinal outcomes. The Facebook motives of relationship maintenance and passing time have been significant predictors of the amount of college student Facebook use. Passing time, relationship maintenance, and entertainment have significantly predicted the frequency of Facebook use. The number of Facebook friends of college students significantly predicts the relationship maintenance motive. The motives passing time, entertainment, and relationship maintenance significantly predicted college student satisfaction with Facebook and their attachment to Facebook (Sheldon, 2008).

# **CHAPTER IV: RESULTS**

#### Introduction

The purpose of this chapter is to report the findings of this quantitative study. This study examined the motives of high school and undergraduate college students for using the social network site Facebook. It sought to determine the underlying motive structures of each type of student for using Facebook. After identifying what the underlying motives are for using Facebook, the study seeks to determine if the motives predict behavioral and attitudinal outcomes of Facebook use for high school students and undergraduate college students. Finally, the intent of the research is to seek differences in the behavioral and attitudinal descriptors of high school students and the behavioral and attitudinal descriptors of undergraduate college students.

# **Descriptive Statistics**

In total, 363 students responded to the online questionnaires in this study. Within this data, 163 were high school students and 199 were undergraduate college students. Of the 163 high school students, 152 or 93.25% of the populace had Facebook accounts at the time the survey was taken. A total of 199 undergraduate college students responded to the questionnaire. Of the 199 undergraduate college students, 186 or 93.45% of the populace had Facebook accounts at the time the survey was taken. This resulted in a total populace of 338 subjects whom had current Facebook accounts. Further statistical analysis relates only to current Facebook users.

There were 87 female high school participants that had a current Facebook account or 57.23% of the high school populace. There were 65 male high school

participants or 42.76% of the high school populace. Sixty-five (65) or 34.94% of the college undergraduate populace were males. One-hundred and twenty-one (121) or 65.05% of the college undergraduate populace were females. The average age of high school Facebook participants was approximately 18. College undergraduate Facebook users were an average of 23 years old.

## Prescreening of the Data

Pre-screening checked the integrity of the data, univariate outliers, multivariate outliers, normal distribution, linearity, and homoscedasticity. Of the analyzed 338-sample size, zero answers were missing. Minimum and maximum values on each assessed Likert-scale question showed all answers were within appropriate range. Normal distribution of the data was checked due to nonprobability sampling. Normal distribution was found across the variables in this study. Due to the normality of the data, parametric statistics were chosen to be used.

#### Univariate Outliers

Z-scores were calculated for each of the analyzed columns of data. College undergraduate students were assessed first. Two Z-scores of 5.09 were recorded for the question, "New way to do research" and two Z-scores of 4.38 were present for the motive "For academic purposes." Similar but milder results were revealed in studying the Z-scores of the high school populace. Three responses produced mild outliers with Z-scores of 3.70 for the question, "New way to do research." Three Z-scores of 3.73 were recorded for the question, "For academic purposes." After careful inspection, researchers determined both of these variables were not necessary for further data analysis. Thus, neither exists in the data beyond this analysis.

Undergraduate college student data produced an additional single instance outlier with a Z-score of 7.67 within the question, "Approximately how many minutes do you spend on Facebook on an average day." The result was cleared for this single case. A second question, "Approximately how many Facebook friends do you have" resulted in an outlier with a Z-score of 10.96 and two outliers of 3.54. The research removed the outliers.

The question, "Approximately how many minutes do you spend on Facebook on an average day" produced one outlier in the high school sample with a Z-score of 12.04. The individual outlier case was removed. Subsequently, the question, "Approximately how many Facebook friends do you have" resulted in three outliers with a Z-scores of 3.47, 4.32, and 4.46. The outliers were removed.

Univariate outliers were also checked prior to running Independent Sample Tests. There were 10 outliers within the question, "Approximately how many minutes do you spend on Facebook on an average day." Students responding with over 180 minutes were found to be outliers. There were an additional 6 outliers within the question, "Approximately how many Facebook friends do you have?" Answers up to 5,000 and beyond 1,300 had high Z-scores. Although potentially valid, this study chose to remove them. Their high Z-scores and potential threat to the integrity of the Independent Samples Tests is the reasoning behind this decision.

#### Multivariate Outliers

Mahalanobis distance was calculated for the Facebook motives and the Facebook behavioral and attitudinal outcomes. Mahalanobis distance was analyzed using a chi-square statistic with degrees of freedom equivalent to the number of variables within the

analysis. The generally accepted criterion for outliers according to Mertler and Vannatta (2005) is a Mahalanobis distance value significant at p < .001. Appendix B includes the chi-square critical values that were referenced in accordance with the respective degrees of freedom. The critical value was equal to 63.87 for the 33 variables that were assessed. Two outliers were found within the undergraduate college data. The resulting critical values were 65.26 and 69.91. Two outliers were also recorded within high school data. The critical values were 64.23 and 72.30.

Multivariate outliers were removed from each populace in this study. Although scholars consider many treatments acceptable, previous social networking research was a determining factor in this decision (Bonds-Raacke & Raacke, 2010). The number of college undergraduate subjects changed from 186 to 184. In addition, the number of high school subjects changed from 152 to 150.

# Normality of the Data

Skewness, kurtosis, and normal Q-Q plots were used to analyze normal distribution. Data analysis considered both ranges in addition to visual Q-Q plots to determine whether to reject normalization. Variable groupings generated scatter plots to identify whether elliptical shapes were present. Four gratifications within the assessed undergraduate college data indicated some kurtosis and skewness. The first Facebook motive to note was, "To stay connected" which produced a skewness of -1.38 and a kurtosis of 1.21. A second Facebook motive was "To see who is in class with me" that had a skewness of 1.23 and a kurtosis of .67. A third Facebook motive was "To join a group that fits my interests" that had a kurtosis of 1.04 and a skewness of 1.14. Lastly, a fourth variable coinciding with the Facebook motive, "To get information for free" had a

skewness of 1.11 and a kurtosis of .167. One additional behavioral and attitudinal question resulted in some skewness. The question asked, "Approximately how many minutes do you spend on Facebook on an average day?" The variable resulted in a skewness of 1.18 and a kurtosis of 1.25. A small number of undergraduate college students spent a higher number of minutes (160) on the site while a larger number spent approximately 42 minutes. Secondary analysis was highly scrutinized on each of these variables to determine whether normal distribution of the data existed. Upon viewing the normal Q-Q plots for each variable, the plots followed straight lines. Thus, there was no concern surrounding the assumption that the data was normally distributed and further statistical analysis included the original data.

High school student data produced two skewed variables. The first variable was a Facebook motive that asked, "To get information for free." This motive produced a skewness of 1.11 and a kurtosis of .73. The second variable asked, "Approximately how many minutes do you spend on Facebook on an average day?" The variable resulted in a skewness of 1.33 and a kurtosis of 1.93. For the amount of minutes students spent on Facebook, there were some students that spent up to three and a half hours on the site while the mean was approximately 39 minutes. The answers were not outliers as this is a reasonable amount of time for students to spend online within a given day. This created some skewness, however. Analysis on these variables was also highly scrutinized to determine whether normality existed. Upon viewing the normal Q-Q plots for each variable, it was found that the plots followed straight lines. Therefore, there was no concern surrounding the assumption that the data was normally distributed and the data was retained in its original form.

# Linearity and Homoscedasticity

The final assumptions were the assumption of linearity as well as the assumption of homoscedasticity. Homogeneity of variance was tested for each of the attitudinal and behavioral outcome variables prior to independent samples tests. It is reported within each behavioral and attitudinal test result starting with Table 9: T-Test for the amount of Facebook use. Residual scatter plots were assessed for undergraduate college student and high school student data sets. Each behavioral and attitudinal outcome was entered as a dependent variable along with the Facebook motives entered as the independent variables. The standardized predicted values were selected for the X-axis and the standardized residuals for the Y-axis. Each plot was carefully checked to determine whether scores concentrated around the zero line. In addition, the plots were assessed for a rectangular shape. Residual plots that create a rectangular shape with scores concentrated in the centerline meet the assumption of linearity (Mertler & Vannatta, 2005, p. 57). Both criterions equivocate to a relationship that does not violate linearity assumption. Residuals were not clustered on the right, left, top, or bottom. In addition, there was no curvature present on any of the residual plots. Since each residual plot showed concentration around the zero line and were generally rectangular in shape, the assumptions of linearity and homoscedasticity were upheld.

#### Facebook Motives

The first research question asked, "What are the motives for using Facebook for high school students and the motives for using Facebook for undergraduate college students?" Factor analysis sought underlying structures for Facebook motives between two separate groups of students, undergraduate college students and high school students.

Students were asked to identify their gratifications for Facebook use. In accordance with the STV ratio, twenty-six variables were chosen to be assessed for both sets of data.

Chapter 3 references the twenty-six variables in Table 2: Facebook Motives.

Kaiser-Meyer-Olkin's Measure of Sampling Adequacy (KMO test) indicated factorial analysis was an acceptable measurement for each set of data. Factorial analysis was performed using principal components analysis with Kaiser Normalization and varimax rotation. Variances, scree plots, and eigenvalues were considered in the determination of the final components for both sets of data.

*Undergraduate College Student Components* 

Research Question 1: What are the motives for using Facebook for high school students and the motives for using Facebook for undergraduate college students?

KMO for the undergraduate college student data set was assessed and found to support the use of factorial analysis. KMO for the overall model was equal to .896, which is just below marvelous and equivalent to the meritorious calibration established by Kaiser and Rice (1974). Analysis of the variance, scree plot, and eigenvalue indicated a four-component solution was appropriate for undergraduate college students.

Rotation converged in 12 iterations. After rotation, the first component accounted for 38.35% of the total variance. The second component accounted for 9.34% of the total variance, the third component accounted for 7.19% of the total variance, and the fourth component accounted for 4.80% of the total variance. The final four-component solution accounted for 59.70% of the total variance. The overall result indicated 5 components loaded with an eigenvalue > 1 and a total variance of 64.27%. The loading component removed from the final solution had a total variance of 4.57%. The study removed it

based upon scree plot and insufficient variable loadings above .60. Variables loaded at .808 ("To find old friends"), .464 ("To see which people I know that joined Facebook"), and .387 ("To see who is in class with me"). The scree plot also indicated that component 5 was within the leveling off section of the graph. Researchers have suggested retaining only those components residing in the sharp descent of the scree plot (Mertler & Vannatta, 2005). Table 3: Total Variance Explained for Undergraduate College Facebook Motives documents the total variance for undergraduate college students.

Table 3

Total Variance Explained for Undergraduate College Facebook Motives

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
		% of	Cumulative		% of	Cumulative
	Total	Variance	%	Total	Variance	%
1	9.973	38.359	38.359	4.669	17.959	17.959
2	2.430	9.346	47.706	4.047	15.565	33.524
3	1.870	7.191	54.897	3.215	12.366	45.890
4	1.250	4.807	59.704	3.028	11.646	57.536
5	1.189	4.574	64.279	1.753	6.743	64.279
6	.975	3.749	68.028			
7	.913	3.512	71.540			
8	.819	3.150	74.690			
9	.677	2.602	77.293			
10	.650	2.498	79.791			
11	.576	2.216	82.006			
12	.555	2.133	84.139			
13	.502	1.931	86.071			
14	.450	1.733	87.803			
15	.440	1.692	89.495			
16	.373	1.433	90.928			
17	.361	1.388	92.316			
18	.345	1.328	93.644			

19	.307	1.181	94.824
20	.288	1.108	95.933
21	.268	1.031	96.964
22	.235	.905	97.868
23	.191	.736	98.604
24	.172	.663	99.268
25	.127	.490	99.758
26	.063	.242	100.000

Extraction Method: Principal Component Analysis.

