

**FACEBOOK AND OTHER INTERNET USE AND THE ACADEMIC  
PERFORMANCE OF COLLEGE STUDENTS**

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by  
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## ABSTRACT

Facebook and Other Internet Use and the Academic Performance of College Students

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The Internet has become an integral part of almost every college student's daily routine, and while a large majority of undergraduates seem to benefit from use of the Internet to do research and communicate with faculty and classmates (Jones, Johnson-Yale, Pérez, & Schuler, 2007), a small percentage of college students experience Internet related academic problems (Anderson, 2001; Morahan-Martin & Schumacher, 2000; Scherer, 1997). Recently, there have been suggestions in the academic literature and popular press about the negative academic effects of Facebook<sup>®</sup> (Barratt, Hendrickson, Stephens, & Torres, 2005; Edwards, 2008; Hafner, 2009; Martínez-Alemán & Lynk-Wartman, 2009; Osuagwu, 2009; Sandvig, 2009; Stern & Taylor, 2007). However, it is currently unclear whether Facebook use among college students is actually an issue of concern.

This study explored Temple undergraduates' use of the Internet and Facebook as well as whether usage patterns, and perceptions about the academic effects of use, relate to time spent studying and/or academic performance. One hundred sixty Temple University students completed an online survey designed to measure the frequency, duration, intensity, and academic impact of their Internet and Facebook use. Results indicate that students devote a significant amount of time to both academic ( $M = 1.82$  hrs

per day) and recreational ( $M = 2.50$  hrs per day) Internet activities, and that Facebook users ( $n = 153$ , 96% of the sample) spend an average of two hours per day on the site, accounting for almost half of total time spent on the Internet and approximately 80% of recreational use. Results of this study also show that spending more time on the Internet for academic purposes, waiting longer to check Facebook when studying or doing schoolwork, and spending less time on the Internet for fun, are all significant predictors for spending more time on academics. Despite these findings, a regression analysis revealed no significant relationship between Internet and Facebook usage patterns and academic performance; a discovery which challenges previous claims about the negative relationship between Facebook use and grades (Karpinski & Duberstein, 2009).

While cumulative grade point average (GPA) seemed to be unaffected by use of Facebook and other recreational Internet sites, students' survey responses indicate that online behaviors do impact the learning process. A majority of students believe online activities distract them from studying, lead to procrastination, and displace time that would have otherwise been spent on academics. Students also reported that they go on Facebook and other recreational Internet sites while they are in class and that their access to University computers has been negatively impacted by other students' use of Facebook. Although a majority of students believe they can control their Facebook and other Internet use so that it does not interfere with academics, a modest number of students reported that they are not able to control their online activities. More research is needed to determine whether Internet related interventions would help college students improve their ability to regulate online behavior and limit potentially nonproductive or excessive Internet use.

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## PREFACE

I first developed an interest in college student Internet use while teaching *Tweens and Teens* (Education 0819), a Temple University course that covers a wide range of topics related to adolescent development including the concept of “growing up online” (Dretzin & Maggio, 2008). Through class discussions and an informal survey, I quickly learned about the importance of the Internet in the lives of my students. For instance, I discovered that a majority of the class spent at least five hours per day online and that more than half of most students’ time on the Internet was devoted to Facebook. Many students (approximately three-quarters) also reported that the Internet, and especially Facebook, distracted them from studying and doing schoolwork.

As a university administrator, I am dedicated to helping undergraduates reach their educational goals. Yet every semester there are students who do not make satisfactory academic progress and consequently get placed on warning or probation. Advisors then work with these students to identify the factors that contributed to their poor academic performance in an effort to help them prevent or minimize the impact of those issues in the future. The above mentioned class discussions and survey results left me wondering whether nonproductive and/or excessive Internet use could be one of the multiple factors that prevent students from performing well academically?

Each semester, undeclared Temple University students on warning or probation are required to complete a self-report survey designed to identify factors that affected their academic performance during the previous semester. In order to investigate the Internet use issue, I added three items about students’ use of technology to the spring 2010 version of the survey. Interestingly, more than 30% of the 119 students who

completed the assessment agreed or strongly agreed that they “spent too much time on the Internet and not enough time studying/preparing for classes.” Additionally, almost 12% reported that they had used technology (personal computer, personal digital assistant, cell phone, etc.) to the extent that they were not able to focus on their schoolwork. Finally, a little over 4% agreed or strongly agreed that they “attended class but did not pay attention because [they] were texting and/or surfing the Internet.” These findings, along with previously mentioned class discussions and survey results, prompted me to design this study.

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## CHAPTER 1

### INTRODUCTION

#### **Background**

College students use the Internet at very high rates (Jones et al., 2007). In fact, going online has become part of almost every undergraduate's daily routine (Jones, 2002). Consequently, it is important for higher education professionals to understand the academic, social, and psychological effects of Internet use.

Researchers have been exploring the impact of Internet use on the general population since 1996. Early studies focused on identifying and describing Internet addiction and the problems associated with heavy use (Brenner, 1997; Greenfield, 1999; Young, 1996, 1998b, 1998c). Other researchers have investigated the social and psychological costs and benefits of using the Internet (Kraut, Patterson, et al., 1998; McKenna & Bargh, 2000).

Since college students are heavy Internet users (Jones et al., 2007) and may be at risk of developing Internet related problems (Kandell, 1998; Lavin, Marvin, McClarney, Nola, & Scott, 1999; Young, 2004), many researchers have focused on this population. Some studies were designed to identify problematic Internet use among undergraduates (Anderson, 2001; Chou & Hsiao, 2000; Fortson, Scotti, Chen, Malone, & Del Ben, 2007; Hall & Parsons, 2001; Malaney, 2005; Morahan-Martin & Schumacher, 2000; Scherer, 1997; Zhang, Amos, & McDowell, 2008), while others examined possible relationships between college student online behavior and psychosocial well-being (Chen & Peng, 2008; Clark, Frith, & Demi, 2004; Cotten, 2008; Gordon, Juang, & Syed, 2007; Morgan & Cotton, 2003; Niemz, Griffiths, & Banyard, 2005; Özcan & Buzlu, 2007; Shaw &

Gant, 2002; Wästlund, Norlander, & Archer, 2001; Weiser, 2001). Fewer studies were set up to explore the academic effects of Internet use (Jones, 2002; Jones et al., 2007; Kubey, Lavin, & Barrows, 2001).

Fifteen years since the first Internet studies were conducted there is still a need for additional research on how Internet use impacts the academic lives of college students (Jones et al., 2007). The emergence of newer Internet applications such as the social network site Facebook only intensifies this need; especially since a large majority of college students have social network site accounts, which they check multiple times a day (Salaway & Caruso, 2008; Sheldon, 2008; Stern & Taylor, 2007). Most of the social network site studies conducted so far have focused on the social impact of Facebook and MySpace<sup>®</sup> (Boyd & Ellison, 2007). However, there is a lack of research on the possible relationship between social network site use and academics (Boogart, 2006; Hargittai & Hsieh, 2010; Karpinski & Duberstein, 2009; Kirschner & Karpinski, 2010; Pasek, More, & Hargittai, 2009).

The first study of college student Facebook use and academics indicated that Facebook users study less and earn lower grades than non-Facebook users (Karpinski & Duberstein, 2009). Other researchers have found positive and/or null relationships between Facebook use and grades (Capano, Deris, & Desjardins, 2010; Hargittai & Hsieh, 2010; Pasek et al., 2009). Further investigation is necessary in order to determine whether college student use of Facebook and/or other Internet sites is an issue of concern for higher education professionals.

### **Purpose of the Study**

The purpose of this study was to: 1) describe the Internet and Facebook usage patterns of Temple University undergraduates, 2) explore students' attitudes about the Internet and Facebook, 3) determine whether frequency and duration of Internet and Facebook use relate to time spent on academics and/or academic performance, and 4) establish whether students' self-perceptions of Facebook and other Internet use relate to time spent on academics and/or academic performance.

### **Goals and Objectives**

The first goal of the study was to understand undergraduates' use of the Internet and Facebook. Usage patterns were measured by asking a sample of Temple students to estimate the frequency and duration of their Internet and Facebook use. Participants were also asked to provide separate estimates of time spent online for academic purposes and for non-essential use ("just for fun"). Additionally, students were asked which Internet and Facebook applications they used most often and how frequently they used them.

The second goal was to explore students' attitudes about the Internet and Facebook. Participants were asked several open-ended questions about the positive and negative aspects of their Internet and Facebook use. These questions were positioned before multiple choice and Likert scale attitudinal items in order to reduce possible response bias.

The third goal was to determine whether the Internet and Facebook usage patterns described above related to time spent on academics and/or academic performance. Time spent on academics was assessed with a question about how much time students spent

studying and doing schoolwork. Academic performance was measured by cumulative GPA.

The fourth goal was to investigate how students' self-perceptions of Facebook and other Internet use related to time spent on academics and academic performance. Students' perceptions were measured with four sets of 5-point Likert scale attitudinal questions. Intensity of use items were designed to assess the extent to which Facebook and other Internet use were integrated into respondents' daily routines as well as the importance of the Internet and Facebook in participants' lives. Academic effects questions were designed to measure the perceived effects of Facebook and other Internet use on the following academic factors: time spent studying/doing schoolwork, distraction, procrastination, grades, attendance, access to technology resources and services, and use of the Internet for research purposes. Academic performance and time spent on academics were measured as described above.

### **Research Questions**

1. What are college students' Internet and Facebook usage patterns?
2. What are students' attitudes about the Internet and Facebook?
3. How do Internet and Facebook usage patterns relate to time spent on academics and/or academic performance?
4. What are students' perceptions of their Facebook and other Internet use, and how do those perceptions relate to time spent on academics and academic performance?

### **Definition of Terms**

Applications (Facebook): “Programs within Facebook (developed either by Facebook or third-party software developers) that are easy to install and allow users to complete a number of tasks from posting photos to planning events to playing games” (Martínez-Alemán & Lynk-Wartman, 2009, p. 135).

Blog: “A Web site that contains an online personal journal with reflections, comments, and often hyperlinks provided by the writer; also: the contents of such a site” (Merriam-Webster Online Dictionary, 2010).

Bulletin board: “A public electronic forum that allows users to post or read messages or to post or download files and that is accessed by computer over a network (as the Internet)” (Merriam-Webster Online Dictionary, 2010).

Chat room: “A real-time online interactive discussion group” (Merriam-Webster Online Dictionary, 2010).

Facebook: “An online social utility that helps people communicate more efficiently with their friends, family and coworkers” (Facebook, 2010).

Friend request (Facebook): “An invitation to be added to a user’s Friends List that is sent to the member’s email and that appears on the profile page under ‘Requests.’ Users can ignore or confirm the request” (Martínez-Alemán & Lynk-Wartman, 2009, p. 136).

Instant messaging: “A means or system for transmitting electronic messages instantly” (Merriam-Webster Online Dictionary, 2010).

Internet: “An electronic communications network that connects computer networks and organizational computer facilities around the world” (Merriam-Webster Online Dictionary, 2010).

Marketplace (Facebook): A third-party application, which allows users to post or search free classified advertisements.

Multiple user dungeons: Games that involve role-playing, similar to Dungeons and Dragons but played online (Young, 1996).

MySpace: “A social networking platform that allows members to create unique personal profiles online in order to find and communicate with old and new friends” (MySpace, 2009).

News feed (Facebook): “Automatic update of friends’ activities that appear on the profile page and user inbox” (Martínez-Alemán & Lynk-Wartman, 2009, p. 137).

Newsgroup: “An electronic bulletin board on the Internet that is devoted to a particular topic” (Merriam-Webster Online Dictionary, 2010).

Social capital: The benefits derived from relationships with others (Ellison, 2008).

Social network site:

Web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system. (Boyd & Ellison, 2007, p. 211)

Virtual reality: “An artificial environment which is experienced through sensory stimuli (as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment” (Merriam-Webster Online Dictionary, 2010).