Table 4: Rotated Components for Undergraduate College Facebook Motives contains final loadings for factorial analysis of undergraduate college students. Component 1 within the final solution contained 8 variables. These included to stay in touch with friends, to communicate with my friends, to send a message to a friend, to stay connected, get through to someone who is hard to reach, to stay in touch with old friends, to post a message on my friend's wall, and the only way to stay in touch with my friends. Cronbach alphas  $\alpha$  were checked for the reliability of each component and rendered a result of .899 for component 1. Component 1 was labeled "Relationship Maintenance" in accordance with a priori labeling defined by Sheldon (2008) and Song et al. (2004). Song et al. (2004) defined relationship Maintenance as the preservation of relationships with acquaintances that are already in existence.

Component 2 in the final solution contained 5 variables. Variables loading on this component included nothing better to do, to occupy my time, to pass time when bored, because I am already online, and to get away from what I am doing. Cronbach  $\alpha$  for component 2 was equal to .893. Component 2 was labeled in parallel with the a priori motive of "passing time." It is a need along with entertainment that has the ability to fulfill needs that may not be satisfied by face-to-face interaction (Flaherty et al., 1998).

The label has been used to identify both Internet motives (Flaherty et al., 1998) and Facebook motives (Sheldon, 2008).

Component 3 consisted of 3 variables. Loading variables were to read other people's profiles, it is entertaining, and because I enjoy it. Cronbach α was tested with the overall result for component 3 equaling .862. The motive of "entertainment" was used to label component 3. Past researchers have used it to label Internet motives (Flaherty et al., 1998) and Facebook motives (Sheldon, 2008). Studies have identified visiting websites as both an entertainment and passing time-based motive (Flaherty et al., 1998).

Component 4 rendered a final loading of 3 variables. Variables within this loading included to join a group that fits my interests, to get information for free, and to look for information. Reliability was tested with the Cronbach  $\alpha$  for the component equaling .784. The study labeled component 4 "information seeking." This parallels Papacharissi and Rubin's (2000) label. Previous computer users sought this component to find information and for amusement (Papacharissi & Rubin, 2000).

Table 4
Rotated Components for Undergraduate College Facebook Motives

	Loadings	Cronbach α
Component 1: Relationship Maintenance		
To stay in touch with friends	.795	
To communicate with my friends	.783	
To send a message to a friend	.744	
To stay connected	.683	.899
Get through to someone who is hard to reach	.665	
To stay in touch with old friends	.643	
To post a message on my friend's wall	.615	
The only way to stay in touch with my	.603	

friends

Component 2: Passing Time			
Nothing better to do	.858		
To occupy my time	.803		
To pass time when bored	.792	.893	
To get away from what I am doing	.714		
Because I am already online	.675		
Component 3: Entertainment			
To read other people's profiles	.678		
It is entertaining	.629	.862	
I enjoy it	.600		
Component 4: Information Seeking			
To join a group that fits my interests	.763		
To get information for free	.762	.784	
To look for information	.689		

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 12 iterations.

## High School Student Components

Research Question 1: What are the motives for using Facebook for high school students and the motives for using Facebook for undergraduate college students?

High school student data was also tested using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy measurement to determine whether the sampling was fit for factorial analysis. Results of the test determined that the data was appropriate for the use of factorial analysis. Kaiser-Meyer-Olkin measurement for the overall set of high school data was equivalent to .840. Kaiser and Rice (1974) suggested that this result is in the meritorious range. Factorial analysis indicated a four-component solution was

appropriate. Analysis of the variance, scree plot, and eigenvalue determined that this four-component solution was appropriate for high school college students.

Rotation converged in 12 iterations for the high school student data set. Following rotation, the first component accounted for 29.34% of the total variance. The second component accounted for 10.36% of the total variance, the third component accounted for 7.45% of the total variance, and the fourth component accounted for 5.34% of the total variance. The final four-component solution accounted for 52.50% of the total variance. The initial six-component solution accounted for 61.90% of the total variance. The leveling of the scree plot and insufficient variable loadings greater than .60 caused the removal of components five and six despite the existence of an eigenvalue > 1. Component 5 produced a total variance of 5.10% and component 6 produced a total variance of 4.28%. Component 5 produced only 1 component > .60 ("To see who is in class with me") and 3 additional components < .60. Loadings were .570 ("Learn things about others"), .560 ("Get through to someone who is hard to reach"), and .550 ("To see other people's pictures"). Component 6 contained 3 variables with loadings of .769 ("Check my wall after I receive an e-mail from Facebook"), .626 ("To interact with others through Facebook groups"), and .547 ("To post a message on my friend's wall"). Component 5 and component 6 fell within the leveling off section of the scree plot. Table 5: Total Variance Explained for High School Facebook Motives documents total variance for high school students.

Table 5

Total Variance Explained for High School Facebook Motives

Component		Initial Eigenvalues		Rotation Sums of Squared Loadings		
		% of	Cumulative		% of	Cumulative
	Total	Variance	%	Total	Variance	%

1	7.628	29.340	29.340	3.524	13.554	13.554
2	2.695	10.365	39.705	3.518	13.532	27.087
3	1.938	7.454	47.159	2.822	10.853	37.940
4	1.391	5.349	52.508	2.579	9.917	47.857
5	1.328	5.107	57.614	1.929	7.419	55.276
6	1.115	4.289	61.903	1.723	6.627	61.903
7	.969	3.729	65.632			
8	.941	3.619	69.251			
9	.891	3.427	72.678			
10	.798	3.071	75.749			
11	.700	2.693	78.442			
12	.644	2.475	80.917			
13	.565	2.174	83.091			
14	.521	2.004	85.096			
15	.503	1.937	87.032			
16	.449	1.729	88.761			
17	.419	1.612	90.373			
18	.405	1.559	91.933			
19	.374	1.437	93.369			
20	.339	1.303	94.672			
21	.310	1.191	95.863			
22	.284	1.092	96.955			
23	.237	.911	97.867			
24	.216	.832	98.699			
25	.204	.783	99.482			
26	.135	.518	100.000			

Extraction Method: Principal Component Analysis.

Final loadings for the high school student factorial analysis are included within Table 6: Rotated Components for High School Facebook Motives. The first component loading within the final solution of the high school data set contained 4 variables.

Variables in this component included nothing better to do, to occupy my time, to pass time when bored, and to get away from what I am doing. Each of the components was

measured for reliability using Cronbach alphas  $\alpha$ . Cronbach alpha  $\alpha$  for component 1 was .838. Component 1 was labeled using the a priori label, "passing time." Similar to entertainment, it has been found to be a need that is not necessarily met through face-to-face communication (Flaherty et al., 1998).

Component 2 loaded on 4 variables in the high school data set. Variables loading in this component included, to stay in touch with old friends, to stay in touch with friends, to stay connected, and to find old friends. Cronbach α for component 2 was equivalent to .804. Component 2 in the high school data set was labeled "Relationship Maintenance." This paralleled an a priori label defined by Sheldon (2008) and Song et al. (2004). Song et al. (2004) defined relationship Maintenance as the preservation of relationships with acquaintances that are already in existence.

Component 3 was comprised of 3 variables in the high school data set. Variables loading on this component included, to read other people's profiles, I enjoy it, and it is entertaining. Cronbach α for component 2 was equal to .815. Component 3 was labeled "entertainment." Previous studies have identified visiting websites as both an entertainment and passing time-based motive (Flaherty et al., 1998). Flaherty et al. (1998) and Sheldon (2008) used the entertainment label in prior uses and gratifications research on the Internet and the social network site Facebook.

Component 4 had 3 variables load in the high school sample of data. Variables within this final component were to get information for free, to look for information, and to join a group that fits my interests. Cronbach α reliability for this final component equaled .653. Component 4 was labeled using the a priori "information seeking." Papacharissi and Rubin (2000) previously used this label for similar Internet motives.

Historically, Internet research has determined that users seeking information-based motives are gratified by information and amusement (Papacharissi & Rubin, 2000).

Table 6
Rotated Components for High School Facebook Motives

Loadings	Cronbach's α
.792	
.783	.838
.719	
.648	
.801	
.736	.804
.699	
.698	
.748	
.690	.815
.599	
.734	
.734	.653
.622	
	.792 .783 .719 .648 .801 .736 .699 .698

Extraction Method: Principal Component

Analysis.

Rotation Method: Varimax with Kaiser

Normalization.

Rotation converged in 12 iterations.

## Behavioral and Attitudinal Outcomes

The second research question sought to determine what motives of high school students predict behavioral and attitudinal outcomes of Facebook use and what motives

of undergraduate college students predict behavioral and attitudinal outcomes of Facebook use. Stepwise-multiple regressions attempted to determine the accuracy of the Facebook motives as independent variables predicting the behavioral and attitudinal outcomes of Facebook as the dependent variables. The Facebook motives were relationship maintenance, passing time, entertainment, and information seeking. The behavioral and attitudinal outcomes included amount of Facebook use, frequency of Facebook use, duration of Facebook use, amount of Facebook friends, satisfaction with Facebook, and attachment to Facebook.

Research Question 2: What motives of high school students predict behavioral and attitudinal outcomes of Facebook use and what motives of undergraduate college students predict behavioral and attitudinal outcomes of Facebook use?

Undergraduate College Regression on the Amount of Use

Stepwise-multiple regression sought to determine the validity of the independent variables of the undergraduate college student motives relationship maintenance, passing time, entertainment, and information seeking in predicting the dependent variable of the amount of student Facebook use. Multicollinearity was first checked by referencing the tolerance value of each independent variable. Tolerance values exceeded 0.1 for every variable. The motive with the lowest tolerance statistic was relationship maintenance at 0.774. Regression results indicate that the overall model significantly predicts the amount of Facebook use,  $R^2 = .131$ ,  $R^2$  adj= .122, F(2, 179) = 13.52, p = .000. This model accounts for 13.1% of the variance for undergraduate college student amount of Facebook use. Table 7: Regression Summary for Undergraduate College Amount of Use summarizes the results of the model.

Table 7

Regression Summary for Undergraduate College Amount of Use

		ANC	OVA			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.316 <sup>a</sup>	.100	.095	33.540	19.939	$.000^{a}$
2	.362 <sup>b</sup>	.131	.122	33.040	13.523	$.000^{b}$

- a. Predictors: (Constant), Entertainment Motive
- b. Predictors: (Constant), Entertainment Motive, Relationship Maintenance Motive
- c. Dependent Variable: Amount of Facebook Use

Two of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta$  = .220, t(179) = 2.77, p = .006 and relationship maintenance  $\beta$  = .202, t(179) = 2.54, p = .012. Table 8: Regression Coefficients for Undergraduate College Amount of Use outlines the regression coefficients.

Table 8

Regression Coefficients for Undergraduate College Amount of Use

	Model -		Unstandardized Coefficients		t	Sig.
		В	Std. Error	Beta		C
	(Constant)	13.576	6.818		1.991	.048
1	Entertainment Motive	9.131	2.045	.316	4.465	.000
	(Constant)	-8.158	10.854		752	.453
2	Entertainment Motive	6.360	2.289	.220	2.778	.006
	Relationship Maintenance Motive	7.303	2.865	.202	2.549	.012

Undergraduate College Regression on the Frequency of Use

Stepwise-multiple regression was run to determine the accuracy of the independent variables of the undergraduate college student motives relationship

maintenance, passing time, entertainment, and information seeking in predicting the dependent variable of the frequency of undergraduate college student Facebook use. Multicollinearity was first checked by referencing the tolerance value of each independent variable. Tolerance values exceeded 0.1 for every variable. The motive with the lowest tolerance statistic was relationship maintenance at 0.770. Regression results indicate that the overall model significantly predicts the frequency of Facebook use,  $R^2 = .340$ ,  $R^2_{adj} = .332$ , F(2, 181) = 46.55, p = .000. This model accounts for 34% of the variance for undergraduate college student frequency of Facebook use. Table 9: Regression Summary for Undergraduate College Frequency of Use summarizes the results of this model.

Table 9
Regression Summary for Undergraduate College Frequency of Use

		ANC	OVA			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.503 <sup>a</sup>	.253	.249	1.242	61.566	.000 <sup>a</sup>
2	.583 <sup>b</sup>	.340	.332	1.171	46.552	.000 <sup>b</sup>

- a. Predictors: (Constant), Entertainment Motive
- b. Predictors: (Constant), Entertainment Motive, Relationship Maintenance Motive
- c. Dependent Variable: Frequency of Facebook Use

Two of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta$  = -.342, t(181) = -4.962, p = .000 and relationship maintenance  $\beta$  = -.336, t(181) = -4.880, p = .000. Table 10: Regression Coefficients for Undergraduate College Frequency of Use presents the regression coefficients.

Table 10

Regression Coefficients for Undergraduate College Frequency of Use

	Model -		Unstandardized Coefficients		t	Sig.
		В	Std. Error	Beta		<b>B</b> .
	(Constant)	3.756	.251		14.939	.000
1	Entertainment Motive	592	.075	503	-7.846	.000
	(Constant)	5.218	.382		13.658	.000
2	Entertainment Motive	402	.081	342	-4.962	.000
2	Relationship Maintenance Motive	494	.101	336	-4.880	.000

Undergraduate College Regression on the Duration of Use

Stepwise-multiple regression was run to determine the correctness of the independent variables of the undergraduate college student motives relationship maintenance, passing time, entertainment, and information seeking in predicting the dependent variable of the duration of undergraduate college student Facebook use. Data analysis checked multicollinearity by referencing the tolerance value of each independent variable. Tolerance values were greater than 0.1 for every variable. The motive with the lowest tolerance statistic was the entertainment motive at 0.729. Regression results indicate that the overall model significantly predicts the duration of Facebook use,  $R^2 = .092$ ,  $R^2$  adj= .082, F(2, 181) = 9.208, P = .000. This model accounts for 9.2% of the variance for undergraduate college student duration of Facebook use. Table 11:

Table 11

Regression Summary for Undergraduate College Duration of Use

Model Summary					AN	OVA
Model	R	R Square	Adjusted R Square	Std. Error of the	F	Sig.

			Е	Estimate		
1	.251 <sup>a</sup>	.063	.058	.805	12.251	.001 <sup>a</sup>
2	.304 <sup>b</sup>	.092	.082	.794	9.208	.000 <sup>b</sup>

- a. Predictors: (Constant), Passing Time Motive
- b. Predictors: (Constant), Passing Time Motive, Relationship Maintenance Motive
- c. Dependent Variable: Duration of Facebook Use

Two of the four Facebook motives significantly contributed to the final model. These included passing time  $\beta$  = -.206, t(181) = 2.811, p = .005 and relationship maintenance  $\beta$  = .177, t(181) = 2.416, p = .017. Table 12: Regression Coefficients for Undergraduate College Duration of Use documents results of this analysis.

Table 12

Regression Coefficients for Undergraduate College Duration of Use

	Model -		dardized ficients	Standardized Coefficients	t	Sig.
	1,10,001	В	Std. Error	Beta	·	~18.
	(Constant)	2.874	.132		21.724	.000
1	Passing Time Motive	.166	.047	.251	3.500	.001
	(Constant)	2.323	.263		8.847	.000
2	Passing Time Motive	.136	.048	.206	2.811	.005
	Relationship Maintenance Motive	.151	.062	.177	2.416	.017

Undergraduate College Regression on the Amount of Friends

Stepwise-multiple regression was run to determine the correctness of the independent variables of the undergraduate college student motives relationship maintenance, passing time, entertainment, and information seeking in predicting the

dependent variable that found the amount of friends undergraduate college students have on Facebook. Data analysis checked multicollinearity by calculating the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest tolerance statistic was the entertainment motive at 0.724. Regression results indicate that the overall model significantly predicts the amount of Facebook friends,  $R^2 = .102$ ,  $R^2_{adj} = .092$ , F(2, 178) = 10.143, p = .000. This model accounts for 10.2% of the variance for the amount of undergraduate college student Facebook friends. Table 13: Regression Summary for Undergraduate College Amount of Friends summarizes results of this analysis.

Table 13

Regression Summary for Undergraduate College Amount of Friends

		Model Sumi	mary		ANOVA	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.260 <sup>a</sup>	.068	.062	226.8004	12.973	$.000^{a}$
2	$.320^{b}$	.102	.092	223.1605	10.143	.000 <sup>b</sup>

- a. Predictors: (Constant), Relationship Maintenance Motive
- b. Predictors: (Constant), Relationship Maintenance Motive, Passing Time Motive
- c. Dependent Variable: Amount of Facebook Friends

Two of the four Facebook motives significantly contributed to the final model. These included relationship maintenance  $\beta$  = -.209, t(178) = 2.843, p = .005 and passing time  $\beta$  = .193, t(178) = 2.624, p = .009. Table 14: Regression Coefficients for Undergraduate College Amount of Friends documents results of this analysis.

Table 14

Regression Coefficients for Undergraduate College Amount of Friends

Model	Unstandardized	Standardized	f	Sig.
	Coefficients	Coefficients	·	515.

		В	Std. Error	Beta		
	(Constant)	41.735	73.510		.568	.571
1	Relationship Maintenance Motive	62.111	17.245	.260	3.602	.000
	(Constant)	1.525	73.936		.021	.984
2	Relationship Maintenance Motive	49.990	17.585	.209	2.843	.005
	Passing Time Motive	36.321	13.841	.193	2.624	.009

Undergraduate College Regression on Satisfaction with Facebook

Stepwise-multiple regression was run to determine the correctness of the independent variables of the undergraduate college student motives relationship maintenance, passing time, entertainment, and information seeking in predicting the dependent variable that measured the satisfaction of undergraduate college students with Facebook. Data analysis checked multicollinearity by determining the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest tolerance statistic was the entertainment motive at 0.690. Regression results indicate that the overall model significantly predicts student satisfaction with Facebook,  $R^2 = .235$ ,  $R^2$  adj= .222, F(3, 180) = 18.451, p = .000. This model accounts for 23.5% of the variance for the satisfaction of undergraduate college student with Facebook. Table 15: Regression Summary for Undergraduate College Satisfaction with Facebook summarizes results of the model.

Table 15
Regression Summary for Undergraduate College Satisfaction with Facebook

|--|

Mode 1	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.374 <sup>a</sup>	.140	.135	.913	29.528	.000°
2	.445 <sup>b</sup>	.198	.189	.884	22.308	.000 <sup>b</sup>
3	.485°	.235	.222	.866	18.451	.000°

- a. Predictors: (Constant), Relationship Maintenance Motive
- b. Predictors: (Constant), Relationship Maintenance Motive, Information Seeking Motive
- c. Predictors: (Constant), Relationship Maintenance Motive, Information Seeking Motive, Passing Time Motive
- d. Dependent Variable: Satisfaction of Facebook Use

Three of the four Facebook motives significantly contributed to the final model. These included relationship maintenance  $\beta$  = -.266, t(180) = -3.858, p = .000; information seeking  $\beta$  = -.214, t(180) = -3.114, p = .002; and passing time  $\beta$  = -.203, t(180) = -2.968, p = .003. Table 16: Regression Coefficients for Undergraduate College Satisfaction with Facebook documents results of this analysis.

Table 16

Regression Coefficients for Undergraduate College Satisfaction with Facebook

Model _			dardized ficients	Standardized Coefficients	Т	Sig.
		В	Std. Error	Beta		<b>&amp;</b>
	(Constant)	3.721	.295		12.593	.000
1	Relationship Maintenance Motive	377	.069	374	-5.434	.000
	(Constant)	3.927	.292		13.462	.000
2	Relationship Maintenance Motive	311	.069	309	-4.480	.000
	Information Seeking Motive	235	.065	250	-3.622	.000
3	(Constant)	4.076	.290		14.057	.000
	Relationship	268	.070	266	-3.858	.000

Maintenance Motive					
Information Seeking Motive	201	.065	214	-3.114	.002
Passing Time Motive	159	.054	203	-2.968	.003

Undergraduate College Regression on Attachment to Facebook

Stepwise-multiple regression was run to determine the correctness of the independent variables of the undergraduate college student motives relationship maintenance, passing time, entertainment, and information seeking in predicting the dependent variable that measured the attachment of undergraduate college students with Facebook. Data analysis checked for multicollinearity by determining the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest tolerance statistic was the entertainment motive at 0.770. Regression results indicate that the overall model significantly predicts student attachment to Facebook,  $R^2 = .261$ ,  $R^2_{adj} = .253$ , F(2, 181) = 31.975, p = .000. This model accounts for 26.1% of the variance of undergraduate college student attachment to Facebook. Table 17: Regression Summary for Undergraduate College Attachment to Facebook summarizes the results of the model.

Table 17

Regression Summary for Undergraduate College Attachment to Facebook

		Model Sumi	mary		ANOVA	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.474 <sup>a</sup>	.224	.220	1.210	52.629	$.000^{a}$
2	.511 <sup>b</sup>	.261	.253	1.184	31.975	.000 <sup>b</sup>

- a. Predictors: (Constant), Relationship Maintenance Motive
- b. Predictors: (Constant), Relationship Maintenance Motive, Entertainment Motive
- c. Dependent Variable: Attachment to Facebook

Two of the four Facebook motives significantly contributed to the final model. These included relationship maintenance  $\beta$  = -.369, t(181) = -5.064, p = .000 and entertainment  $\beta$  = -.219, t(181) = -3.001, p = .003. Table 18: Regression Coefficients for Undergraduate College Attachment to Facebook documents results of this analysis.

Table 18

Regression Coefficients for Undergraduate College Attachment to Facebook

	Model -		dardized ficients	Standardized Coefficients	t	Sig.
		В	Std. Error	Beta	-	2-8.
	(Constant)	5.324	.391		13.604	.000
1	Relationship Maintenance Motive	667	.092	474	-7.255	.000
	(Constant)	5.476	.386		14.173	.000
2	Relationship Maintenance Motive	518	.102	369	-5.064	.000
	Entertainment Motive	246	.082	219	-3.001	.003

High School Regression on the Amount of Use

Stepwise-multiple regression was run to determine the correctness of the independent variables of the high school student motives passing time, relationship maintenance, entertainment, and information seeking in predicting the dependent variable that measured the amount of high school student use of Facebook. Data analysis checked for multicollinearity by determining the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest

tolerance statistic was passing time at 0.934. Regression results indicate that the overall model significantly predicts the amount of Facebook use,  $R^2 = .146$ ,  $R^2_{adj} = .134$ , F(2, 138) = 11.806, p = .000. This model accounts for 14.6% of the variance of high school student amount of Facebook use. Table 19: Regression Summary for High School Amount of Use summarizes the results.

Table 19
Regression Summary for High School Amount of Use

		Model Sumn	nary		ANOVA	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.348 <sup>a</sup>	.121	.115	29.500	19.206	$.000^{a}$
2	$.382^{b}$	.146	.134	29.187	11.806	.000 <sup>b</sup>

a. Predictors: (Constant), Entertainment Motive

Two of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta$  = .322, t(138) = 4.035, p = .000 and relationship maintenance  $\beta$  = .159, t(138) = 1.998, p = .048. Table 20: Regression Coefficients for High School Amount of Use documents results of this analysis.

Table 20
Regression Coefficients for High School Amount of Use

	Model -	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		В	Std. Error	Beta	•	~-8.
	(Constant)	8.253	7.492		1.102	.273
1	Entertainment Motive	11.198	2.555	.348	4.382	.000
2	(Constant)	-5.173	10.005		517	.606
2	Entertainment	10.346	2.564	.322	4.035	.000

b. Predictors: (Constant), Entertainment Motive, Relationship Maintenance Motive

c. Dependent Variable: Amount of Facebook Use

Motive					
Relationship Maintenance Motive	4.848	2.426	.159	1.998	.048

High School Regression on the Frequency of Use

Stepwise-multiple regression was run to determine the correctness of the independent variables of the high school student motives passing time, relationship maintenance, entertainment, and information seeking in predicting the dependent variable that measured the frequency of high school student Facebook use. Data analysis checked for multicollinearity by determining the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest tolerance statistic was passing time at 0.914. Regression results indicate that the overall model significantly predicts the frequency of Facebook use,  $R^2 = .099$ ,  $R^2_{adj} = .093$ , F(1, 148) = 16.258, p = .000. This model accounts for 9.9% of the variance of high school student frequency of Facebook use. Table 21: Regression Summary for High School Frequency of Use summarizes the resulting model from analysis.