Wall (Facebook): “A place on the Facebook profile page where friends can write messages, send applications, and communicate information. Only friends can write on each other’s walls” (Martínez-Alemán & Lynk-Wartman, 2009, p. 137).

World Wide Web: “A part of the Internet accessed through a graphical user interface and containing documents often connected by hyperlinks; called also Web” (Merriam-Webster Online Dictionary, 2010).

### **Clarification of Terms and Concepts**

#### *Internet Addiction*

Since its discovery so-called “Internet addiction” has also been referred to as Internet addiction disorder (Goldberg, 1996), Internet dependency (Scherer, 1997), Internet behavior dependence (Hall & Parsons, 2001), problematic Internet use (Beard & Wolf, 2001; Rotunda, Kass, Sutton, & Leon, 2003), and pathological Internet use (Davis, 2001; Morahan-Martin & Schumacher, 2000). The American Psychiatric Association (2010) is currently considering including “Internet addiction” in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). However, in the absence of a mutually agreed upon name for this condition, I will use the researchers’ own terminology when referring to a particular study.

#### *Internet Addiction versus Excessive Internet Use*

Sometimes the terms “Internet addiction” and “excessive Internet use” are used interchangeably in the Internet addiction literature (Suhail & Bargees, 2006), even though they have two distinct meanings (Beard & Wolf, 2001). Excessive Internet use usually refers to very large amounts of time spent online, while Internet addiction implies that the user has met a set of diagnostic criteria similar to the criteria for substance dependence or

pathological gambling. Studies have shown that Internet dependents do tend to spend significantly more time online compared to non-dependents (Anderson, 2001; Malaney, 2005; Morahan-Martin & Schumacher, 2000; Scherer, 1997; Young, 1998c). However, spending large amounts of time online does not necessarily lead to Internet addiction or other Internet related problems. As Morahan-Martin and Schumacher (2000) suggested, pathological Internet use is not just about how much time people spend on the Internet but how their Internet use impacts other areas of their lives. When it comes to time spent online there is no clear answer to the question, “How much is too much?”

### **Significance of the Study**

Studies suggest that a large majority of students experience mostly positive social and academic Internet effects (Jones et al., 2007; Shaw & Gant, 2002). Studies also indicate that a small percentage of college students experience symptoms of Internet dependence, spend many hours per day online, and struggle academically, as a result of their Internet use (Anderson, 2001; Morahan-Martin & Schumacher, 2000; Scherer, 1997). Researchers have claimed that highly interactive Internet applications may be more “addictive” and time-consuming than others (Griffiths, 2000; Kandell, 1998; Scherer, 1997; Young, 1998c). Facebook, the most popular social network site among college students, is a dynamic online application with various interactive features including the wall, news feed, chat, and multiple user games. The sudden rise in Facebook use over the last several years may bring about an increase in time spent online and/or the prevalence of Internet related difficulties. Recently, there have been references to “Facebook addiction” in scholarly articles, newspapers, books, and blogs (Barratt et al., 2005; Charnigo & Barnett-Ellis, 2007; Cohen, 2009; Edwards, 2008;

Hafner, 2009; Martínez-Alemán & Lynk-Wartman, 2009; Osuagwu, 2009; Sandvig, 2009; Stern & Taylor, 2007). However, researchers have yet to determine whether heavy Facebook use leads to social, psychological, academic, or occupational problems.

The few academic studies of the relationship between Facebook use and academics have produced inconsistent results. For example, Boogart (2006) and Karpinski and Duberstein (2009) both found significant negative relationships between Facebook use, versus non-use, and grades. Hargittai and Hsieh (2010) and Pasek et al. (2009), on the other hand, found only null and positive relationships between these variables.

I also explored relationships between Facebook use and academic performance. However, instead of using a dichotomous independent variable (user versus non-user), I used participants' self-estimates of the frequency and duration of their Internet and Facebook use. Studies of Internet dependence suggest that self-reported Internet related problems are almost always associated with high levels of use (Anderson, 2001; Malaney, 2005; Morahan-Martin & Schumacher, 2000; Scherer, 1997). Therefore, it was important to take variations in time spent on the Internet and Facebook into consideration when analyzing relationships between Internet and Facebook use and academic performance. Furthermore, because I expected to find very few non-Facebook users, I did not make user versus non-user comparisons.

Researchers have not yet examined how use of Facebook might relate to academic performance. This study investigated the specific ways in which Facebook and other Internet use could affect student performance in college courses by asking participants about factors including: attendance, procrastination, distraction, time spent studying,

access to technology, and use of the Internet for research purposes. Jones et al. (2007) called for more studies of students' attitudes toward the Internet and its impact on academic life. This study was specifically designed to learn more about students' perceptions of the academic impact of their Facebook and other Internet use.

## CHAPTER 2

### LITERATURE REVIEW

#### **The Internet**

College students use the Internet more than any other group (Jones et al., 2007). Consequently, much of the research on Internet use has focused on the college student population (Byun et al., 2009). According to Jones et al. (2007), a majority of students benefit from their use of the Internet for research and communication purposes. Studies also indicate that a relatively small number of students from colleges and universities across the nation and abroad struggle with Internet related problems, including academic difficulties due to excessive time spent online (Anderson, 2001; Chen & Peng, 2008; Morahan-Martin & Schumacher, 2000; Özcan & Buzlu, 2007; Scherer, 1997; Suhail & Bargess, 2006; Zhang et al., 2008).

The purpose of this study is to describe college students' use of the Internet and Facebook, explore students' perceptions of how Facebook and other Internet use impacts their academic experience, and determine whether usage patterns and perceptions about the academic effects of use relate to time spent studying and/or academic performance. Many of the Internet addiction studies conducted so far provide a wealth of information about college student Internet use (Anderson, 2001; Chou & Hsiao, 2000; Fortson, et al., 2007; Hall & Parsons, 2001; Morahan-Martin & Schumacher, 2000; Scherer, 1997; Zhang et al., 2008). The same is true for research on the social and psychological effects of online behavior (LaRose, Eastin, & Gregg, 2001; Morahan-Martin, 1999; Shaw & Gant, 2002; Wästlund et al., 2001). Therefore, while the purpose of this study is not to investigate college student Internet addiction or the psychological and social effects of

Internet use, I will begin this first section with a review of the relevant literature in those areas and conclude with a focus on the academic advantages of Internet use.

### *The Discovery of Internet Addiction*

Soon after the Internet was introduced to the general public, mental health professionals began to see a growing number of clients with addictive-like symptoms related to their online behavior (Goldberg, 1996; Young, 1996, 1998b). This sparked an ongoing and controversial debate over the existence of what some psychologists and mental health professionals call “Internet addiction” (Byun et al., 2009). Griffiths (1997) and Young (1998c) considered this new syndrome a type of behavioral addiction, much like pathological gambling. Other researchers have compared Internet addiction to substance dependence (Anderson, 2001; Scherer, 1997). While there is still no agreed upon label or standardized diagnostic criteria for this condition, many researchers and practitioners acknowledge that Internet addiction exists (Chou, Condon, & Belland, 2005) and the American Psychiatric Association (2010) is considering including Internet addiction in the fifth edition of the DSM.

### *Internet Addiction among the General Population*

Kimberly Young conducted some of the earliest studies of Internet addiction. The purpose of her research was to explore the addictive potential of Internet use and to identify problems associated with Internet addiction. Young developed criteria for diagnosing Internet addiction by comparing the online behavior she observed in her participants against diagnostic criteria for other established mental disorders such as substance dependence (1996) and pathological gambling (1998c; 1999; 2004). Young’s (1998c) diagnostic criteria included preoccupation with the Internet, need for longer

amounts of time online, repeated attempts to reduce use of the Internet, withdrawal symptoms experienced when reducing Internet use, time distortion related to Internet use, environmental distress (school, work, family, friends), lying about time spent online, and using the Internet to change mood and/or escape from problems.

In her second study of Internet addiction, Young (1998c) used an eight-item structured diagnostic questionnaire based on the Internet addiction diagnostic criteria mentioned above. Participants, who answered “yes” to five or more of the eight questions about preoccupation, tolerance, relapse, withdrawal, time distortion, negative consequences, deception, and mood alteration/escape, were considered dependents. After administering the diagnostic questionnaire, Young asked participants how long they had used the Internet, how many hours per week they spent on the Internet for non-essential use, what applications they used most often, what they liked about those applications, what problems, if any, they experienced because of the Internet, and whether they considered those problems mild, moderate, or severe.

Results suggested that dependents ( $n = 396$ ) spent nearly eight times the number of hours per week on the Internet ( $M = 38.5$ ,  $SD = 8.0$ ) compared to non-dependents ( $n = 100$ ,  $M = 4.9$ ,  $SD = 4.7$ ). Furthermore, dependents were significantly more likely to report that their online behavior resulted in at least one moderate or severe academic, relationship, financial, occupational, or physical problem. Significant differences were also found between dependents and non-dependents in the types of Internet applications they used. While non-dependents mostly used the World Wide Web (24%), information protocols (24%), and email (30%); dependents mostly used chat rooms (35%), multiple user dungeons (28%), and newsgroups (15%). According to Young, dependents reported

enjoying the highly interactive and social aspects of chat rooms, multiple user dungeons, and newsgroups. Other researchers have suggested that very interactive online activities like chat rooms and multiple user dungeons may be more addictive than other Internet applications (Griffiths, 1997; Kandell, 1998). Young concluded that participants who met criteria for Internet addiction spent more time online, experienced more problems related to Internet use, and were more likely to use and enjoy interactive applications compared to participants who did not meet addiction criteria.

While Young's (1998c) research has served as a model for many subsequent studies of Internet addiction, her results should be interpreted with caution. First, the sample ( $N = 496$ ) was relatively small compared to the population of 56 million Internet users (estimated when the study was conducted). Second, the dependent and nondependent groups were not demographically matched. Third, participants were self-selected volunteers who responded to print-based advertisements and online Internet addiction self-help group postings, which could have resulted in an overrepresentation of more pathological users. Fourth, no reliability or validity statistics were reported for Young's diagnostic questionnaire. And finally, all responses were self-report. Despite these limitations, Young's research has been cited in over 100 subsequent studies of Internet addiction and is still considered groundbreaking by Internet researchers today (Malaney, 2005). Many follow-up studies of Internet addiction have been conducted with college students (Byun et al., 2009), several of which will be reviewed later.

#### *Psychological and Social Effects of Internet Use*

According to McKenna and Bargh (2000) "there is no simple main effect of Internet use" (p. 59). Therefore, much Internet research has focused on the social and

psychological consequences of online behavior. Kraut, Patterson, et al. (1998) conducted the first, and one of the only, longitudinal studies of this kind. Ninety-three families ( $N = 169$ ), who had never used the Internet before, received free or discounted computers and Internet access for two years. One to two years later, results indicated that more time spent online was correlated with higher scores on measures of loneliness ( $r = .15, p < .05$ ), higher scores on measures of depression ( $r = .19, p < .05$ ), smaller social circles ( $r = -.14, p < .05$ ), and decreased communication with family members ( $r = -.08, p < .05$ ). Based on these findings, the authors concluded that Internet use caused negative social and psychological effects. The Kraut, Patterson, et al. (1998) study, cited over 600 times since publication, has been criticized for its small effect sizes and methodological issues (small sample size, no random selection, and no control group). Nonetheless, this landmark study sparked an intense debate about the advantages and disadvantages of Internet use. Interestingly, in their follow-up study, Kraut, Kiesler, et al. (2002) found that, in general, more Internet use was related to higher scores on measures of social and psychological well-being.

Since the original Kraut, Patterson et al. study was conducted, researchers have found significant positive (Morahan-Martin, 1999; Young & Rodgers, 1998), negative (LaRose et al., 2001; Shaw & Gant, 2002), and null (Wästlund et al., 2001) relationships between Internet use and measures of psychological and social well-being (e.g., depression, loneliness, stress). Despite these mixed results, one thing seems clear: the Internet is not entirely good or bad. Individual social and psychological factors play a role in how people experience the Internet, and the online experience affects every individual differently (McKenna & Bargh, 2000).