Table 21
Regression Summary for High School Frequency of Use

		ANOVA				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.315 <sup>a</sup>	.099	.093	1.247	16.258	.000 <sup>a</sup>

a. Predictors: (Constant), Entertainment Motive

b. Dependent Variable: Frequency of Facebook Use

Only one of the four Facebook motives significantly contributed to the final model. The contributing motive was entertainment  $\beta = -.315$ , t(148) = -4.032, p = .000.

Table 22: Regression Coefficients for High School Frequency of Use presents the high school regression coefficients.

Table 22

Regression Coefficients for High School Frequency of Use

	Model _	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		В	Std. Error	Beta	•	
	(Constant)	3.293	.305		10.793	.000
1	Entertainment Motive	415	.103	315	-4.032	.000

High School Regression on the Duration of Use

Stepwise-multiple regression was run to determine the correctness of the independent variables of the high school student motives passing time, relationship maintenance, entertainment, and information seeking in predicting the dependent variable that measured the duration of high school student Facebook use. Data analysis checked for multicollinearity by determining the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest tolerance statistic was passing time at 0.914. Regression results indicate that the overall model significantly predicts the duration of Facebook use,  $R^2 = .040$ ,  $R^2_{adj} = .033$ , F(1, 148) = 6.153, p = .014. This model accounts for only 4% of the variance of high school student duration of Facebook use. Table 23: Regression Summary for High School Duration of Use summarizes the resulting model from analysis.

Table 23
Regression Summary for High School Duration of Use

		AN	ANOVA			
Model	R	R Square	Adjusted R Square	Std. Error of the	F	Sig.

				Estimate		
1	.200 <sup>a</sup>	.040	.033	.847	6.153	.014 <sup>a</sup>

a. Predictors: (Constant), Entertainment Motive

b. Dependent Variable: Duration of Facebook Use

Only one of the four Facebook motives significantly contributed to the final model. The contributing motive was entertainment  $\beta$  = .200, t(148) = 2.480, p = .014. Table 24: Regression Coefficients for High School Duration of Use presents the regression coefficients.

Table 24

Regression Coefficients for High School Duration of Use

	Model –	Unstandardized Coefficients		Standardized Coefficients	f	Sig.
	1120 001	В	Std. Error	Beta	-	~-8.
	(Constant)	2.562	.207		12.354	.000
1	Entertainment Motive	.174	.070	.200	2.480	.014

High School Regression on the Amount of Friends

Stepwise-multiple regression was run to determine the correctness of the independent variables of the high school student motives passing time, relationship maintenance, entertainment, and information seeking in predicting the dependent variable that measured the amount of friends high school students have on Facebook. Data analysis checked for multicollinearity by determining the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest tolerance statistic was passing time at 0.918. Regression results indicate that the overall model significantly predicts the amount of Facebook friends,  $R^2 = .106$ ,  $R^2_{\rm adj} = .100$ , F(1, 145) = 17.148, p = .000. This model accounts for 10.6% of

the variance of the amount of Facebook friends. Table 24: Regression Summary for High School Amount of Friends summarizes the resulting model from analysis.

Table 25
Regression Summary for High School Amount of Friends

		ANOVA				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.325 <sup>a</sup>	.106	.100	298.836	17.148	$.000^{a}$

a. Predictors: (Constant), Entertainment Motive

Only one of the four Facebook motives significantly contributed to the final model. The contributing motive was entertainment  $\beta = .325$ , t(145) = 4.141, p = .000. Table 26: Regression Coefficients for High School Amount of Friends identifies the regression coefficients.

Table 26

Regression Coefficients for High School Amount of Friends

	Model -		Unstandardized Coefficients		t	Sig.
		В	Std. Error	Beta	•	2-8
	(Constant)	168.304	73.889		2.278	.024
1	Entertainment Motive	103.169	24.914	.325	4.141	.000

High School Regression on Satisfaction with Facebook

Stepwise-multiple regression was run to determine the correctness of the independent variables of the high school student motives passing time, relationship maintenance, entertainment, and information seeking in predicting the dependent variable that measured high school student satisfaction with Facebook. Data analysis calculated

b. Dependent Variable: Amount of Facebook Friends

multicollinearity by determining the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest tolerance statistic was passing time at 0.913. Regression results determined that the overall model significantly predicts student satisfaction with Facebook,  $R^2 = .093$ ,  $R^2_{\text{adj}} = .081$ , F(2, 147) = 7.547, p = .001. This model accounts for only 9.3% of the variance of high school student satisfaction with Facebook. Table 27: Regression Summary for High School Satisfaction with Facebook summarizes the resulting model from analysis.

Table 27

Regression Summary for High School Satisfaction with Facebook

		ANOVA				
Model R R Square Adjusted R Square Std. Error of the Estimate					F	Sig.
1	.255 <sup>a</sup>	.065	.059	.895	10.290	.002 <sup>a</sup>
2	.305 <sup>b</sup>	.093	.081	.885	7.547	.001 <sup>b</sup>

a. Predictors: (Constant), Entertainment Motive

Two of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta$  = -.234, t(148) = -2.951, p = .004 and relationship maintenance  $\beta$  = -.169, t(148) = -2.134, p = .034. Table 28: Regression Coefficients for High School Satisfaction with Facebook summarizes the resulting regression coefficients from the analysis.

Table 28

Regression Coefficients for High School Satisfaction with Facebook

Model		ndardized ficients	Standardized Coefficients	t	Sig.
	В	Std. Error	Beta		C

b. Predictors: (Constant), Entertainment Motive, Relationship Maintenance Motive

c. Dependent Variable: Satisfaction of Facebook Use

	(Constant)	2.896	.219		13.219	.000
1	Entertainment Motive	237	.074	255	-3.208	.002
	(Constant)	3.329	.297		11.221	.000
2	Entertainment Motive	217	.074	234	-2.951	.004
	Relationship Maintenance Motive	151	.071	169	-2.134	.034

High School Regression on Attachment to Facebook

Stepwise-multiple regression was run to determine the correctness of the independent variables of the high school student motives passing time, relationship maintenance, entertainment, and information seeking in predicting the dependent variable that measured high school student attachment to Facebook. Data analysis calculated multicollinearity by determining the tolerance value of each independent variable. Tolerance values were greater than 0.1 for each variable. The motive with the lowest tolerance statistic was information seeking at 0.871. Regression results signify that the overall model significantly predicts student attachment to Facebook,  $R^2 = .282$ ,  $R^2$  adj = .268, F(3, 146) = 19.147, p = .000. This model accounts for 28.2% of the variance of high school student attachment to Facebook. Table 29: Regression Summary for High School Attachment to Facebook summarizes the resulting model from analysis.

Table 29

Regression Summary for High School Attachment to Facebook

		ANOVA				
Mode 1	R	R R Square Adjusted Square		Std. Error of the F Estimate		Sig.
1	.398 <sup>a</sup>	.158	.153	1.223	27.852	$.000^{a}$
2	.503 <sup>b</sup>	.253	.243	1.156	24.895	.000 <sup>b</sup>

3 .531° .282 .268 1.137 19.147 .000°

Passing Time Motive

d. Dependent Variable: Attachment to

Facebook

Three of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta$  = -.307, t(146) = -4.158, p = .000; relationship maintenance  $\beta$  = -.305, t(146) = -4.318, p = .000; and passing time  $\beta$  = -.179, t(146) = -2.443, p = .016. Table 30: Regression Coefficients for High School Attachment to Facebook presents the resulting regression coefficients from the analysis.

Table 30

Regression Coefficients for High School Attachment to Facebook

	Model _		dardized ficients	Standardized Coefficients	t	Sig.
		В	Std. Error	Beta		J
	(Constant)	3.936	.299		13.149	.000
1	Entertainment Motive	533	.101	398	-5.277	.000
	(Constant)	5.080	.388		13.101	.000
2	Entertainment Motive	481	.096	359	-4.994	.000
	Relationship Maintenance Motive	399	.092	310	-4.315	.000
	(Constant)	5.381	.401		13.426	.000
	Entertainment Motive	411	.099	307	-4.158	.000
3	Relationship Maintenance Motive	393	.091	305	-4.318	.000
	Passing Time Motive	189	.077	179	-2.443	.016

a. Predictors: (Constant), Entertainment Motive

b. Predictors: (Constant), Entertainment Motive, Relationship Maintenance Motive

c. Predictors: (Constant), Entertainment Motive, Relationship Maintenance Motive,

Non-statistical Differences in the Predicted Outcomes

Non-statistical differences of the predictive attitudinal and behavioral outcomes between high school students and undergraduate college students are compared to answer the second research question. Undergraduate college student motives and high school college student motives significantly predicted the amount of Facebook use. The undergraduate college regression model accounted for 13.1% of the variance while the high school regression model accounted for 14.6% of the variance. No difference existed between the motives contributing to the final models. The entertainment motive and relationship maintenance motive both significantly contributed to the amount of Facebook use.

Undergraduate college student motives and high school college student motives significantly predicted the frequency of Facebook use. The undergraduate college regression model accounted for 34% of the variance while the high school regression model accounted for 9.9% of the variance. Differences did exist between the motives contributing to the final models. The entertainment motive and relationship maintenance motive both significantly contributed to the frequency of undergraduate college Facebook use. Only one motive, entertainment, significantly contributed to the frequency of high school Facebook use.

Undergraduate college student motives and high school college student motives significantly predicted the duration of Facebook use. The undergraduate college regression model accounted for 9.2% of the variance while the high school regression model accounted for 4% of the variance. There were dissimilarities between the motives contributing to the final models. The passing time motive and relationship maintenance

motive both significantly contributed to the duration of undergraduate college Facebook use. Entertainment was the only motive that significantly contributed to the duration of high school Facebook use.

Undergraduate college student motives and high school college student motives significantly predicted the amount of Facebook friends. The undergraduate college regression model accounted for 10.2% of the variance while the high school regression model accounted for 10.6% of the variance. Variations existed between the motives contributing to the final models. The relationship maintenance motive and passing time motive both significantly contributed to the amount of undergraduate college Facebook friends. Entertainment was the only motive that significantly contributed to the amount of high school Facebook friends.

Undergraduate college student motives and high school college student motives significantly predicted student satisfaction with Facebook. The undergraduate college regression model accounted for 23.5% of the variance while the high school regression model accounted for 9.3% of the variance. Differences existed between the motives contributing to the final models. Three motives; relationship maintenance, information seeking, and passing time significantly contributed to undergraduate college student satisfaction with Facebook. Only the two motives of entertainment and relationship maintenance significantly contributed to high school student satisfaction with Facebook.

Undergraduate college student motives and high school college student motives significantly predicted student attachment to Facebook. The undergraduate college regression model accounted for 26.1% of the variance while the high school regression model accounted for 28.2% of the variance. Dissimilarities were present between the

motives contributing to the final models. Relationship maintenance and entertainment were the only two motives that significantly contributed to undergraduate college student attachment to Facebook. Three motives; entertainment, relationship maintenance, and passing time significantly contributed to high school student satisfaction with Facebook.

#### Behavioral and Attitudinal Comparisons

The third and final research question asked, is there a significant difference between certain behavioral and attitudinal descriptors of high school student Facebook users and certain behavioral and attitudinal descriptors of undergraduate college student Facebook users? Specific sub-null hypotheses used to study behavioral and attitudinal descriptors of high school and undergraduate college student Facebook use were identified in the research of Papacharissi & Rubin (2000) and Sheldon (2008). The study measured the third and final research question by testing each sub-null hypothesis. T-Tests for two independent samples compared the high school data set to the undergraduate college data set. Levene's method tested each analysis to determine whether variances were approximately equal.

Research Question 3: Is there a significant difference between certain behavioral and attitudinal descriptors of high school student Facebook users and certain behavioral and attitudinal descriptors of undergraduate college student Facebook users?

Amount of Facebook Use

The following null hypothesis determined whether a statistically significant difference existed between the amount of high school Facebook use and the amount of undergraduate college Facebook use.

 $H_03.1$ : There is no statistically significant difference between the amount of Facebook use of high school students and the amount of Facebook use of undergraduate college students.

Levene's Test for Equality of Variances upheld the assumption of equal variances (p > 0.05), p = 0.101. Results of the Independent t test failed to identify a statistically significant difference between the amount of Facebook use of high school students (M = 39.23, s = 31.35) and the amount of Facebook use of undergraduate college students (M = 41.92, s = 35.25), t(321) = 0.715, p = 0.475,  $\alpha = 0.05$ . Hence, the null hypothesis  $H_03.1$  was not rejected. Table 31: T-Test for the Amount of Facebook Use summarizes the results of this analysis.

Table 31

T-Test for the Amount of Facebook Use

Levene	e's Test							
							95% Co	nfidence
							Interva	l of the
							Diffe	rence
				Sig. (2-	Mean	Std. Error		
F	Sig.	t	df	tailed)	Difference	Difference	Lower	Upper
2.702	.101	715	321	.475	-2.696	3.771	-10.114	4.722

Frequency of Facebook Use

The following null hypothesis was constructed to determine whether a statistically significant difference existed between the frequency of high school Facebook use and the frequency of undergraduate college Facebook use.

 $H_0$ 3.2: There is no statistically significant difference between the frequency of Facebook use of high school students and the frequency of Facebook use of undergraduate college students.

Levene's Test for Equality of Variances upheld the assumption of equal variances (p > 0.05), p = 0.446. Results of the Independent t test failed to identify a statistically significant difference between the frequency of Facebook use of high school students (M = 2.06, s = 1.15) and the frequency of Facebook use of undergraduate college students (M = 1.83, s = 1.28), t(327) = 1.664, p = 0.097,  $\alpha = 0.05$ . Thus, the null hypothesis  $H_03.2$  was not rejected. Table 32: T-Test for the Frequency of Facebook Use summarizes the results of this analysis.

Table 32

T-Test for the Frequency of Facebook Use

Leven	e's Test	t-test for Equality of Means							
								nfidence	
								rence	
				Sig. (2-	Mean	Std. Error			
F	Sig.	t	df	tailed)	Difference	Difference	Lower	Upper	
.581	.446	1.664	327	.097	.227	.136	041	.494	

## Duration of Facebook Use

The following null hypothesis was constructed to determine whether a statistically significant difference existed between the duration of high school Facebook use and the duration of undergraduate college Facebook use.

 $H_0$ 3.3: There is no statistically significant difference between the duration of Facebook use of high school students and the duration of Facebook use of undergraduate college students.

Levene's Test for Equality of Variances upheld the assumption of equal variances (p > 0.05), p = 0.253. Results of the Independent t test determined that there was a statistically significant difference between the duration of Facebook use of high school

students (M = 3.05, s = 0.86) and the duration of Facebook use of undergraduate college students (M = 3.29, s = 0.82), t(332) = 2.600, p = 0.010,  $\alpha = 0.05$ . The result led to the rejection of the null hypothesis of  $H_03.3$  within this study. Table 33: T-Test for the Duration of Facebook Use summarizes the results of this analysis.

Table 33 *T-Test for the Duration of Facebook Use* 

Levene	's Test		t-test for Equality of Means								
							95% Co	nfidence			
							Interva	l of the			
							Diffe	rence			
				Sig. (2-	Mean	Std. Error					
F	Sig.	t	df	tailed)	Difference	Difference	Lower	Upper			
1.310	.253	-2.60	332	.010	241	.093	424	059			

#### Amount of Facebook Friends

The following null hypothesis determined whether a statistically significant difference existed between the amount of friends high school students have on Facebook and the amount of friends undergraduate college students have on Facebook.

 $H_0$ 3.4: There is no statistically significant difference between the amount of friends high school students have on Facebook and the amount of friends undergraduate college students have on Facebook.

Levene's Test for Equality of Variances upheld the assumption of equal variances (p > 0.05), p = 0.076. Results of the Independent t test determined that there was a statistically significant difference between the amount of friends high school students have on Facebook (M = 431.47, s = 279.84) and the amount of friends undergraduate college students have on Facebook (M = 309.32, s = 251.27), t(324) = 4.143, p = 0.000,  $\alpha = 0.05$ . This result led to the rejection of the null hypothesis of  $H_03.4$  within this study.

Table 34: T-Test for the Amount of Facebook Friends summarizes the results of this analysis.

Table 34 *T-Test for the Amount of Facebook Friends* 

Leve Te			_	t-te	est for Equalit	y of Means		
							95% Co	onfidence
							Interva	al of the
							Diffe	erence
				Sig. (2-	Mean	Std. Error		
F	Sig.	t	df	tailed)	Difference	Difference	Lower	Upper
3.160	.076	4.143	324	.000	122.1504	29.4859	64.1424	180.1584

User Satisfaction with Facebook

The following null hypothesis identified whether a statistically significant difference existed between the satisfaction of high school students with Facebook and the satisfaction of undergraduate college students with Facebook.

 $H_0$ 3.5: There is no statistically significant difference between the satisfaction of high school students with Facebook and the satisfaction of undergraduate college students with Facebook.

Levene's Test for Equality of Variances upheld the assumption of equal variances (p > 0.05), p = 0.386. Results of the Independent t test failed to identify a statistically significant difference between the satisfaction of high school students with Facebook (M = 2.23, s = 0.92) and the satisfaction of undergraduate college students with Facebook (M = 2.16, s = 0.98), t(332) = 0.720, p = 0.472,  $\alpha = 0.05$ . Thus, the null hypothesis  $H_0$ 3.5 failed to be rejected in this study. Table 35: T-Test for User Satisfaction with Facebook summarizes the results of this analysis.

Table 35

T-Test for User Satisfaction with Facebook

Levene	e's Test	t-test for Equality of Means							
							Interva	nfidence l of the rence	
F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
.752	.386	.720	332	.472	.076	.105	131	.283	

#### User Attachment with Facebook

The following null hypothesis determined whether a statistically significant difference existed between the attachment of high school students with Facebook and the attachment of undergraduate college students with Facebook.

 $H_0$ 3.6: There is no statistically significant difference between high school student attachment to Facebook and undergraduate college student attachment to Facebook.

Levene's Test for Equality of Variances upheld the assumption of equal variances (p > 0.05), p = 0.408. Results of the Independent t test failed to identify a statistically significant difference between high school student attachment to Facebook (M = 2.45, s = 1.32) and undergraduate college student attachment to Facebook (M = 2.56, s = 1.37), t(332) = 0.761, p = 0.447,  $\alpha = 0.05$ . As a result, the null hypothesis  $H_03.6$  was not rejected. Table 36: T-Test for User Attachment to Facebook summarizes the results of this analysis.

Table 36
T-Test for User Attachment to Facebook

Leven	e's Test	t-test for Equality of Means								
								nfidence		
							Interva	ıl of the		
							Diffe	erence		
				Sig. (2-	Mean	Std. Error				
F	Sig.	t	df	tailed)	Difference	Difference	Lower	Upper		

.687 .408 -.761 332 .447 -.113 .149 -.406 .179

# CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS Introduction to the Chapter

The purpose of chapter five is to summarize the findings, present the conclusions, and develop future recommendations for additional research. Based upon the research questions and coinciding data collections of undergraduate college student and high school Facebook use, final data analysis is summarized. Findings of this research present the motives of undergraduate college students and high school students for using Facebook, observations on variances in their predictive behavioral and attitudinal outcomes of Facebook use, and differences in the behavioral and attitudinal descriptors between undergraduate college students and high school students. Conclusions from these findings are presented. The limitations of this study will also be identified. Lastly, recommendations are made for future research.

#### Summary of the Study

Changing dynamics in communication patterns from largely popular online social network sites presents generous opportunities for new research. One particular social network site has surpassed all others as a global leader in this arena. From January of 2009 to December of 2009 Facebook grew from 150 million active users to 350 million active users. Facebook has continued its rapid growth with over 500 million active users and approximately 50% logging in within a given day (Facebook, 2010). As Facebook and other online social network sites amass in popularity, telecommunication researchers suggest their social utility will also increase (Ellison et al., 2009).

Telecommunication scholars in social network sites have found one particular theory to be useful in determining at least some of the social utilities they produce. An overview of research on the uses and gratifications theory has identified its applicability to new online mediums. Ruggerio (2000) argues that as communication technologies rapidly develop the vast array of possible topics for uses and gratification research multiplies. The flexibility that the uses and gratifications theory offers is particularly significant as computer-mediated communication begins to influence every aspect of people's lives (Ruggerio, 2000, p. 28). As Lin (1996) argues, the uses and gratification approach is an obvious theory in attempting to determine new uses of online media. As such, this study utilized the theory to seek the motives of two purposely chosen groups of social network site users, undergraduate college students and high school students.

Social network sites have the potential to lower the barriers to social interaction and introduce connections between people that may have never otherwise existed.

Ellison et al., (2009) found that Facebook assists in instigating new relationships and preserving past relationships in the lives of students during their transition into college.

Still, the researchers maintain that an understanding does not exist for how these findings apply to other groups (Ellison et al., 2009). A number of Facebook studies have focused on the specific group of college age human subjects (Bonds-Raacke & Raacke, 2010; Ellison et al., 2007; Raack & Bonds-Raacke, 2008; Sheldon, 2008). Further research, however, has been suggested outside this finite group of subjects. Ellison et al. (2007) indicated that supplementary analysis is necessary to study Facebook use on other communities that include high schools. Additionally, Sheldon (2008) recommended

including the comparison of motivations between different colleges and schools as well as between high school students and college students (Sheldon, 2008).

Therefore, the purpose of this study was to bridge the gap between the existing body of knowledge on the motives of college students for using the social network site Facebook and alternative groups of individuals with little parallel knowledge.

Principally, this study chose to add data from a younger sample of subjects, high school students. In order to add to this body of knowledge, it sought high school student and undergraduate college student motives for using the social network site Facebook. In addition, it determined if high school and undergraduate student motives predict attitudinal and behavioral outcomes of Facebook use. Lastly, it determined differences in the descriptors of the behaviors and attitudes of both types of students. The following research questions attempted to measure these requirements.

Research Question 1: What are the motives for using Facebook for high school students and the motives for using Facebook for undergraduate college students?

Research Question 2: What motives of high school students predict behavioral and attitudinal outcomes of Facebook use and what motives of undergraduate college students predict behavioral and attitudinal outcomes of Facebook use?

Research Question 3: Are there differences between certain behavioral and attitudinal descriptors of high school student Facebook users and certain behavioral and attitudinal descriptors of undergraduate college student Facebook users? The following subquestions measure behavioral and attitudinal descriptors:

i. Is there a difference between the amount of Facebook use of high school students and the amount of Facebook use of undergraduate college students?

- ii. Is there a difference between the frequency of Facebook use of high school students and the frequency of Facebook use of undergraduate college students?
- iii. Is there a difference between the duration of Facebook use of high school students and the duration of Facebook use of undergraduate college students?
- iv. Is there a difference between the amount of friends high school students have on Facebook and the amount of friends undergraduate college students have on Facebook?
- v. Is there a difference between high school student satisfaction with Facebook and undergraduate college student satisfaction with Facebook?
- vi. Is there a difference between high school student attachment to Facebook and undergraduate college student attachment to Facebook?