*College Student Vulnerability to Internet Related Problems*

Some researchers have suggested that college students are particularly susceptible to experiencing problems related to Internet use (Anderson, 2001; Kandell, 1998; Scherer, 1997). According to Kandell (1998), traditional-aged undergraduates may be at risk of developing an Internet addiction because of their developmental stage. He referenced Erikson (1963), who identified forming identity and establishing intimate relationships as the main developmental tasks of late adolescents and early adults. Kandell suggested that the Internet provides a space where college students are able to try out various identity styles and dabble in relationships without having to experience the stress of face-to-face encounters. He warned that teenagers who fail to work on these developmental tasks in person may experience identity and relationship problems. Other risk factors identified by Kandell include easy access to the Internet and being expected to use the Internet for academic purposes. According to Lavin et al. (1999), college students who depend on the Internet to keep in touch with family and friends may be susceptible to developing Internet related difficulties, which in some cases could prevent them from fully engaging in their new college environment. Young (2004) identified multiple factors that could contribute to college students developing problematic Internet use: free and unlimited Internet access, large blocks of free time, independence from parental control, no censoring or monitoring of online activities, encouragement from faculty and administrators to use the Internet, pre-college Internet experience, an escape from school related stressors, and feelings of alienation and/or social intimidation.

While all of the above mentioned risk factors seem plausible, none of these theories have been empirically validated. Nevertheless, there is no question that college

students are the heaviest users of the Internet (Jones et al., 2007), and that alone could make them vulnerable to experiencing problems related to online behavior. For this reason, quite a few of the Internet addiction studies have been conducted on college campuses using college students as participants (Anderson, 2001; Morahan-Martin & Schumacher, 2000; Scherer, 1997).

### *College Student Internet Addiction*

In the first study of college student Internet dependence, Scherer (1997) surveyed a representative sample ( $N = 531$ ) of undergraduates at the University of Texas at Austin (UT). Those who endorsed 3 or more of the 10 clinical symptoms of Internet dependence, similar to the DSM-IV diagnostic criteria for substance abuse and dependence (American Psychiatric Association, 1994) were considered dependents. Dependents (13% of the sample) reported spending more leisure or personal hours per week online compared to non-dependents ( $M = 7.8$  versus  $M = 3.7$ ). They were also more likely to access online newsgroups, games, chat rooms, multiple user dungeons, and bulletin board services, as well as use the Internet to meet new people, experiment socially, hunt for sexual sites, and “seek illegal or immoral material” (p. 659). Furthermore, dependents indicated that their online behavior “was excessive and significantly interfered with personal functioning” (p. 655).

While a majority of the dependents (65%) had attempted to cut down on their Internet use, almost half (47%) were reportedly unsuccessful. Males (71%) were more likely than females (29%) to be considered dependent and 2% of participants reported that the Internet was having an overall negative impact on their lives. Scherer concluded that Internet dependence exists among the college student population, dependents are

more likely than non-dependents to access a broader range of Internet services for a wider variety of reasons, and males are more likely than females to develop a problem with Internet use. Even though the results were based on self-report responses of voluntary participants, Scherer's research has been considered the best to date because she obtained a relatively high response rate (53%) and used a random sample that was considered representative of the student population at UT (Malaney, 2005).

Morahan-Martin and Schumacher (2000) conducted a similar study of pathological Internet use among college students ( $N = 227$ ). They administered a 13-item scale designed to measure excessive Internet use resulting in: occupational, academic, or relationship problems; distress related to Internet use; increased tolerance; and withdrawal symptoms when attempting to cut down on use. According to the results, almost three-quarters of the sample endorsed at least one of the pathological Internet use criteria: 64.7% reported experiencing one to three symptoms, while 8.1% reported experiencing four or more and were considered pathological users.

Similar to previous studies of Internet addiction, pathological users were found to be significantly different from other participants in several ways. First, pathological users reported spending more hours per week online ( $M = 8.48$ ,  $SD = 6.99$ ) compared to participants with one to three symptoms ( $M = 3.18$ ,  $SD = 4.01$ ) or no symptoms ( $M = 2.47$ ,  $SD = 2.70$ ). Second, pathological users were more likely than those with limited or no symptoms to go online for the following reasons: meeting new people, accessing sex sites, emotional support, talking to others with similar interests, playing games, recreation or relaxation, gambling, virtual reality, wasting time, and keeping up with the news. Third, pathological users had significantly higher scores on measures of loneliness than

those with limited or no symptoms. Finally, males were more likely than females (12.2% versus 3.2% of the total sample) to be considered pathological users. Morahan-Martin and Schumacher concluded that pathological Internet use among college students is a concern, and that males are more likely to develop an Internet use problem.

Anderson (2001) conducted the first multi-institutional study of college student Internet dependence. He surveyed students ( $N = 1,302$ ) from eight colleges and universities about how Internet use had impacted their academic and social lives. Respondents were considered dependent if they met three of the seven criteria used to diagnose substance dependence (American Psychiatric Association, 1994). The results indicated that 9.8% of participants were dependent, and that dependents spent significantly more time online compared to non-dependents ( $M = 229$  mins per day versus  $M = 73$  mins per day,  $p < .01$ ).

Participants using the Internet for more than 400 minutes per day were considered high users. High users (6% of the sample) were significantly ( $p < .05$ ) more likely to report that Internet use had negatively impacted their academic work, sleep patterns, and meeting new people. High users were also more likely to report that they had, during the previous week, spent more than three hours consecutively online, slept less than four hours a night, looked for other ways to get online when not at school, and used the Internet to improve mood when they were feeling down.

Anderson also explored whether students in certain academic majors were more likely to be Internet dependent. Findings suggested that students in hard science majors (74%) were significantly more likely to fit the criteria for Internet dependence as compared to students in the arts and sciences (16%) and liberal arts (10%). Additionally,

the gender differences found in Anderson's study were similar to gender differences reported by Scherer (1997) and Morahan-Martin and Schumacher (2000); males (87.7%) were significantly more likely to be considered dependent than females (12.3%). Since Anderson used both a non-standardized instrument developed from clinical experience and related research, and a convenience sample, the results of this study cannot be generalized. Nevertheless, this was the first multi-institutional study of its kind, and the findings encouraged other researchers to further examine the problems that could arise from college students' excessive use of the Internet.

Problematic Internet use among undergraduates is not a local phenomenon. College students all over the world have reported experiencing social, psychological, and/or academic problems related to online behavior. Researchers conducting studies in Pakistan (Suhail & Bargess, 2006), Turkey (Özcan & Buzlu, 2007), Taiwan (Chen & Peng, 2008), and China (Zhang et al., 2008) all found evidence of problematic Internet use among the college students they surveyed.

#### *General Problems Associated with Internet Addiction Research*

Most of the studies designed to define and diagnose Internet addiction have used exploratory surveys and case studies, which can neither establish whether use of the Internet has a causal impact on the factors and problems being studied, nor distinguish between preexisting differences and the consequences of Internet use (Grohol, 1999). That being said, there seems to be a consensus across the major Internet addiction studies focused on college students (Anderson, 2001; Morahan-Martin & Schumacher, 2000; Scherer, 1997). Internet addiction is almost always associated with very high levels of

use, dependents tend to use interactive applications more than non-dependents, and males are more likely to experience problems related to Internet use compared to females.

Fortson et al. (2007) called for a standardized set of diagnostic criteria and a reliable and valid Internet addiction assessment tool, both of which are considered necessary if the goal is to evaluate the presence, nonexistence, or severity of symptoms related to Internet use. In the absence of clear cut diagnostic criteria or a valid assessment, some researchers have opted to examine online behaviors and self-reported problems related to Internet use, without attempting to define or diagnose Internet addiction (Chen & Peng, 2008; Malaney, 2005).

#### *College Student Internet Use and Related Problems*

Malaney (2005) investigated college student Internet use and the problems related to students' online behaviors by administering surveys to randomly-selected samples in 2000 ( $N = 593$ ) and 2003 ( $N = 606$ ). Students were asked to answer questions about their online activities over the past seven days. Not surprisingly, almost all (99.7%) respondents reported using the Internet and a large majority (89.6%) reported going online daily. Furthermore, the total time spent online increased significantly ( $p < .01$ ) from 2000 ( $M = 16.52$  hrs) to 2003 ( $M = 28.47$  hrs). Interpersonal communication remained students' primary use of the Internet. However, the most common methods changed from chatting and email ( $M = 3.87$  hrs and  $M = 2.50$  hrs, respectively) in 2000 to instant messaging and email ( $M = 10.57$  hrs and  $M = 2.38$  hrs, respectively) in 2003. Affirmative responses to several of the questions about negative behavioral aspects of Internet use increased significantly from 2000 to 2003. When asked, "How often do you find that you have remained on the Internet much longer than you intended?" (p. 61)

positive responses significantly increased ( $p < .01$ ) from 88.8% in 2000 to 93.2% in 2003. There was also a significant increase ( $p < .001$ ) in participants reporting that they had tried unsuccessfully to control, cut back, or stop using the Internet (21.5% in 2000 and 29.8% in 2003). Finally, when asked “when not online, how often do you find yourself preoccupied with the Internet or computers?” (p. 61) positive responses significantly increased ( $p < .001$ ) from 60.7% in 2000 and 73.1% in 2003.

Findings also indicated that students had missed class, appointments, or work because of their online behavior (7.2% in 2000 and 10.1% in 2003). Interestingly, there was a significant decrease ( $p < .01$ ) in students reporting that their grades had suffered because of time spent online (8.9% in 2000 and 4.4% in 2003). On the other hand, students reported a significant increase ( $p < .001$ ) in time spent doing coursework online ( $M = 2.50$  hrs per week in 2000 compared to  $M = 5.16$  hrs per week in 2003). While Malaney’s study was not specifically designed to identify Internet related academic problems, the results suggest that a small percentage of participants experienced academic difficulty associated with Internet use.

#### *College Student Internet Use and Academic Problems*

Academic problems related to Internet use have been documented in several other key articles. In one of Young’s (1998a) early studies, participants reported experiencing severe academic difficulty, which they attributed to online activities including surfing websites, gossiping in chat rooms, emailing with Internet friends, and playing interactive games. Students in this study also had difficulty completing homework assignments, studying, and getting enough sleep due to their use of the Internet. In some cases, the inability to control their Internet use resulted in poor grades, academic probation, and in a

few cases, dismissal. Similarly, student affairs professionals at Alfred University found that 32 of the 75 first year students who left because of low grades had spent many nights at the computer center logged on for at least six hours (“On Line,” 1996).

Kubey et al. (2001) conducted one of the only studies specifically focused on Internet use and academic performance. The purpose of their research was to determine if there was self-report evidence to support the construct of Internet dependency in college students as well as whether Internet dependency was associated with self-reported academic problems. College students ( $N = 572$ ) at Rutgers University completed a 43-item questionnaire about their Internet use, study habits, academic performance, and personality. Fifty-three students (9%) reported that they might have become “a little psychologically dependent on the Internet” (p. 370) and were considered Internet dependent. Eighty students (14%) reported that their “schoolwork had been hurt” (p. 371) because of time spent online and were considered to be experiencing Internet related academic problems.

According to the results, Internet dependent students were more likely to report experiencing Internet related academic problems than non-dependents ( $r = .563, p < .01$ ). Additionally, dependents reported spending significantly more time online compared to non-dependents ( $M = 11.18$  hrs per week versus  $M = 3.84$  hrs per week) and students with Internet related academic problems reported spending significantly more time online compared to the total sample ( $M = 11.08$  hrs per week,  $SD = 8.75$  versus  $M = 4.67$  hrs per week,  $SD = 5.44$ ). Furthermore, students with academic problems reported that they stayed up late, felt tired the next day, and missed class due to their use of the Internet. While females accounted for two-thirds of the sample, male participants made up almost

half (49%) of the dependent group. This finding was consistent with other studies of college student Internet dependence in which males were more likely than females to be considered dependent (Anderson, 2001; Morahan-Martin & Schumacher, 2000; Scherer, 1997).