A redesigned instrument with an a priori pool of Facebook motives and behavioral and attitudinal outcomes attempted to answer these questions. Originally designed by Sheldon (2008), the instrument included a collection of Internet uses and gratifications and behavioral and attitudinal outcomes devised from previous related research (Flaherty et al., 1998; Flanagin & Metzger, 2001; Papacharissi & Rubin, 2000; Sheldon, 2008). The instrument in this study added the information seeking gratifications used by Papacharissi and Rubin (2000).

High school and undergraduate college students 18 years of age and older were the target population of this research. Subjects from two school districts and one Division I University in the mid-Atlantic participated in this study. There were 363 participants that completed the surveys. Of the 363 participants, 338 were currently using an active Facebook account. Pre-analysis data screening was performed on the

entire sample size of 363 participants as well as the groupings of high school and college students to determine the proper tools for analysis. The initial population of each grouping was 152 high school students and 186 undergraduate college students.

Following pre-analysis data screening, a total of 150 high school students and 184 undergraduate college students were present in the data collection phases of this research.

To determine the underlying structures of Facebook motives for high school students and undergraduate college students factor analysis was performed. Factorial analysis utilized Principal Component Analysis as the extraction method. Varimiax rotation was used with Kaiser Normalization. Prior to application, research determined appropriateness of each data set for factor analysis using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy MSA. MSA dealt with any variables < 0.5 as unacceptable (Cerny & Kaiser, 1977). KMO also calculated the appropriateness of each model. Researchers relied upon the subject-to-variables ratio (STV) of at least five times the number of subjects to variables for Principal Components Analysis (Bryant & Yarnold, 1997).

The second research question sought predictors of behavioral and attitudinal outcomes of high school students and undergraduate college students. Stepwise multiple regressions predicted attitudinal and behavioral outcomes of undergraduate college student and high school student Facebook use. Prior research suggests a ratio of subjects to independent variables within multiple regressions of at least 15 to 1 (Mertler & Vannatta, 2005). This particular study used a maximum of four independent variables that met this requirement. Analysis of variance was used to assess the overall significance of the model. Significance for the regression model was measured at p <

0.05. Subsequently, significance for regression coefficient variables was significant at p < 0.05.

The final research question compared high school student behavioral and attitudinal descriptors to undergraduate college student behavioral and attitudinal descriptors. T-Tests for independent samples compared the means between high school answers to the behavioral and attitudinal questions from the instrument and undergraduate college student answers. The null hypothesis of the second research question was rejected if Alpha  $\alpha$  was  $\leq$  .05.

### Summary of Findings

### Research Question 1

Research Question 1: What are the motives for using Facebook for high school students and the motives for using Facebook for undergraduate college students?

Final loadings for the undergraduate college student factorial analysis extracted four Facebook motives. Rotation converged in 12 iterations. After rotation, the first component accounted for 38.35% of the total variance. Component 1 within the final solution contained 8 variables. These included to stay in touch with friends, to communicate with my friends, to send a message to a friend, to stay connected, get through to someone who is hard to reach, to stay in touch with old friends, to post a message on my friend's wall, and the only way to stay in touch with my friends. Component 1 was labeled "Relationship Maintenance." The second component accounted for 9.34% of the total variance. Variables loading on this component included nothing better to do, to occupy my time, to pass time when bored, because I am already online, and to get away from what I am doing. Component 2 was labeled as "passing

time." The third component accounted for 7.19% of the total variance. Loading variables were to read other people's profiles, it is entertaining, and because I enjoy it. The motive of "entertainment" was used to label component 3. The fourth component accounted for 4.80% of the total variance. Variables within this loading included to join a group that fits my interests, to get information for free, and to look for information. Component 4 was labeled using the a priori motive of "information seeking." The final four-component solution accounted for 59.70% of the total variance.

Final loadings for the high school student factorial analysis also extracted four Facebook motives. Rotation converged in 12 iterations for the high school student data set. Following rotation, the first component accounted for 29.34% of the total variance. Variables in this component included nothing better to do, to occupy my time, to pass time when bored, and to get away from what I am doing. Component 1 was labeled using the a priori label, "passing time." The second component accounted for 10.36% of the total variance. Variables loading in this component included, to stay in touch with old friends, to stay in touch with friends, to stay connected, and to find old friends. Component 2 in the high school data set was labeled "Relationship Maintenance." The third component accounted for 7.45% of the total variance. Variables loading on this component included, to read other people's profiles, I enjoy it, and it is entertaining. Component 3 was labeled "entertainment." The fourth component accounted for 5.34% of the total variance. The final four-component solution accounted for 52.50% of the total variance. Variables within this final component were to get information for free, to look for information, and to join a group that fits my interests. Component 4 was labeled using the a priori motive "information seeking."

### Research Question 2

Research Question 2: What motives of high school students predict behavioral and attitudinal outcomes of Facebook use and what motives of undergraduate college students predict behavioral and attitudinal outcomes of Facebook use?

Stepwise-multiple regression attempted to determine the accuracy of the Facebook motives as independent variables predicting the behavioral and attitudinal outcomes of Facebook as the dependent variables. Visual differences are noted.

The model for undergraduate college student amount of Facebook use accounted for 13.1% of the variance. Regression results indicate that the overall model significantly predicts the amount of Facebook use,  $R^2 = .131$ ,  $R^2$  <sub>adj</sub>= .122, F(2, 179) = 13.52, p = .000. Two of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta = .220$ , t(179) = 2.77, p = .006 and relationship maintenance  $\beta = .202$ , t(179) = 2.54, p = .012.

The model for high school student amount of Facebook use accounted for 14.6% of the variance. Regression results indicate that the overall model significantly predicts the amount of Facebook use,  $R^2 = .146$ ,  $R^2_{adj} = .134$ , F(2, 138) = 11.806, p = .000. Two of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta = .322$ , t(138) = 4.035, p = .000 and relationship maintenance  $\beta = .159$ , t(138) = 1.998, p = .048.

Undergraduate college student motives and high school college student motives significantly predicted the amount of Facebook use. The undergraduate college regression model accounted for 13.1% of the variance while the high school regression

model accounted for 14.6% of the variance. No difference existed between the motives contributing to the final models.

The model for undergraduate college student frequency of Facebook use accounted for 34% of the variance. Regression results indicate that the overall model significantly predicts the frequency of Facebook use,  $R^2 = .340$ ,  $R^2_{adj} = .332$ , F(2, 181) = 46.55, p = .000. Two of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta = -.342$ , t(181) = -4.962, p = .000 and relationship maintenance  $\beta = -.336$ , t(181) = -4.880, p = .000.

The model for high school student frequency of Facebook use accounted for 9.9% of the variance. Regression results indicate that the overall model significantly predicts the frequency of Facebook use,  $R^2 = .099$ ,  $R^2_{adj} = .093$ , F(1, 148) = 16.258, p = .000. Only one of the four Facebook motives significantly contributed to the final model. The contributing motive was entertainment  $\beta = -.315$ , t(148) = -4.032, p = .000.

Undergraduate college student motives and high school college student motives significantly predicted the frequency of Facebook use. The undergraduate college regression model accounted for 34% of the variance while the high school regression model accounted for 9.9% of the variance. Differences did exist between the motives contributing to the final models. The entertainment motive and relationship maintenance motive both significantly contributed to the frequency of undergraduate college Facebook use. Only one motive, entertainment, significantly contributed to the frequency of high school Facebook use.

The model for undergraduate college student duration of Facebook use accounted for only 9.2% of the variance. Regression results indicate that the overall model

significantly predicts the duration of Facebook use,  $R^2 = .092$ ,  $R^2_{\text{adj}} = .082$ , F(2, 181) = 9.208, p = .000. Two of the four Facebook motives significantly contributed to the final model. These included passing time  $\beta = -.206$ , t(181) = 2.811, p = .005 and relationship maintenance  $\beta = .177$ , t(181) = 2.416, p = .017.

The model for high school student duration of Facebook use accounted for only 4% of the variance. Regression results indicate that the overall model significantly predicts the duration of Facebook use,  $R^2 = .040$ ,  $R^2_{adj} = .033$ , F(1, 148) = 6.153, p = .014. Only one of the four Facebook motives significantly contributed to the final model. The contributing motive was entertainment  $\beta = .200$ , t(148) = 2.480, p = .014.

Undergraduate college student motives and high school college student motives significantly predicted the duration of Facebook use. The undergraduate college regression model accounted for 9.2% of the variance while the high school regression model accounted for only 4% of the variance. There were dissimilarities between the motives contributing to the final models. The passing time motive and relationship maintenance motive both significantly contributed to the duration of undergraduate college Facebook use. Entertainment was the only motive that significantly contributed to the duration of high school Facebook use.

The model for undergraduate college student amount of Facebook friends accounted for 10.2% of the variance. Regression results indicate that the overall model significantly predicts the amount of Facebook friends,  $R^2 = .102$ ,  $R^2_{adj} = .092$ , F(2, 178) = 10.143, p = .000. Two of the four Facebook motives significantly contributed to the final model. These included relationship maintenance  $\beta = -.209$ , t(178) = 2.843, p = .005 and passing time  $\beta = .193$ , t(178) = 2.624, p = .009.

The model for high school student amount of Facebook friends accounted for 10.6% of the variance. Regression results indicate that the overall model significantly predicts the amount of Facebook friends,  $R^2 = .106$ ,  $R^2_{adj} = .100$ , F(1, 145) = 17.148, p = .000. Only one of the four Facebook motives significantly contributed to the final model. The contributing motive was entertainment  $\beta = .325$ , t(145) = 4.141, p = .000. Regression coefficients are presented in Table 34: Regression Coefficients for High School Frequency of Use.

Undergraduate college student motives and high school college student motives significantly predicted the amount of Facebook friends. The undergraduate college regression model accounted for 10.2% of the variance while the high school regression model accounted for 10.6% of the variance. Variations existed between the motives contributing to the final models. The relationship maintenance motive and passing time motive both significantly contributed to the amount of undergraduate college Facebook friends. Entertainment was the only motive that significantly contributed to the amount of high school Facebook friends.

The model for undergraduate college student satisfaction with Facebook accounted for 23.5% of the variance. Regression results indicate that the overall model significantly predicts student satisfaction with Facebook,  $R^2 = .235$ ,  $R^2_{adj} = .222$ , F(3, 180) = 18.451, p = .000. Three of the four Facebook motives significantly contributed to the final model. These included relationship maintenance  $\beta = -.266$ , t(180) = -3.858, p = .000; information seeking  $\beta = -.214$ , t(180) = -3.114, p = .002; and passing time  $\beta = -.203$ , t(180) = -2.968, p = .003.

The model for high school student satisfaction with Facebook accounted for 9.3% of the variance. Regression results determined that the overall model significantly predicts student satisfaction with Facebook,  $R^2 = .093$ ,  $R^2_{adj} = .081$ , F(2, 147) = 7.547, p = .001. Two of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta = -.234$ , t(148) = -2.951, p = .004 and relationship maintenance  $\beta = -.169$ , t(148) = -2.134, p = .034.

Undergraduate college student motives and high school college student motives significantly predicted satisfaction with Facebook. The undergraduate college regression model accounted for 23.5% of the variance while the high school regression model accounted for 9.3% of the variance. Differences existed between the motives contributing to the final models. Three motives; relationship maintenance, information seeking, and passing time significantly contributed to undergraduate college student satisfaction with Facebook. Only the two motives of entertainment and relationship maintenance significantly contributed to high school student satisfaction with Facebook.

The model for undergraduate college student attachment to Facebook accounted for 26.1% of the variance. Regression results indicate that the overall model significantly predicts student attachment to Facebook,  $R^2 = .261$ ,  $R^2$  <sub>adj</sub>= .253, F(2, 181) = 31.975, p = .000. Two of the four Facebook motives significantly contributed to the final model. These included relationship maintenance  $\beta = -.369$ , t(181) = -5.064, p = .000 and entertainment  $\beta = -.219$ , t(181) = -3.001, p = .003.

The model for high school student attachment to Facebook accounted for 28.2% of the variance. Regression results signify that the overall model significantly predicts student attachment to Facebook,  $R^2 = .282$ ,  $R^2$  <sub>adi</sub> = .268, F(3, 146) = 19.147, p = .000.

Three of the four Facebook motives significantly contributed to the final model. These included entertainment  $\beta = -.307$ , t(146) = -4.158, p = .000; relationship maintenance  $\beta = -.305$ , t(146) = -4.318, p = .000; and passing time  $\beta = -.179$ , t(146) = -2.443, p = .016.

Undergraduate college student motives and high school college student motives significantly predicted attachment to Facebook. The undergraduate college regression model accounted for 26.1% of the variance while the high school regression model accounted for 28.2% of the variance. Dissimilarities were present between the motives contributing to the final models. Relationship maintenance and entertainment were the only two motives that significantly contributed to undergraduate college student attachment to Facebook. Three motives; entertainment, relationship maintenance, and passing time significantly contributed to high school student satisfaction with Facebook. *Research Question 3* 

Research Question 3: Is there a significant difference between certain behavioral and attitudinal descriptors of high school student Facebook users and certain behavioral and attitudinal descriptors of undergraduate college student Facebook users?

T-Tests for two independent samples compared the high school data set to the undergraduate college data set. Sub-null hypotheses tested each behavioral and attitudinal outcome measured.

 $H_0$ 3.1: There is no statistically significant difference between the amount of Facebook use of high school students and the amount of Facebook use of undergraduate college students.

Results of the Independent t test failed to identify a statistically significant difference between the amount of Facebook use of high school students (M = 39.23, s =

31.35) and the amount of Facebook use of undergraduate college students (M = 41.92, s = 35.25), t(321) = 0.715, p = 0.475,  $\alpha = 0.05$ . Hence, the null hypothesis  $H_03.1$  was not rejected.

 $H_0$ 3.2: There is no statistically significant difference between the frequency of Facebook use of high school students and the frequency of Facebook use of undergraduate college students.

Results of the Independent t test failed to identify a statistically significant difference between the frequency of Facebook use of high school students (M = 2.06, s = 1.15) and the frequency of Facebook use of undergraduate college students (M = 1.83, s = 1.28), t(327) = 1.664, p = 0.097,  $\alpha = 0.05$ . Therefore, the null hypothesis  $H_03.2$  was not rejected.

 $H_0$ 3.3: There is no statistically significant difference between the duration of Facebook use of high school students and the duration of Facebook use of undergraduate college students.

Results of the Independent t test determined that there was a statistically significant difference between the duration of Facebook use of high school students (M = 3.05, s = 0.86) and the duration of Facebook use of undergraduate college students (M = 3.29, s = 0.82), t(332) = 2.600, p = 0.010,  $\alpha = 0.05$ . The null hypothesis  $H_03.3$  was consequently rejected.

 $H_0$ 3.4: There is no statistically significant difference between the amount of friends high school students have on Facebook and the amount of friends undergraduate college students have on Facebook.

Results of the Independent t test determined that there was a statistically significant difference between the amount of friends high school students have on Facebook (M = 431.47, s = 279.84) and the amount of friends undergraduate college students have on Facebook (M = 309.32, s = 251.27), t(324) = 4.143, p = 0.000,  $\alpha = 0.05$ . The null hypothesis  $H_03.4$  was rejected as a result.

 $H_0$ 3.5: There is no statistically significant difference between high school student satisfaction with Facebook and undergraduate college student satisfaction with Facebook.

Results of the Independent t test failed to identify a statistically significant difference between the satisfaction of high school students with Facebook (M = 2.23, s = 0.92) and the satisfaction of undergraduate college students with Facebook (M = 2.16, s = 0.98), t(332) = 0.720, p = 0.472,  $\alpha = 0.05$ . Thus, the null hypothesis  $H_03.5$  was not rejected.

 $H_0$ 3.6: There is no statistically significant difference between high school student attachment to Facebook and undergraduate college student attachment to Facebook.

Results of the Independent t test failed to identify a statistically significant difference between high school student attachment to Facebook (M = 2.45, s = 1.32) and undergraduate college student attachment to Facebook (M = 2.56, s = 1.37), t(332) = 0.761, p = 0.447,  $\alpha$  = 0.05.

### Conclusions of Study

### Conclusion 1

In exploring the underlying structures of Facebook use in this study, the most salient motive for high school student Facebook use is passing time whereas the most

salient motive for undergraduate college student Facebook use is relationship maintenance.

Overall, the underlying structures for both undergraduate college students and high school students were the same. The a priori motives of relationship maintenance, passing time, entertainment, and information seeking all loaded based upon the established criteria. However, variances existed between the most salient component within underlying structures of undergraduate college students and high school students. Undergraduate college students' most definitive reason for using Facebook was relationship maintenance while their second most important motive was passing time. High school students' most prominent gratification for using Facebook was to pass time while relationship maintenance was its second largest gratification for using Facebook.

Past research that has attempted to explore the underlying structure of Facebook use has found similar results as the college populace in this study. Joinson (2008) found the most salient factor to be "social connection" with motives similar to relationship maintenance in this study such as "finding out what old friends are doing now" and "maintaining relationships with people you may not get to see very often" (p. 4). Motives defined by the factor of "relationship maintenance" in Sheldon's (2008) study also loaded highest by obtaining 31% of the total variance. Thus, it came as no surprise that relationship maintenance was the most salient component for Facebook use within the undergraduate college sample.

More surprising is the high school student's most salient motive of passing time in this study. With notably less overall total variance, passing time still accounts for a much larger percentage of Facebook use than the relationship maintenance of high school

students. Although loading second, passing time accounted for a much smaller variance in the undergraduate college student sample. A subsequent notable inconsistency is that the undergraduate college student overall underlying structure accounted for over 7% more of the total variance than did the motives of high school students. Although both data sets still have a sizeable amount of variance left that needs explanation, high school students have a greater amount not explained.

### Conclusion 2

There are mild distinctions between the predictive behavioral and attitudinal outcomes of high school students and the predictive behavioral and attitudinal outcomes of undergraduate college students.

Entertainment and relationship maintenance motives both predicted the amount of use that high school and undergraduate college students spend on Facebook within a given day. Expected activity outcomes that relate to entertainment gratifications and social outcomes that relate to relationship maintenance have been associated with Internet usage (LaRose & Eastin, 2004). Sheldon (2008) found that the motives of relationship maintenance and passing time predicted the number of hours students spent on Facebook. Interestingly, although passing time was the most salient motive of high school students, it failed to predict the number of minutes students spend on Facebook within this study.

The entertainment motive and relationship maintenance motive both significantly contributed to the frequency of undergraduate college Facebook use while only the entertainment motive significantly contributed to the frequency of high school Facebook use. The high school model also contributed notably less (9.9%) than the undergraduate college model (34%). Previous research performed by Valkenburg et al. (2006) found

that adolescent well-being and self-esteem indirectly influences the frequency of social network site use. Since high school student frequency of use did not predict passing time, maintaining relationships, information seeking, or other attributes such as well-being and self-esteem, much further variance needs explanation for these users. The undergraduate college overall variance for the frequency of Facebook use is higher than all other behavioral and attitudinal outcomes within this particular study. This signified some of the strongest predictors of a given undergraduate college behavioral and attitudinal outcome (frequency of use) as entertainment and relationship maintenance.

Entertainment significantly contributed to the duration of high school Facebook use and the number of Facebook friends, however, the overall model was miniscule at 4% for duration of use. This differed, however, from undergraduate college students.

Passing time and relationship maintenance motives significantly predicted the duration of Facebook use and the number of Facebook friends of undergraduate college students. As the independent *t* tests showed, high school students used Facebook for less time than undergraduate college students. Subsequently, high school students had a substantially larger number of Facebook friends than undergraduate college students. The motives of passing time and relationship maintenance favored a smaller friendship base and a potentially more mature Facebook user given the longer duration of use and older average age (23) of the participants. The motive of entertainment favored a larger friendship base and a younger populace of Facebook users.

Relationship maintenance predicted high school and undergraduate college student satisfaction with Facebook. Entertainment was the other and more significant high school motive in predicting student satisfaction with Facebook. Information seeking

and passing time also predicted undergraduate college student satisfaction with Facebook. Undergraduate college student satisfaction with Facebook was the only outcome that the information-seeking motive predicted. Papacharissi and Rubin (2000) also found that the information-seeking motive significantly predicted Internet satisfaction. Users who felt more valued by family and friends were more satisfied and used the Internet to acquire information (Papacharissi & Rubin, 2000). The overall model for undergraduate college students was 23% while the high school student motives accounted for 9.3% of the variance. This data suggests that undergraduate college students were generally more satisfied to go to Facebook for the underlying structures developed from this research. Lower overall variance and fewer predicting motives indicates that high school students were less satisfied with their underlying structural components as predictors of behavioral and attitudinal outcomes in this study.

Relationship maintenance and entertainment predicted high school and undergraduate college student attachment to Facebook. Passing time was a third high school student motive that predicted attachment to Facebook. This particular solution held the greatest overall variance (28.2%) of all other predictive regression tests for high school student behavioral and attitudinal outcomes. The undergraduate college student model that included relationship maintenance and entertainment accumulated 26.1% of the variance. Song et al. (2004) found that information seeking and relationship maintenance significantly predict Internet user addiction tendencies. Their research suggested normal users could have "mild" Internet addictions with habitual use (Song et al., 2004, p. 390).

Information seeking was not a significant predictor in this study; however, relationship maintenance predicted both high school and undergraduate college student attachment to Facebook. Although there is no measurement in this study that could identify habitual patterns of social network site use that would parallel Song et al. (2004), the relationship maintenance motive can be positively associated with both high school and undergraduate college student attachment to Facebook.

Interestingly, relationship maintenance significantly predicted each behavioral and attitudinal outcome of undergraduate college student Facebook use. It failed to predict the frequency of use, duration of use, and the number of friends of high school students. Entertainment significantly predicted every behavioral and attitudinal outcome of high school Facebook use. Entertainment failed to predict the number of friends and the duration of undergraduate college student Facebook use.

### Conclusion 3

Overall, there was not a significant difference between every behavioral and attitudinal descriptor of high school student and college student Facebook use.

Four of the six behavioral and attitudinal questions on the instrument failed to produce statistically significant differences between undergraduate college students and high school students. The amount of Facebook use, frequency of Facebook use, satisfaction with Facebook, and attachment to Facebook were not notably different. Two of the six behavioral and attitudinal descriptors did show statistically significant differences. These include the duration of Facebook use and amount of Facebook friends.

Undergraduate college students had been using Facebook for a longer period of time than high school students. Subsequent research on Facebook has also found that older users have generally been using Facebook for a longer period of time (Joinson, 2008). One consideration for this discrepancy is that Facebook's original design was for Harvard university students. Undergraduate college students in this study at an average age of 23 would have likely had earlier access to Facebook membership when it opened for all other colleges and universities. Additionally, when Facebook did allow membership to other colleges and universities, an email address was required from the institution. The same was true for membership when Facebook opened to the rest of Internet users. However, since most high schools do not offer email addresses to their students, membership is required from an independent email provider. Thus, barriers to entry within the early stages of Facebook development were likely higher for many high school students within this study than the undergraduate college students.

High school students had significantly more friends on Facebook (M = 431.47) than undergraduate college students (M = 309.32). Joinson (2008) found that younger aged users had higher usage patterns of Facebook and a higher number of friends. Similar research on Facebook has also found this to be true. Sheldon (2008) found that younger users and users who visited Facebook to maintain existing relationships had more friends than other users. Results from this research, however, contradict the notion that relationship maintenance influences a higher number of Facebook friends.