### *Academic Benefits of College Student Internet Use*

The development of the Internet has been referred to as, “the most transforming technological event since the capture of fire” (Barlow, Birkets, Kelly, & Slouka, 1995, p. 35). Whether or not this is true, the Internet certainly has had a major impact on college campuses worldwide. Jones et al. (2007), as part of the Pew Internet and American Life Project, surveyed a random representative sample ( $N = 7,421$ ) of undergraduates from 40 college campuses across the United States to determine students’ activities and attitudes around use of the Internet for academic purposes. The general finding was that all students used the Internet for academic purposes and that most of them (84%) believed the Internet had positively impacted their academic lives.

One of the major academic benefits of the Internet is free, easy, and immediate access to large amounts of information on almost any topic. According to Jones et al., college students used the Internet to search for information via Google or Yahoo (95%), library websites (68%), news websites (64%), and online encyclopedias (48%). Today, most university libraries offer free access to hundreds of electronic databases and thousands of peer-reviewed journals, books, and other online resources. Whether students know how to use these resources is beyond the scope of this study, but still an important issue to consider (Wang & Artero, 2005).

Results regarding use of the Internet to communicate for academic purposes revealed that 84% of students used the Internet to communicate with professors, 51% agreed or strongly agreed that using email improved interactions with professors, and 38% agreed or strongly agreed that using email helped them express thoughts that they would not have shared in class. Additionally, 78% of students reported that they used the Internet to communicate with classmates about course related issues and 63% agreed or strongly agreed that the Internet enhanced their relationships with classmates. Jones et al. (2007) concluded that most college students' academic experiences are positively impacted by Internet use.

### **Social Network Sites**

An extraordinary increase in the popularity of social network sites over the past several years has encouraged scholars from various disciplines to study social network site use from multiple perspectives (Boyd & Ellison, 2007). Not surprisingly, some of these studies provide valuable information about Facebook use among college students. Therefore, while the current study is primarily focused on Facebook and not other social network sites, I will first review the relevant research on undergraduate social network site use and then explore studies specific to Facebook.

#### *Definition and Features*

Boyd and Ellison (2007) defined social network sites as:

Web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system. (p. 211)

The cornerstone of almost every social network site is the personal profile page, which displays a list of friends who are also users of the site. The friends list, which usually includes links to friends' pages, is typically visible to anyone who has access to the profile page. Most social network sites encourage users to connect with, or "friend" (verb), each other by providing directories of relevant user populations and/or recommender systems (Coyle & Vaughn, 2008). A large majority of social network sites require bi-directional confirmation in order for two users to become friends however some allow one-directional connections (Boyd & Ellison, 2007). Most social network sites also provide a way to leave messages or comments on friends' profile pages. These messages can be public or private depending on the users' privacy settings.

Social network sites are different from other social websites in that participants primarily use them to connect with people who are already part of their offline extended social network (Ellison, Steinfield, & Lampe, 2007). There are currently hundreds of social network sites on the World Wide Web (Boyd & Ellison, 2007). However, Facebook is the most popular among teens, college students, and adults in the United States (Lenhart, Purcell, Smith, & Zickuhr, 2010).

#### *Prevalence and Reasons for Use*

The latest research on the prevalence of social network site use among college students indicates that a large majority of undergraduates have at least one social network site account, which they check multiple times per day (Peluchette & Karl, 2008; Raacke & Bonds-Raacke, 2008; Salaway & Caruso, 2008). In their study of college student social network site use, Raacke and Bonds-Raacke (2008) surveyed 116 undergraduates and discovered that 83.2% had MySpace accounts, 90.1% had Facebook accounts, and

74.3% had accounts at both sites. On average, participants checked their accounts 4.19 times per day, spending 1.46 hours on their own sites and 1.10 hours on friends' sites. The most popular uses of both MySpace and Facebook included keeping in touch with old friends (96.0%), keeping in touch with new friends (91.1%), posting/looking at pictures (57.4%), making new friends (54.0%), and locating old friends (54.4%). While there were no significant gender differences in the most popular uses of social network sites, men were more likely than women to use social network sites for dating (16.3% versus 0.0%) and learning about events (44.9% versus 23.1%). In a similar study, Peluchette and Karl (2008) surveyed 433 college students and found that 80% had at least one social network site account (Facebook was the most popular) and that more than 50% of participants checked their account(s) at least once a day.

Salaway and Caruso (2008), on behalf of the Educause Center for Applied Research, conducted one of the first national studies of undergraduate social network site use. Survey responses of participants ( $N = 27,317$ ) from 90 four-year and 8 two-year institutions indicate that just over 85% of college students had at least one social network site account and almost 90% of social network site users had an account with Facebook, which was also the most commonly used social network site. Based on focus group data from their 2007 study of undergraduates and information technology, in which students reported that they spent a lot of time on social network sites when they "should [have been] studying or doing other things," (p. 90) Salaway and Caruso expected students from the 2008 study to be spending more hours on social network sites than were reported. Instead, a majority of users (55.8%) reported spending only five hours or less per week on social network sites, while 26.9% spent between 6 and 10 hours, and the

remaining 17.3% spent 11 hours or more. Participants primarily used social network sites to stay in touch with friends (96.8%); share photos, videos, and other content (67.7%); and learn more about people (51.6%). Interestingly, almost half (49.7%) of students reported that they had used social network sites to communicate with classmates for academic reasons; a finding which has not been reported in other studies of social network site use. All in all, the results of the research on college students' use of social network sites indicate that most undergraduates have a Facebook account, which they use frequently to connect with people and share photos and other personal content (Peluchette & Karl, 2008; Raacke & Bonds-Raacke, 2008; Salaway & Caruso, 2008).

## **Facebook**

### *History and Features*

Facebook was created on February 4, 2004 by Mark Zuckerberg, who was a Harvard University undergraduate at the time. Initially, membership was restricted to Harvard students, but by 2006 anyone 13 or older with a valid email address was permitted to join. Currently, Facebook is estimated to have more than 500 million members, who altogether spend over 700 billion minutes each month on the site (Facebook, 2011). At time of writing this dissertation, Facebook is the most popular website on the Internet (Experian Hitwise, 2011) and the most popular social network site among college students (Lenhart et al., 2010).

Facebook's mission is "to give people the power to share and make the world more open and connected." The official Facebook description reads, "millions of people use Facebook everyday to keep up with friends, upload an unlimited number of photos, share links and videos, and learn more about the people they meet" (Facebook, 2010).

Like other social network sites, Facebook allows users to create a profile, add friends, post pictures and videos, send and receive messages, make comments, join groups and networks, and advertise events. Other Facebook features include the news feed, the wall, games, marketplace, chat, and third-party developed applications. Facebook users can search for people by name, location, workplace, or school and send them an invitation to become Facebook friends, otherwise known as a “friend request.” Facebook also enables its users to search their own personal email contact lists for other Facebook users. Facebook has a variety of privacy settings that permit users to control the type of content other Facebook users can see. For instance, users can block particular people from seeing their profile or allow certain people to see a limited profile (e.g., contact information but not pictures).

#### *Previous Scholarship*

Much of the academic research on Facebook has focused on characteristics of users and non-users, describing usage patterns, and identifying reasons for participation (Hargittai, 2007; Sheldon, 2008; Stern & Taylor, 2007; Tufekci, 2008). Other studies have investigated privacy issues (Acquisti & Gross, 2006; Gross & Acquisti, 2005; Jones et al., 2007), online disclosure (Kolek & Saunders, 2008; Peluchette & Karl, 2008), and offline/online relationships (Ellison et al., 2007; Lampe, Ellison, & Steinfield, 2006). Very few studies have been specifically designed to examine the relationship between Facebook use and academics (Capano et al., 2010; Hargittai & Hsieh, 2010; Karpinski & Duberstein, 2009).

*Prevalence and Reasons for Use*

Stern and Taylor (2007) surveyed a convenience sample of 364 college students about their Facebook use and found that 49% of Facebook users logged on for less than 10 minutes per day, 21% spent between 10 and 30 minutes each day, 15% spent 30 to 60 minutes, 11% spent one to two hours, and 3% spent more than two hours. Most common uses of Facebook included “sending messages to friends, viewing photos, keeping in touch with old friends, making plans, checking out people, checking up on their current boyfriend/girlfriend, entertainment, and distraction/procrastination” (p. 13). When asked about negative experiences with Facebook, 56% of the sample indicated that they had none. On the other hand, some students reported being “addicted to checking their Facebook accounts,” to the extent that they felt an urge to check several times a day and “therefore could waste a lot of time” (p. 15).

In a similar study, Sheldon (2008) surveyed a convenience sample of 172 students about their Facebook use. Students with Facebook accounts ( $n = 160$ ) reported spending an average of 47 minutes per day on the site. Additionally, 54% of the sample reported logging on to Facebook several times each day, while 27% reported checking Facebook only once a day. The most common uses of Facebook included passing time ( $M = 3.88$ ,  $SD = 1.23$ ), relationship maintenance ( $M = 3.64$ ,  $SD = 1.24$ ), and entertainment ( $M = 3.23$ ,  $SD = 1.19$ ). Sheldon also found significant gender differences in the way participants used Facebook. Women were more likely to use Facebook to maintain existing relationships, pass time, and be entertained compared to men. Alternatively, men were more likely than women to use Facebook to meet new people.

### *Privacy Issues*

Gross and Acquisti (2005) analyzed 4,540 randomly-selected Carnegie Mellon University Facebook profiles and identified personal information (birthday, hometown, current residence, and telephone number) in a majority of the pages. While the authors expressed concern about the harmful ways in which this information could be used both online (e.g., identity theft, cyberstalking) and offline (e.g., stalking), the participants they surveyed did not seem worried about privacy issues. Similarly, less than one-third of the social network site users surveyed by Salaway & Caruso (2008) reported being concerned or extremely concerned about security problems, cyberbullying or cyberstalking, misuse of personal information, or leaving an electronic history that could cause problems.

Interestingly, almost 75% of college students in the Pew Internet study reported being concerned about privacy issues, yet they continued to post personal information on Facebook (Jones et al., 2007). According to Jones et al., participants seemed to believe their personal information would be protected, as long as they kept their profiles private and allowed only friends to view their content. Many students did not realize that content can be cached or downloaded and stored and then posted on another person's profile page or website, even after the original text or pictures have been removed. Acquisti and Gross (2006) found a similar disconnect between students' desires to protect their personal information and their online behaviors.

### *Online Disclosure*

Many popular press articles have been written about college students posting illegal (e.g., underage drinking, illicit drug use), sexually provocative, or otherwise socially objectionable material (e.g., derogatory comments about coaches, classmates,

faculty, administrators, or the institution) on Facebook (Anderson, 2006; Bergstrom, 2008; Brady & Libit, 2006; Kornblum & Marklein, 2006; Pepitone, 2006; Read, 2006). Negative consequences of these online disclosures include loss of admission to college, rescinded job offers, institutional disciplinary action (e.g., suspension, expulsion), and criminal prosecution (Hass, 2006; Kornblum & Marklein, 2006; Wolfe, 2006). Consequently, some colleges and universities now provide guidelines on how to use Facebook appropriately (e.g., Cornell University, 2006).

Despite the prevalence of negative consequences mentioned above, there are relatively few academic studies of college student online disclosure. Kolek and Saunders (2008) analyzed the Facebook profiles of a randomly-selected representative sample ( $N = 471$ ) of undergraduates at the University of Massachusetts and found that over half (53.6%) of students' profiles contained references to partying, drinking, and drugs, yet only 11.3% of the profiles were kept private. Peluchette and Karl (2008) surveyed 433 undergraduates about the appropriateness of the content they had posted on Facebook and discovered that 20% of participants had posted personal information and pictures, which they would not want current or prospective employers to see.

#### *Relationships and Social Capital*

Facebook use and its impact on offline relationships has been the focus of several academic articles. For example, Ellison et al. (2007) surveyed a random sample ( $N = 286$ ) of college students and found that 94% spent between 10 and 30 minutes per day on Facebook, mostly to connect with people they already knew ( $M = 3.64$ ) rather than to meet new people ( $M = 1.97$ ) ( $t = 26.14, p < .0001$ ). Additionally, more intense Facebook use was related to forming and maintaining social capital. Likewise, Lampe et al. (2006)

found that college students were more likely to use Facebook to search for people they already knew than to meet complete strangers.

#### *Impact on University Academic Services*

Facebook use may impact access to computers on college campuses however research on this topic is limited to one published study. During the fall of 2005, two librarians at Jacksonville State University (JSU) in Alabama (Charnigo & Barnett-Ellis, 2007) noticed a significant increase in the demand for use of the library computers. Patrons needing to use computers for academic purposes began to complain about fellow students monopolizing the library computers to spend time on Facebook. In order to determine whether this phenomenon was unique to JSU, Charnigo and Barnett-Ellis mailed 244 surveys to randomly-selected university librarians across the country. Results from 126 completed surveys indicated that 114 librarians (90%) had at least heard of Facebook. Furthermore, 10% of respondents reported that Facebook had increased use of library computers, 7% noticed an increase in library traffic due to Facebook, and 2% indicated that Facebook slowed down Internet access. Lastly, four respondents reported that they had received patron complaints about other students using computers to access Facebook.

Facebook use among college students has increased dramatically since 2005 (Lenhart et al., 2010) and therefore may have a greater impact on university libraries and computer labs today. On the other hand, ownership of personal desktops, laptops, and handhelds has risen (Zickuhr, 2011), which may decrease demand for use of university computers to access the Internet and Facebook. More research is necessary in order to determine Facebook's impact on university-sponsored technology resources and services.

*Facebook and College Student Academic Performance*

Karpinski and Duberstein (2009) surveyed a convenience sample ( $N = 219$ ) of undergraduate and graduate students from the Ohio State University (OSU) in order to describe and compare Facebook users and non-users both demographically and academically. According to their results, Facebook users ( $n = 148$ ) had significantly lower GPAs (3.0-3.5 versus 3.5-4.0,  $p < .001$ ) and spent significantly less time studying (1-5 hrs versus 11-15 hrs,  $p < .001$ ) than non-Facebook users. Facebook users were also more likely than non-users to be younger, full-time undergraduates majoring in business, statistics, technology, engineering, math, or medicine.

Interestingly, several weeks before Karpinski and Duberstein were scheduled to present their findings at the 2009 annual meeting of the American Education Research Association (AERA) in San Diego, the Director of Research Communications at OSU sent a press release about the study, “embargoed until April 16th to coincide with... the AERA...presentation,” (Holland, 2009, p. 1) to two major distributors of research news. Much to the dismay of the researchers and the OSU Research Communications staff, *The Sunday Times* of London (Leake & Warren, 2009) ran an article entitled, “Facebook Fans Do Worse in Exams: Research Finds the Website is Damaging Students’ Academic Performance,” four days before the AERA presentation. By April 15th, hundreds of stories with headlines such as “Facebook Hurts Grades” or “Facebook Students Underachieve in Exams” were reported by media outlets across the nation (e.g., Hamilton, 2009; MyFox DFW, 2009) and abroad (e.g., Khan, 2009; Wilson, 2009). Regrettably, most reporters failed to recognize the distinction between correlation and

causation as Karpinski and Duberstein never claimed that Facebook use causes poor academic performance.

Concerned about the media hype surrounding the Facebook study, Pasek et al. (2009) published an article criticizing Karpinski and Duberstein's sample and methodology. They went on to present an analysis of data derived from three previously conducted large scale Internet studies: University of Illinois at Chicago (UIC) undergraduates ( $N = 1,060$ ); 2008 National Annenberg Survey of Youth (NASY) respondents ( $N = 700$ ); and 2007 NASY respondents who agreed to be surveyed again in 2008 ( $N = 320$ ). After controlling for age, gender, race/ethnicity, and socioeconomic status, Pasek et al. found no significant relationship between Facebook use and self-reported GPA in the UIC data or the 2007-2008 NASY data, and a significant positive relationship in the 2008 NASY data. They concluded that Facebook "does not seem to have a generalizable impact on grades" (p. 12).

While the results of these studies challenge previous claims about the negative relationship between Facebook use and grades, it is important to note that Pasek et al. did not take into account time spent on Facebook when conducting their analyses. Instead, they simply divided the sample into users and non-users. Participants in the UIC study were asked, "Have you ever used the following sites and services?" and those who reported currently using Facebook sometimes or often were considered users. Respondents in the NASY studies were asked, "Which, if any, of the following social network sites do you use?" and those who chose Facebook were considered users. Ignoring variations in amount of time spent on Facebook may have concealed or diluted possible effects of Facebook use.

More recently, Hargittai and Hsieh (2010) conducted an additional analysis of the data from the UIC study in which college students were asked to describe their use of six different social network sites (including Facebook) by choosing from the following options: “no, have never used it;” “tried it once, but have not used it since;” “yes, have tried it in the past, but do not use it nowadays;” “yes, currently use it sometimes;” and “yes, currently use it often” (p. 521). In order to investigate whether diversity and intensity of use predicted academic performance, participants were categorized as follows: non-users (12.0%), one social network site sometimes (9.2%), one social network site often (32.9%), more than one social network site sometimes (4.4%), and more than one social network site often (45.3%). The results of a regression analysis revealed no systematic relationship between types of social network site use and self-reported GPA.

Recognizing the complexity of social network site activity, Hargittai and Hsieh took into consideration diversity and intensity of use when conducting their analyses. This was a departure from previous studies (Karpinski & Duberstein, 2009; Pasek et al., 2009) in which researchers made bivariate (user versus non-user) comparisons. However, measuring usage intensity with ambiguous response options such as “often” and “sometimes” could have produced inaccurate results. In order to address this limitation, I asked participants to provide self-estimates of the frequency and duration of their Internet and Facebook use by choosing from a more defined set of options (e.g., once a day, two times a day, etc.).

Other studies, which were primarily focused on the social aspects of Facebook, also reported secondary academic results (Boogart, 2006; Ellison et al., 2007; Kolek &

Saunders, 2008). Boogart (2006), in his master's thesis about the social impact of Facebook on four college campuses, found a significant relationship ( $p < .000$ ) between heavy Facebook use and lower grades. Conversely, Ellison et al. (2007), in their study of Facebook and social capital, compared Facebook users ( $n = 268$ ) to non-users ( $n = 18$ ) and found no significant demographic differences, with the exception of class year and age. The authors concluded that Facebook did not have a "noticeable effect on participants' grades" (p. 1162). However, there was no explanation of how they obtained participants' grades and no mention of grades anywhere else in the study. Likewise, Kolek and Saunders (2008), in their analysis of Facebook profiles belonging to a randomly-selected representative sample ( $N = 471$ ) of undergraduates, found no significant difference in mean GPA between Facebook users and non-users.

The investigation into the relationship between Facebook and academics is just beginning. In fact, Facebook researchers have called for more studies designed to examine the relationship between college student Facebook use and academic performance (Boogart, 2006; Karpinski & Duberstein, 2009; Pasek et al., 2009). Prior studies (Karpinski & Duberstein, 2009; Pasek et al., 2009) used dichotomous measures (Facebook users versus non-users). Since then, Facebook has become even more popular among undergraduates (Violino, 2009) to the extent that it would be difficult to find students who are not Facebook users. Therefore, I did not attempt to compare users and non-users in this study. Instead, I measured frequency and duration of Facebook and Internet use in order to investigate whether levels of use relate to time spent on academics and/or grades.

Research suggests that anywhere between 8% and 13% of college students experience symptoms of Internet dependence, spend many hours per day online, and struggle academically, as a result of their Internet use (Anderson, 2001; Morahan-Martin & Schumacher, 2000; Scherer, 1997). It is not yet clear whether undergraduates use Facebook to the extent that it interferes with studying or doing schoolwork. This study will determine whether Facebook usage patterns and/or students' beliefs about use relate to academic performance. The findings will be used to inform relevant academic advising procedures and develop new advising practices (e.g., user-education/guidelines for incoming students, interventions for students on warning or probation). The current study will also help other Internet and Facebook researchers by contributing to the limited academic literature in this area.

CHAPTER 3  
METHODOLOGY

**Participants**

I used a convenience sample made up of undergraduate students enrolled in fall 2010 sections of the Temple University course Education 0819 *Tweens and Teens*. I chose to recruit participants from Education 0819 for several reasons: 1) there were 11, 32-seat sections of the course, which yielded a sample size of 160; 2) students from all undergraduate schools and colleges at Temple take Education 0819 to satisfy a General Education (GenEd) requirement, which increased sample representativeness; and 3) the fall 2010 *Tweens and Teens* syllabus included a lesson on adolescents and technology, which made completing the questionnaire academically relevant. Since GenEd courses are typically completed during students' first two years at the University, many of the participants were freshmen and sophomores; however, juniors and seniors were also included in the sample.

In order to recruit participants, I visited each of the 11 sections of *Tweens and Teens* during the fall 2010 semester. During class visits, I briefly described the study, invited students to participate, distributed an informational letter with the website address for the online survey, and answered questions about my research. Following the class visits, an email invitation with a link to the survey was sent (via class email listservs) to all *Tweens and Teens* students. All volunteers were included in the study; no one was excluded from participation.

## Survey

### *Diaries versus Surveys*

Diaries and surveys are the two primary methods for measuring Internet use (Greenberg et al., 2005). Diaries involve participants keeping a record of Internet activity over a designated period of time, usually 24 hours. Surveys include retrospective questions about time spent on the Internet during the previous day, week, month, or year. According to Stinebrickner and Stinebrickner (2004), it is “commonly accepted that time-diaries are the most accurate way to collect time-use information” (p. 258). However, most researchers conducting studies with large samples do not use the diary method due to the cost and difficulty of this approach (Emanuel et al., 2008).

Surveys are relatively easy to administer and not necessarily less accurate than diaries (Greenberg et al., 2005). For instance, Hunley et al. (2005) found that participants’ self-estimates of time spent on the computer were highly correlated with daily logs. Therefore, I used the survey method to measure time spent on the Internet and Facebook.

### *Survey Question Development*

The correlation between Facebook and grades has been the focus of several recent studies (Hargittai & Hsieh, 2010; Karpinski & Duberstein, 2009; Pasek et al., 2009). However, researchers have not yet explored exactly how use of Facebook in particular or the Internet in general, affect academic performance. The survey created for this study includes multiple questions designed to investigate the specific ways in which Facebook and other Internet use relates to the academic experience. Many of the items were developed based on previous relevant research, which is referenced below.

### *Facebook Use in the Context of Overall Internet Usage*

Lenhart et al. (2010), as part of the Pew Internet and American Life Project, studied the social networking behaviors of teenagers, aged 12 to 17. Results from their national telephone survey revealed that daily Internet users were significantly more likely to have at least one social network site account compared to participants who used the Internet less frequently. The authors suggested that social network sites may encourage teens to go online more often. This might also be true for college students who, according to Junco and Cole-Avent (2008), are the heaviest social network site users.

Researchers have yet to report whether undergraduate social network site users spend more time on the Internet compared to non-users. Furthermore, it is unclear if time spent online for personal reasons has increased as a result of Facebook participation. In order to explore Facebook use in the context of overall Internet usage, the survey included multiple questions about the frequency and duration of both Internet and Facebook use.

### *Time Displaced or Saved?*

Nie and Hillygus (2002) asserted that time spent online displaces time for other activities. Franzen (2000) suggested that the Internet enables its users to increase efficiency and save time. Research is needed to determine whether time spent on social network sites diminishes time spent on schoolwork or studying (Eberhardt, 2007). Therefore, participants were asked to provide separate estimates of time spent on: studying/doing schoolwork, overall Internet use, Internet for academic purposes, Internet for fun, and Facebook. The survey also included questions designed to determine

whether students believed time spent on Facebook and/or other Internet sites displaced time that would have otherwise been spent on academics.