Past research supported the theory that physical nearness increases the potential development of relationships. As Cummings et al. (2006) speculated, communication between the two individuals is complicated by distance. Time and efforts redistribute

from older relationship maintenance to develop and facilitate new relationships (Cummings et al., 2006). Regardless, Ellison et al. (2007) found that college students used Facebook primarily to enhance or maintain existing offline relationships. Sheldon (2008) also found that college students use Facebook to maintain relationships including staying in touch with old friends. Subsequently, younger students had more friends on Facebook (Sheldon, 2008).

Undergraduate college students, with an average age of 23, place a greater importance on relationship maintenance than any other Facebook motive. Passing time was a more salient motive of Facebook use than relationship maintenance for high school students who were between 18 and 19 years of age on average. With the exception of duration of use, high school and undergraduate college usage data reflected similar trends. Time spent on Facebook and frequency of use being equal, high school students have less of a desire to go to Facebook to maintain existing relationships, have more friendships to maintain, and have less time per friend that is capable of allocation.

Undergraduate college students place a higher emphasis on relationship maintenance than any other motive, have fewer friends to focus on maintaining, and have more time per friendship maintained within their Facebook account than high school students have.

### Implications of Study

Non-experimental differences existed in the most salient motive of undergraduate college students and high school students. Relationship maintenance was the most salient motive of undergraduate college student Facebook use. Passing time was the most salient motive of high school student Facebook use. In addition, this study found that relationship maintenance as opposed to entertainment, predicted every behavioral and

attitudinal outcome of undergraduate college students. Relationship maintenance was a predictor of every behavioral and attitudinal outcome of undergraduate college student Facebook use while entertainment predicted every behavioral and attitudinal outcome of high school student Facebook use.

The distance that prior studies mention as problematic may be a reason why

Facebook is largely popular today. In particular, many college students who relocate to
attend school likely benefit from the communication gap that social network sites
decrease by facilitating various new online communication mediums. Facebook also
does not have stringent time requirements to maintain old friendships due to short
message communication, such as posting on a friend's wall or liking a friend's status
update. Thus, maintaining older and distant friendships is likely easier. High school
students still seem to benefit from these online functions, however, passing time is a more
salient motive for going to Facebook and entertainment is a better predictor of behavioral
and attitudinal outcomes as a whole. High school students may have fewer distant
relationships to maintain or may pass time because of added boredom in life.

### Limitations of Study

Samplings in this study restrict the generalization of this research. Only high school students who were 18 years of age and older were allowed to complete the survey. Although surveys were distributed during late spring and early summer, this limited the sample to mostly older high school seniors. Surveying high school students of all ages would have resolved this particular limitation.

Use of modified versions of Rubin's (1988) Interpersonal Communication

Motives (ICM) scale produced alpha reliability outcomes as low as .44 in Flaherty's et al.

(1998) study and .55 in Barbato, Graham and Perse's (2003) instrument. These particular scores fell below recommendations of successive research. Scholars have identified Cronbach alpha's that are above .70 as normally acceptable (See Ary et al., 2006). Despite this limitation, Sheldon's (2008) instrument produced alpha cronbach's ranging from .76 to .90. Furthermore, the instrument used in this study produced alpha cronbach's ranging from .65 to .83 for the high school sample and .78 to .89 for the undergraduate college sample.

It is possible that uses and gratifications are conceptually related limit or are measuring the same thing in this study. Bonds-Raacke and Raacke (2010) identified certain underlying structures "to keep in touch with old friends" and "to keep in touch with current friends" as appearing to measure the same thing. In their study, they sought uses and gratifications "conceptually similar" (Bonds-Raacke & Raacke, 2010, p. 28). Regardless, their research occurred after the construction of Sheldon's (2008) instrument. Despite previously tested instruments containing these underlying structures, it is important for further research to verify the uses and gratifications are not conceptually similar.

### Recommendations for Future Research

#### Recommendation 1

Repetition of this research with larger and equal sample sizes is recommended. Population sizes of 200 or greater per Kaiser and Rice (1974) would strengthen support for determining the underlying structures of both high school and undergraduate college students. McCroskey and Young (1979) state that at N = 200 correlations are fairly stable and non-significant correlations can have little impact upon factor analysis.

Despite the intent of the study to obtain larger and more equal sample sizes, non-controllable variables prevented this from occurring. Although this study was diligent in testing for KMO and following the STV guidelines, as with most quantitative research, an increased sample size parallels a higher confidence in factor analysis.

### Recommendation 2

Expansion of research beyond undergraduate college students and high school students between 18 and 19 years of age is necessary to determine whether the underlying motives of students change. Several uses and gratification studies on Facebook have focused on the college populace of users (e.g. Bonds-Raack & Raacke, 2010; Sheldon, 2008) but few have added users from a broader age range. This study's expansion to high school students offers some further explanation; however, its focus on the age group of 18 to 19 year old students is still relatively close in age to the undergraduate college students who were an average age of 23. Studying younger students and older graduate students is important in attempting to broaden research on the uses and gratifications of Facebook use.

#### Recommendation 3

Further research is necessary to determine why a differentiation between high school and undergraduate college students exists within maintaining relationships. High school students are more apt to pass time on social network sites despite having more friendships than undergraduate college students have. Undergraduate college students whose duration of Facebook use is longer, have fewer friendships on Facebook. Despite a smaller group of friends, undergraduate college student's most salient motive for using Facebook in this study is relationship maintenance. Additionally, both group's frequency

of Facebook use is relatively analogous suggesting that high school students have less time to devote to each of their friends compared to undergraduate college students.

Subsequent studies should attempt to identify why significant differences in friendships exist and what these differences infer in relation to both uses and gratifications of social network site use as well as behavioral and attitudinal outcomes of Facebook use.

Ellison et al. (2009) argue that social network sites are changing the way people maintain and form relationships with others. The social utility of these networks is expected to increase as a result (Ellison et al., 2009). Why the younger high school users of Facebook are not as interested in relationship maintenance as the slightly older undergraduate college student populace is unknown. Future studies should attempt to explore this dynamic.

In addition, the gap between the numbers of friendships has few responses.

Joinson (2008) found that younger users were positively connected with more friends and higher usage levels. However, longer duration of use also correlated with more friends (Joinson, 2008), which contradicts the findings in this study. Prior research suggested that the quality of friendships may be a more significant predictor of social adjustment then the number of friendships and individual has. Valkenburg et al. (2006) found in their research that the number of friendships did not influence social self-esteem of young people. Although relationship maintenance positively predicted the amount of undergraduate college user friends on Facebook, entertainment was the only predictor of the number of high school Facebook friendships. Thus, this study recommends that prospective research study the larger variances of friendships between different aged

Facebook users and what motivates younger students to acquire a greater number of Facebook friends.

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### Appendix A

From: Institution Review Board

Sent: Wednesday, April 14, 2010 1:29 PM

To: Hart, Michael J.; Gribbin, William G.; Garzon, Fernando L.

Cc: Institution Review Board

Subject: IRB Approval 833.032210: A STUDY ON THE USES AND GRATIFICATIONS OF HIGH SCHOOL AND COLLEGE STUDENTS ON THE SOCIAL NETWORK SITE FACEBOOK

### Dear Michael,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. Attached you'll find the forms for those cases.

Thank you for your cooperation with the IRB and we wish you well with your research project. We will be glad to send you a written memo from the Liberty IRB, as needed, upon request.

Sincerely,

Fernando Garzon, Psy.D.
IRB Chair, Liberty University
Center for Counseling and Family Studies Liberty University
1971 University Boulevard
Lynchburg, VA 24502-2269

### Appendix B

### Confidentially Agreement for Participating Schools

Title

# A STUDY ON THE USES AND GRATIFICATIONS OF HIGH SCHOOL AND COLLEGE STUDENTS ON THE SOCIAL NETWORK SITE FACEBOOK

### Researcher

Michael Hart, Liberty University Doctoral Candidate in the Department of Education

### Purpose

This study seeks to examine whether significance exists between High School and College Facebook users on the premises of their uses and gratifications. Social network sites have become largely popular amongst students. Applying the Uses and Gratifications Theory to this new communication medium is important to validate or invalidate previous social interactive theories and identify new patterns of social interaction between students.

### Institutional Review Board

The Liberty University Institutional Review Board (IRB) has approved this study. Collection of data for this research is valid until April 14, 2011. Official documentation on this approval can be requested from the Institutional Review Board if required. Information on contacting the IRB is included in the contact section below.

### **Procedures**

The online survey will be available for a window of time for the particular group of student participants. The researcher will open the survey to the teacher or professor who will be administering the survey. Each survey can be password protected. The selected hosted solution for the survey in this study is a reputed professional company in its field. It does not sell information, solicit information, or allow advertising.

Students will be allowed to take the survey at anytime of the day during the research window agreed upon by the researcher and teacher or professor. The initial form that students will access requires confirmation that the student is 18 years of age or older. If the student is not 18 years of age or older he or she will be instructed to simply close the page. Students that confirm they are 18 years of age or older will be directed to the full questionnaire for completion.

### Confidentiality and Secure Data Handling

Any reporting of the data from this survey will exclude any and all information that could identify the subjects involved. Only the researcher will have access to the data that resides

on the hosted survey solution. No other secondary data about the subjects will be sent to the researcher from the institutions performing the study. The data exported from the hosted survey solution is anonymous. It is not determinable from this data where the survey was taken or by whom the survey was taken by.

### Risks of Study

There are no additional physical or mental risks associated with this study other than those already present in everyday life. Normal risks associated with using a computer connected to the Internet apply.

### **Voluntary Participation**

Participation of this survey is voluntary for all participants. Participants can choose to vacate this study at anytime.

### Credit

Any academic credit allotted to students is voluntary by the teacher or professor of the participating class. Although not required, the researcher recommends academic credit to maximize student participation.

#### Consent

Participation in this study gives implied consent for the data to be used for the results and reporting of this research.

### **Contact Information**

Researcher

Michael Hart

<u>Dissertation Chair</u>
Dr. William Gribbin
Dean, Communications Department

<u>Faculty Sponsors</u>
Dr. William Wheeler
AVP, Instutitional Effectiveness

Dr. Ronald Godwin Vice Chancellor

### Committee on the Use of Human Research Subjects

The Liberty University Committee on the Use of Human Research Subjects can be contacted by email at: <a href="mailto:IRB@liberty.edu">IRB@liberty.edu</a> or via mail to: Committee on the Use of Human Research Subjects, Campus North Suite 2400, 1971 University Blvd, Lynchburg, VA 24502.

# Appendix C

## Chi-Square Critical Value Table

df	P = 0.05	P = 0.01	P = 0.001
1	3.84	6.64	10.83
2	5.99	9.21	13.82
3	7.82	11.35	16.27
4	9.49	13.28	18.47
5	11.07	15.09	20.52
6	12.59	16.81	22.46
7	14.07	18.48	24.32
8	15.51	20.09	26.13
9	16.92	21.67	27.88
10	18.31	23.21	29.59
11	19.68	24.73	31.26
12	21.03	26.22	32.91
13	22.36	27.69	34.53
14	23.69	29.14	36.12
15	25.00	30.58	37.70
16	26.30	32.00	39.25
17	27.59	33.41	40.79
18	28.87	34.81	42.31
19	30.14	36.19	43.82
20	31.41	37.57	45.32
21	32.67	38.93	46.80
22	33.92	40.29	48.27
23	35.17	41.64	49.73
24	36.42	42.98	51.18
25	37.65	44.31	52.62
26	38.89	45.64	54.05
27	40.11	46.96	55.48
28	41.34	48.28	56.89
29	42.56	49.59	58.30
30	43.77	50.89	59.70
31	44.99	52.19	61.10

32	46.19	53.49	62.49
33	47.40	54.78	63.87
34	48.60	56.06	65.25
35	49.80	57.34	66.62
36	51.00	58.62	67.99
37	52.19	59.89	69.35
38	53.38	61.16	70.71
39	54.57	62.43	72.06
40	55.76	63.69	73.41