### *Online Procrastination*

Studies have shown that procrastination accounts for significant variance in college student GPA (Jackson, Weiss, Lundquist, & Hooper, 2003; Wesley, 1994). Similarly, Tice and Baumeister (1997) found that procrastinators earned significantly lower grades on term papers and exams compared to non-procrastinators. Research also suggests that many Internet users spend a large portion of their time online procrastinating (Lavoie & Pychyl, 2001).

Students procrastinated long before the Internet and Facebook were created (Wesley, 1994). However, Internet and Facebook use are distinct from other procrastinatory activities; the main difference being the inextricable link between the Internet and the primary tool used to write papers and do homework, the computer. Students using desktops or laptops to do coursework are just one click away from millions of web pages, pictures, videos, messages, and more.

There have already been reports of procrastination via Facebook in popular and scholarly writings (Martínez-Alemán & Lynk-Wartman, 2009; Salaway & Caruso, 2008). In fact, Golder, Wilkinson, and Huberman (2007) analyzed the messaging patterns of 4.2 million Facebook users from 496 North American colleges and universities between February 2004 and March 2006, and found that most Facebook activity happened during the week when students were also engaged in schoolwork. The authors also discovered that Facebook use was less frequent on the weekend, especially Friday and Saturday nights, when students were presumably socializing offline. In order to investigate

whether Facebook and/or other Internet use contribute to college student procrastination, participants were asked questions focused on this subject.

### *Self-Regulation of Sanctioned Internet Use*

Today, most college courses require students to use computers and the Internet to complete schoolwork. Yet, “it only takes a few keystrokes to move from a homework assignment to checking email or visiting a chat room, a common and often time-consuming pattern” (Kandell, 1998, p. 17). Research suggests higher levels of self-discipline and self-control predict academic success (Duckworth & Seligman, 2005; Wolfe & Johnson, 1995, respectively). Similarly, Mansfield, Pinto, Parente, and Wortman (2009) found that students with higher levels of self-control earned significantly better grades. Students who are able to control their Internet use may earn higher grades than students who struggle to limit their time online. Therefore, the survey included two questions designed to determine whether students believed they were able to control their Facebook and other Internet use.

### *Internet Use in the Classroom*

According to Jones et al. (2007), 26% of college students went online via cell phone, laptop, or personal digital assistant during class for personal reasons. Smith, Salaway, and Caruso (2009) reported similar results; 32.2% of undergraduates surveyed agreed or strongly agreed that they had used a cell phone or handheld Internet device to go online for non-course related purposes during class. More recently, Lenhart et al. (2010) surveyed a large randomly-selected sample of Internet users and found that 81% of those aged 18 to 29 used wireless connections to go online: 54% by laptop, 55% by

cell phone or handheld (iPhone, Blackberry, Smartphone, etc.), and 28% by some other device.

According to Smith et al. (2009), students are beginning to replace desktops with laptops and handhelds. Laptops and handhelds enable students to access the Internet almost anywhere at any time. Students who use portable devices to go online during class may miss important lectures and/or discussions, which could affect their grades. Therefore, the survey included questions about which technological devices students used to access the Internet and whether they used the Internet for personal reasons while in class.

#### *Missing Important University Announcements*

According to Goldsborough (2009), use of email will decline while communication via text messaging and social network sites will rise. This trend has already begun among college students, who primarily communicate using cell phones and Facebook (Violino, 2009). In his article "Email is for Old People," Carnevale (2006) reported that college students are missing important academic messages because they are not checking their university email accounts frequently enough. Recognizing this phenomenon, some colleges and universities have started communicating with students through social network sites. In order to determine whether higher education professionals at Temple should consider using alternative modes of communication (e.g., texting, sending messages through Facebook), respondents were asked to estimate how frequently they checked their Temple University email (TUmail) accounts.

### *Survey Pilot*

The first version of the Survey of Internet and Facebook Use was administered to six Temple University undergraduates who worked as peer advisors at the Academic Resource Center during the spring of 2010. After completing the survey, each student provided feedback which I used to make several modifications. Version two of the survey was then administered to students from two separate undergraduate classes: *Tweens and Teens* (Education 0819) and *Sophomore Experience* (University Seminar 2001). A total of 43 students completed the survey in approximately 10 minutes. Based on survey responses, time spent on the survey, and conversations with students about the survey, it seemed as though respondents understood the questions and how to answer them. During one of the post-survey discussions, several students reported that they believed they would be getting better grades if they spent less time on Facebook and that they have had to wait on line for a computer at the Teaching, Education, Collaboration and Help (TECH) Center because fellow students were on Facebook. Therefore, I added two items (“I would be getting better grades if I spent less time on Facebook” and “I have had to wait for a computer at the TECH Center or library because other students were on Facebook”) to the third version of the survey.

### *Survey of Internet and Facebook Use*

The Survey of Internet and Facebook Use (Appendix A) is a rationally derived, self-report instrument created specifically for this study. The 56-item questionnaire consists of 10 subsections organized as follows: 1) demographic data, 2) time spent on academics, 3) Internet usage patterns, 4) attitudes about Internet use, 5) Facebook usage patterns, 6) attitudes about Facebook use, 7) intensity of Facebook use, 8) perceptions of

Facebook's impact on academics, 9) intensity of Internet use, and 10) perceptions of the Internet's impact on academics.

The demographic section includes four questions about gender, age, year in school, and academic major(s). The academic section consists of one fill-in-the-blank question about amount of time spent studying and/or doing schoolwork. The section on Internet use includes a multiple choice question about technological devices used to access the Internet as well as fill-in-the-blank items about frequency and duration of Internet use, sites visited most often and frequency of accessing each, and frequency of accessing TUMail. The Internet attitudes section contains two open-ended questions about the positives and negatives of Internet use.

The Facebook section begins with a yes or no question, "Do you have a Facebook account?" Participants who answer affirmatively are instructed to complete both the Facebook and Internet sections. Respondents who answer negatively are asked to explain their reasons for not having a Facebook account, and then directed to skip to the section on intensity of Internet use, which begins with question 41. The Facebook use section includes fill-in-the-blank questions about frequency and duration of Facebook use, most common Facebook activities, and frequency of engaging in each Facebook activity. The Facebook attitudes section includes two open-ended questions about the positives and negatives of Facebook use.

The final portion of the survey includes four sets of 5-point Likert scale items (1 = strongly disagree to 5 = strongly agree) designed to measure the extent to which respondents agree or disagree with statements about intensity of Facebook use (e.g., "Facebook has become part of my daily routine,") the impact of Facebook use on

academics (e.g., “The time I spend on Facebook takes away from studying/schoolwork time,”) intensity of Internet use (e.g., “I would be upset if I were no longer able to use the Internet,”) and the impact of Internet use on academics (e.g., “Overall the Internet has had a positive impact on my academic performance.”) The last item invites respondents to elaborate on any of their answers to questions about Facebook or the Internet.

#### *Online Version of the Survey of Internet and Facebook Use*

SurveyMonkey was used to create an online version of the Survey of Internet and Facebook Use (Appendix B). Six Temple undergraduates working as peer advisors at the Academic Resource Center during the summer of 2010 completed the first version of the online survey, which took between 10 and 15 minutes. Based on their suggestions, all items asking participants to self-estimate frequency (e.g., “How frequently do you use the Internet?”) or length of time (e.g., “On a typical day, how much time do you spend on Facebook?”) were changed from fill-in-the-blank to multiple choice. Multiple choice options and ranges (e.g., 15 mins, 30 mins, 1 hr, 2 hrs, etc.) are based on pilot results.

Questions about gender, age, and year in school were also converted to multiple choice format. Additionally, the online version of the survey uses skip logic, which automatically advances respondents who indicate that they do not have a Facebook account, past the Facebook section to the sections on Internet use. Finally, the online version gives respondents the opportunity, at the end of the survey, to request to receive a copy of the survey results by providing an email address.

#### *Academic Performance: Self-Reported versus Actual Grade Point Average*

This study measured academic performance with actual GPAs obtained from the University’s Measurement and Research Center. The decision to use actual, as opposed

to self-reported, GPAs was made for two reasons. First, since a majority of the participants in this study were new freshmen, they did not yet have GPAs to report. Second, ongoing concern has been expressed about whether self-reported GPAs are accurate reflections of actual grades earned. For instance, Kuncel, Credé, and Thomas (2005) conducted meta-analyses of correlations and mean differences between self-reported and actual GPAs, as well as rates of under and over reporting of GPAs, and found that self-reported GPAs were consistently inaccurate. Additionally, students with lower actual GPAs were significantly more likely to misreport GPAs than students with higher actual GPAs. Therefore, participants in this study were asked to voluntarily provide their names and Temple University identification numbers (TUIDs) so that their actual cumulative GPAs could be accessed after fall 2010 grades were posted. Furthermore, in order to determine the validity of self-reported grades, students with cumulative GPAs at the time the study was conducted were asked to report them so that self-reported GPAs could be compared to actual cumulative GPAs (as of second summer session 2010) provided by the University Measurement and Research Center.

### **Procedure**

First, I asked for permission from the Clinical Associate Professor in charge of all *Tweens and Teens* sections to visit classes and invite students to participate in the study. Next, I contacted each *Tweens and Teens* instructor directly to introduce myself and the study and ask for permission to recruit participants from their classes. I also sent an email with a link to the survey to individual instructors, all of whom agreed to participate.

In order to recruit participants, I visited each of the 11 sections of *Tweens and Teens* during the fall 2010 semester. I introduced the study, explained that participation

would involve completing an online survey about Internet and Facebook use, provided students with an informational letter describing the study (Appendix C), and answered questions about my research and the survey. I also clarified that participation was totally voluntary, that participants who chose to complete the survey would not earn extra credit, and that students who opted out would not be penalized. Each visit took approximately 5 minutes.

Following class visits, an email invitation with a link to the survey (Appendix D) was sent, via class email listservs, to all *Tweens and Teens* students. Voluntary participants who agreed to the informed consent (Appendix E) were granted access to the online survey. A second email, inviting students who had not yet completed the survey to join the study (Appendix F), was sent seven days after each class visit.

### **Data Analysis**

Two weeks after the last class visit, the online survey was closed and all data were downloaded into an Excel spreadsheet. The spreadsheet was then sent to a Measurement and Research Center representative who used TUIDs to obtain cumulative GPAs (after fall 2010 grades were posted) for all 160 participants and cumulative GPAs (as of second summer 2010) for 57 participants who had cumulative GPAs at the time the study was conducted. Once GPAs were added to the spreadsheet, TUIDs were removed from the data set. Upon return, de-identified data were uploaded into the Statistical Package for the Social Sciences (SPSS) computer software program and prepared for analysis. These data collection procedures and all other study methods were approved by the Institutional Review Board (Appendix G) prior to the commencement of the study.

## CHAPTER 4

### RESULTS

#### **Introduction**

This chapter includes three sections. The first section is a presentation of participant characteristics. The second section is a presentation of the results for the major research questions. The third section is a presentation of the results for the secondary research questions.

Three hundred fifty students were invited to participate in the study and 160 completed the Survey of Internet and Facebook Use in its entirety (response rate = 46%). An additional 24 surveys were not included in the analyses because they were incomplete. Twelve students agreed to the informed consent but did not provide their name or TUID and left all questions blank. Five students agreed to the informed consent and provided their names and TUIDs but only completed a small portion (less than 25%) of the survey. Five students accessed the survey twice but only completed it the second time (incomplete surveys were not analyzed). One student accessed the survey three times but only completed it the third time (incomplete surveys were not analyzed). Chi square analyses revealed that there were no significant differences between respondents and non-respondents in terms of gender, class year, and school/college.

#### **Participant Characteristics**

The sample comprised 74% women and 26% men. The mean age was 18.8 and the range of ages was 18 to 24 years. Mostly freshmen and sophomores participated in the study however upperclassmen were also included in the sample. Students from all

main campus undergraduate schools and colleges at Temple University were represented. Participant characteristics are presented in Table 1.

Table 1.

*Participant Characteristics*

Academic information	<i>n</i>	%
Year in school		
Freshman	94	58.8
Sophomore	42	26.3
Junior	18	11.3
Senior	6	3.8
School/college		
Art, Tyler School of	4	2.5
Business & Management, Fox School of	20	12.5
Communications & Theater, School of	26	16.3
Education, College of	10	6.3
Engineering, College of	5	3.1
Health Professions-Social Work, College of	23	14.4
Liberal Arts, College of	21	13.1
Music & Dance, Boyer College of	2	1.3
Science & Technology, College of	28	17.5
Tourism & Hospitality Management, School of	7	4.4
University Studies (Undeclared)	14	8.8

## *Academic Profile*

### *Time Spent on Academics*

Participants reported spending an average of 2.6 hours per day studying and doing schoolwork ( $SD = 1.38$ ). The percentages of time spent on studying and doing schoolwork are presented in Table 2.

Table 2.

### *Percentages of Time Spent on Studying and Doing Schoolwork*

Activity	<i>n</i>	Time spent per day						
		30 mins	1 hr	2 hrs	3 hrs	4 hrs	5 hrs	6 hrs
Schoolwork	160	7.5	15.0	30.0	20.6	17.5	6.9	2.5

### *Cumulative Grade Point Average*

After fall 2010 grades were posted, Temple University's Measurement and Research Center provided cumulative GPAs for all 160 participants. The average cumulative GPA was 3.15 ( $SD = .51$ , range = 1.08 to 4.00).

## **Major Research Questions**

### *What Are College Students' Internet and Facebook Usage Patterns?*

To answer the first major research question descriptive statistics were computed on the following: technological devices used to access the Internet, frequency of Internet and Facebook use, time spent on the Internet and Facebook, delay of Facebook use when studying and doing schoolwork, most commonly used websites, and most common

Facebook activities. Results regarding general Internet use are based on responses from the entire sample ( $N = 160$ ). Results regarding Facebook use are based on responses from participants with Facebook memberships ( $n = 153$ ).

### *Technological Devices*

Students were asked to identify which technological devices they used to access the Internet. Table 3 lists various combinations of technological devices used by students for Internet access.

Table 3.

### *Technological Devices Used to Access the Internet*

Technological device(s)	<i>n</i>	%
Laptop	59	36.9
Laptop and handheld	45	28.1
Desktop, laptop, and handheld	28	17.5
Desktop and laptop	22	13.8
Desktop	4	2.5
Desktop and handheld	2	1.3

### *Frequency of Internet and Facebook Use*

Participants reported using the Internet an average of 5.89 times per day ( $SD = 2.52$ ). Participants with Facebook memberships ( $n = 153$ , 96% of the total sample) reported using Facebook an average of 4.82 times per day ( $SD = 1.98$ ). Table 4 shows the frequency with which students used the Internet in general and Facebook specifically.

Table 4.

*Percentages of Internet and Facebook Use Frequencies*

	Internet ( <i>n</i> = 160)	Facebook ( <i>n</i> = 153)
Frequency	%	%
Once a week	0.0	0.7
Once a day	0.6	2.6
Two times a day	3.1	7.8
Three times a day	7.5	12.4
Four times a day	12.5	19.6
Five times a day	10.0	13.7
Six times a day	50.6	35.3
More than six times a day	13.7	6.6
Other	1.9	1.3

*Note.* Three students chose “other” and indicated the following about the frequency of their general Internet use: “Almost always when I’m not doing anything else;” “Internet is always up on my computer;” “Variable times but those times last a while.” Two students chose “other” and indicated the following about the frequency of their Facebook use: “Always up on my computer;” “I’m checking it all the time.”

*Time Spent on the Internet and Facebook*

Participants reported spending an average of 4.05 hours per day (*SD* = 1.69) on the Internet. Participants reported spending an average of 1.82 hours per day on the Internet for academic purposes (*SD* = 1.34) and an average of 2.50 hours per day on the Internet for recreational purposes (*SD* = 1.41). Participants with Facebook memberships

reported spending an average of 2.02 hours per day ( $SD = 1.43$ ) on the site. Table 5 lists percentages of time spent on the Internet and Facebook.

Table 5.

*Percentages of Time Spent on the Internet and Facebook*

	Total		Recreational	
	Internet use ( $n = 160$ )	Academic Internet use ( $n = 160$ )	Internet use ( $n = 160$ )	Facebook use ( $n = 152$ )
Time spent per day	%	%	%	%
30 mins or less	1.9	18.2	5.7	18.9
1 hr	.6	30.6	21.9	25.5
2 hrs	18.1	28.1	27.5	20.9
3 hrs	19.4	12.5	22.5	17.0
4 hrs	21.3	8.1	11.9	10.5
5 hrs	16.3	0.0	7.5	4.6
6 hrs	20.0	1.9	3.1	.7
More than 6 hrs	2.5	.6	0.0	.7
Other	0.0	0.0	0.0	.7

*Note.* One student chose “other” and indicated the following about time spent on Facebook: “Facebook is always on my computer.”

*Delay of Facebook Use*

Participants were asked to estimate how long they wait to check Facebook when they are studying or doing schoolwork. Participants reported waiting an average of .93

hours (55.8 mins) before they check Facebook ( $SD = .94$ ). The percentages of delay of Facebook use are presented in Table 6.

Table 6.

*Percentages of Delay of Facebook Use*

		5	15	30	45	1	2	3 or more
Activity	<i>n</i>	mins	mins	mins	mins	hr	hrs	hrs
Delay	152	9.8	14.4	21.6	12.4	21.6	8.5	7.3

*Note.* Six students chose “other” and indicated the following about Facebook use and schoolwork: “I have it open the entire time in the background;” “I check Facebook before I even start;” “I’m usually logged on to my Facebook page, but my attention is not always focused on the website;” “Sometimes I don’t check it for days;” “It depends on how demanding the work is, if it is very demanding, I don’t check Facebook till I am done;” “Depends on what the school work is.”

*Most Commonly Used Websites*

Participants were asked to identify three most commonly used websites.

Facebook was by far the most identified site; 151 participants (94% of the total sample and 99% of Facebook users) listed Facebook as one of their top three sites. TUmial was the second most identified website ( $n = 62$ , 39%). Students also listed other University sites: 36 students (23%) identified Temple University’s course management system Blackboard, 26 students (16%) identified the Temple University home page, and 21 (13%) identified TUportal, Temple University’s links page. Because responses were fill-in-the-blank, participants were able to list any site on the Internet. A total of 60 different websites were identified. Websites were categorized by type before descriptive statistics

were conducted. Table 7 lists first, second, and third most commonly used types of websites.

Table 7.

*Percentages of Three Most Commonly Used Website Types*

	Website one ( <i>n</i> = 160)	Website two ( <i>n</i> = 159)	Website three ( <i>n</i> = 153)
Website type	%	%	%
Social network sites/blogs	78.1	21.9	11.8
Academic (including TUmial)	11.3	38.1	36.9
Informational/functional	4.4	12.5	22.2
Entertainment	3.1	19.4	19.4
Sports	2.5	5.0	5.6
Email (personal)	.6	2.5	1.3

*Most Common Facebook Activities*

Participants were asked to identify the Facebook activities they engage in most often. Since responses were open-ended, activities needed to be categorized before they could be analyzed with descriptive statistics. Facebook has a limited number of standard features so the categorization process was clear-cut and did not require a qualitative data analysis. Most common Facebook activities are list in Table 8.

Table 8.

*Percentages of Three Most Common Facebook Activities*

	Activity one ( <i>n</i> = 146)	Activity two ( <i>n</i> = 135)	Activity three ( <i>n</i> = 115)
Facebook activity	%	%	%
Talk to friends via chat, private messages, wall posts	30.1	23.5	21.6
Read news feed	14.4	6.5	2.6
Check notifications	13.1	1.3	0.0
Look at photos	10.5	19.6	12.4
Look at friends' pages/profiles	8.5	11.8	9.2
Check/update page/profile	5.9	5.2	13.1
Check friends' statuses	5.9	6.5	.7
Update status	3.9	3.9	2.6
Comment on friends' photos, statuses, posts, comments	2.0	5.9	5.9
Use applications (play games, listen to music, shop marketplace)	1.3	3.9	7.2

*What Are Students' Attitudes about the Internet and Facebook?*

To answer the second major research question I conducted a constant comparative analysis of open-ended responses to four questions about Internet and Facebook likes and dislikes. Following Glaser and Strauss's (1967) method, I first translated all responses into codes. Then a research assistant independently used my codes to categorize responses. Interrater reliability was 96%. In cases where the research assistant and I

disagreed, we discussed the responses until we decided which code to assign. In one case I changed the code from, “Reduces in-person social interaction” to “Negative online social interaction,” because the latter statement better described the responses to the question about downsides of Facebook use. In some cases participants listed more than one “like” or “downside.” Therefore, the total percentages of attitudes about the Internet and Facebook presented in Table 9 exceed 100%.

Table 9.

*Percentages of Internet and Facebook Attitudes*

Attitudes	%
Internet positives ( $n = 158$ )	
Convenience and access	50.6
Useful for academic purposes/finding information	46.9
Facilitates online social interaction/connection	35.6
Fun and entertaining	21.9
Internet negatives ( $n = 151$ )	
Procrastination, distraction, addiction, time wasted/displaced	66.9
Privacy issues and cybercrime	10.6
Slow connections/technical difficulties	8.1
Reduces in-person social interaction	7.5
Unreliable and/or inaccurate information	7.5

Table 9. (continued)

Attitudes	%
Facebook positives ( $n = 148$ )	
Facilitates online social interaction/connection	81.7
Allows me to see what friends are doing	29.4
Fun and entertaining	9.2
Useful for academic purposes/communicating about class work	1.3
Facebook negatives ( $n = 136$ )	
Procrastination, distraction, addiction, time wasted/displaced	58.2
Privacy issues and cybercrime	23.5
Negative online social interactions	17.7
Narcissism and exhibitionism	2.6

$n$  = number of respondents. Percentages of Internet positives and negatives were computed with a total of 160. Percentages of Facebook positives and negatives were computed with a total of 153.

*How Do Internet and Facebook Usage Patterns Relate to Time Spent on Academics and Academic Performance?*

To determine how usage patterns relate to time spent on academics, I first computed Pearson correlations between hours spent studying and doing schoolwork and Internet/Facebook usage variables. The correlations are presented in Table 10.

Table 10.

*Pearson Correlations of Time Spent on Academics with Usage Variables*

Variable	Pearson $r$	Probability
Internet frequency	.041	.614
Internet hours	.249	.002
Academic Internet hours	.606	.000
Recreational Internet hours	-.178	.024
Facebook frequency	-.011	.897
Facebook hours	-.066	.423
Delay of Facebook use	.294	.000

Four of the univariate correlations between time spent on academics and Internet/Facebook usage variables were significant at the .05 level or beyond. The results indicate that students who spend more time studying and doing school work: spend more time on the Internet for academic purposes, wait longer to check Facebook when they are studying or doing schoolwork, spend more time on general Internet use, and spend less time on the Internet for recreational purposes. All other correlations between time spent on academics and usage variables were not significant.

In order to determine which usage variables in combination correlate with time spent on academics, I conducted a full scale multiple regression with listwise deletion using frequency of Internet use, hours per day on the Internet, hours per day on the Internet for academic purposes, hours per day on the Internet for recreational purposes,

frequency of Facebook use, hours per day on Facebook, and delay of Facebook use as predictors. The criterion variable was hours per day spent on academics. The results are presented in Table 11.

Table 11.

*Regression with Time Spent on Academics and Usage Variables*

Predictor variable	Beta	Significance
Internet frequency	.003	.962
Internet hours	.175	.182
Academic Internet hours	.467	.000
Recreational Internet hours	-.308	.014
Facebook frequency	.067	.392
Facebook hours	.055	.543
Delay of Facebook use	.175	.011

The adjusted  $R^2$  computed from the data above was .399.

The results indicate that more time spent studying and doing schoolwork remained significantly related to more academic Internet use, longer delay of Facebook use when studying, and less recreational Internet use. Alternatively, the relationship between general Internet use and time spent on academics was no longer significant when the effects of the other usage variables were taken into account.

To answer the second part of research question three, I computed Pearson correlations between cumulative GPA and Internet/Facebook usage variables. The correlations are presented in Table 12.

Table 12.

*Pearson Correlations of Cumulative Grade Point Average with Usage Variables*

Variable	Pearson $r$	Probability
Internet frequency	.111	.166
Internet hours	-.019	.815
Academic Internet hours	-.071	.371
Recreational Internet hours	.018	.826
Facebook frequency	.126	.124
Facebook hours	-.014	.861
Delay of Facebook use	-.020	.807

This analysis revealed no significant univariate correlations between cumulative GPA and Internet/Facebook usage variables.

In order to determine if any usage variables in combination correlate with cumulative GPA, I computed a full scale multiple regression with listwise deletion using frequency of Internet use, hours per day on the Internet, hours per day on the Internet for academic purposes, hours per day on the Internet for recreational purposes, frequency of

Facebook use, hours per day on Facebook, and delay of Facebook use as the predictors and cumulative GPA as the criterion. The results are presented in Table 13.

Table 13.

*Regression with Cumulative Grade Point Average and Usage Variables*

Predictor variable	Beta	Significance
Internet frequency	.104	.281
Internet hours	-.032	.851
Academic Internet hours	-.067	.592
Recreational Internet hours	.049	.763
Facebook frequency	.128	.207
Facebook hours	-.140	.231
Delay of Facebook use	.006	.948

The adjusted  $R^2$  computed from the data above was -.011.

The results presented in Table 13 are consistent with the correlational data; there were no significant predictors of cumulative GPA among the Internet and Facebook usage variables.

*What Are Students' Perceptions of Their Facebook and Other Internet Use, and How Do Those Perceptions Relate to Time Spent on Academics and Academic Performance?*

To answer the first part of research question four, I used descriptive statistics to obtain percentages of participant responses to Likert scale attitudinal questions about

Internet and Facebook use, all of which are presented in Tables 14 and 15. From this point forward these items will be referred to as “perception questions.”

Table 14.

*Percentages of Participant Responses to Facebook Perception Questions*

Survey question	<i>n</i>	Strongly		Neutral	Strongly		Mean
		disagree	Disagree		Agree	agree	
Facebook has become part of my daily routine.	153	.7	.7	3.9	30.1	64.7	4.58
I log on to Facebook and check it regularly whenever I am on the computer.	153	2.0	.7	7.2	30.7	59.5	4.45
I lose track of time when I am on Facebook.	152	3.3	21.6	17.0	24.2	33.3	3.63
I have tried to cut down on my Facebook use.	152	7.2	23.5	24.2	31.4	13.1	3.2
I would be upset if I were no longer able to use Facebook.	152	2.6	9.2	17.0	45.1	25.5	3.82
Sometimes I go on Facebook while I am in class.	153	21.6	23.5	7.2	29.4	18.3	2.99
When I am not on Facebook I find myself wondering what I am missing.	153	25.5	39.9	17.0	10.5	7.2	2.34
I think I might be addicted to Facebook.	153	13.7	26.8	24.8	20.9	13.7	2.94

Table 14. (continued)

Survey question	<i>n</i>	Strongly			Strongly		Mean
		disagree	Disagree	Neutral	Agree	agree	
Facebook distracts me from studying/doing schoolwork.	153	2.6	9.2	18.3	44.4	25.5	3.81
I use Facebook to procrastinate when I should be studying/doing schoolwork.	153	1.3	6.5	11.1	47.1	34.0	4.06
The time I spend on Facebook takes away from studying/schoolwork time.	151	2.0	14.4	17.0	40.5	24.8	3.73
If Facebook did not exist, I would get a lot more studying and schoolwork done.	152	5.9	20.3	25.5	32.0	15.7	3.32
I have missed a class because I was on Facebook.	153	86.9	11.8	0.0	1.3	0.0	1.16
I would be getting better grades if I spent less time on Facebook.	152	17.6	37.3	30.1	10.5	3.9	2.45
My grades are suffering because of my Facebook use.	153	36.6	43.1	17.0	3.3	0.0	1.87
I am able to control my use of Facebook so that it does not interfere with studying/doing schoolwork.	153	2.0	7.2	28.8	41.8	20.3	3.71

*n* = number of respondents. Percentages for responses to Facebook questions were computed with a total of 153.

The majority of students agreed or strongly agreed that Facebook is part of their daily routine, and that they log onto Facebook whenever they are on the computer, lose track of time when they are on Facebook, and would be upset if they were no longer able to use Facebook. More than half of students also agreed or strongly agreed that Facebook distracts them from their studies, they use Facebook to procrastinate when they are studying or doing schoolwork, and the time they spend on Facebook takes away from academic time. On the other hand, the majority of students believe their Facebook use neither interferes with studying and doing schoolwork nor affects their academic performance.

Table 15.

*Percentages of Participant Responses to Internet Perception Questions*

Survey question	n	Strongly			Strongly		Mean
		disagree	Disagree	Neutral	Agree	agree	
I lose track of time when I am on the Internet.	159	.6	10.6	12.5	46.9	28.7	3.93
I have tried to cut down on my Internet use.	160	10.0	36.9	21.3	26.3	5.6	2.81
I would be upset if I were no longer able to use the Internet.	159	.6	1.9	3.1	22.5	71.3	4.63
Sometimes I go on the Internet for personal reasons while I am in class.	160	13.1	20.0	10.0	38.1	18.8	3.29

Table 15. (continued)

Survey question	<i>n</i>	Strongly			Strongly		Mean
		disagree	Disagree	Neutral	Agree	agree	
I think I might be addicted to the Internet.	160	10.0	22.5	20.6	26.3	20.6	3.25
The Internet distracts me from studying/doing schoolwork.	158	3.8	14.4	11.9	50.0	18.8	3.66
I use the Internet to procrastinate when I should be studying/doing schoolwork.	158	1.9	9.4	12.5	50.0	25.0	3.88
The time I spend on the Internet takes away from studying/schoolwork time.	157	6.3	19.4	18.1	41.9	12.5	3.36
If the Internet did not exist, I would get a lot more studying and schoolwork done.	158	10.0	30.6	22.5	27.5	8.1	2.93
I have missed a class because I was on the Internet.	155	70.6	21.9	1.3	1.9	1.3	1.36
I would be getting better grades if I spent less time on the Internet.	158	17.5	41.3	23.1	14.4	2.5	2.42
My grades are suffering because of my Internet use.	156	31.3	46.3	13.8	6.3	0.0	1.95

Table 15. (continued)

Survey question	<i>n</i>	Strongly			Strongly		Mean
		disagree	Disagree	Neutral	Agree	agree	
I am able to control my use of the Internet so that it does not interfere with studying/doing schoolwork.	154	1.9	10.0	23.1	51.2	10.0	3.6

*n* = number of respondents. Percentages for responses to Internet questions were computed with total of 160.

The majority of students agreed or strongly agreed that they lose track of time when they are on the Internet and would be upset if they were no longer able to use the Internet. Most students also agreed or strongly agreed that they go on the Internet for personal reasons while in class, the Internet distracts them from academics, they use the Internet to procrastinate when they are studying and doing schoolwork, and the time they spend on the Internet takes away from studying and schoolwork time. Alternatively, the majority of students indicated that they can control their Internet use so that it neither interferes with studying and doing schoolwork, nor negatively impacts their grades.

To answer the second part of research question four (how do students' perceptions of their Facebook and other Internet use relate to time spent on academics and academic performance?), I conducted an exploratory factor analysis, two Pearson correlations, and two multiple regressions. In order to determine which factors to include in the correlational and multiple regression analyses, a principal components factor analysis followed by a varimax rotation was performed on the Survey of Internet and Facebook

Use perception questions. This initial analysis produced nine factors with eigenvalues greater than one, which accounted for 72.81% of the variance. The rotated factor matrix is presented in Table 16. Only factor loadings greater than .4 are reported.

Table 16.

*Rotated Factor Matrix for the Survey of Internet and Facebook Use*

Factor	Factor loading
<b>Factor I: Facebook detracts from academics</b>	
Facebook distracts me from studying/doing schoolwork.	.801
The time I spend on Facebook takes away from studying/schoolwork time.	.712
I use Facebook to procrastinate when I should be studying/doing schoolwork.	.667
I am able to control my use of Facebook so that it does not interfere with studying/doing schoolwork.	-.636
If Facebook did not exist, I would get a lot more studying and schoolwork done.	.596
<b>Factor II: Internet detracts from academics</b>	
The time I spend on the Internet takes away from studying/schoolwork time.	.784
I use the Internet to procrastinate when I should be studying/doing schoolwork.	.753
The Internet distracts me from studying/doing schoolwork.	.738
I am able to control my use of the Internet so that it does not interfere with studying/doing schoolwork.	-.621
If the Internet did not exist, I would get a lot more studying and schoolwork done.	.577

Table 16. (continued)

Factor	Factor loading
Factor III: Grades	
My grades are suffering because of my Internet use.	.765
I would be getting better grades if I spent less time on the Internet.	.707
My grades are suffering because of my Facebook use.	.688
I would be getting better grades if I spent less time on Facebook.	.665
Factor IV: Regular use of Facebook	
I log on to Facebook and check it regularly whenever I am on the computer.	.891
Facebook has become part of my daily routine.	.885
Factor V: In-class use	
Sometimes I go on the Internet for personal reasons while I am in class.	.904
Sometimes I go on Facebook while I am in class.	.891
Factor VI: Addiction	
I think I might be addicted to the Internet.	.699
I think I might be addicted to Facebook.	.581
When I am not on Facebook I find myself wondering what I am missing.	.465
Factor VII: Attempts to cut down	
I have tried to cut down on my Facebook use.	.814
I have tried to cut down on my Internet use.	.782
I would be upset if I were no longer able to use the Internet.	-.522

Table 16. (continued)

Factor	Factor loading
Factor VIII: Missed class	
I have missed a class because I was on the Internet.	.855
I have missed a class because I was on Facebook.	.842
Factor IX: Lose track of time	
I lose track of time when I am on the Internet.	.749
I lose track of time when I am on Facebook.	.534

*Note.* Missing values were replaced with the mean.

The perception questions were meant to measure participants' beliefs about the following: Facebook usage intensity, Facebook's impact on academics, Internet usage intensity, and the Internet's impact on academics. The factor analysis revealed that the usage intensity/academic impact subscales of the Survey of Internet and Facebook Use are measuring multiple things. Factor I (Facebook use and: distraction, time displacement, procrastination, lack of control, and academic activity displacement) seems to represent Facebook's impact on academics and will be called "Facebook detracts from academics." This factor accounted for 13.32% of the variance. Factor II (Internet use and: time displacement, procrastination, distraction, lack of control, and academic activity displacement) seems to represent the Internet's impact on academics and will be called "Internet detracts from academics." Factor II accounted for 10.94% of the variance. Factor III (Internet use and grades suffering, Facebook use and grades

suffering, Internet use and grades would be better, and Facebook use and grades would be better) seems to represent the impact of Facebook and other Internet use on grades and will be called “grades;” this factor accounted for 8.89% of the variance. Factor IV (Facebook regular use and Facebook daily routine) seems to represent regular use of Facebook and will be called “regular use of Facebook.” Factor IV accounted for 7.32% of the variance. Factor V (personal Internet use in class and Facebook use in class) will be called “in-class use;” this factor accounted for 7.07% of the variance. Factor VI (Internet addicted, Facebook addicted, and Facebook longing) seems to represent addiction to Facebook and the Internet and will be called, “addiction.” Factor VI accounted for 6.83% of the variance. Factor VII (attempts to reduce Facebook use, attempts to reduce Internet use, and lack of worry about losing Internet access) will be called, “attempts to reduce use;” this factor accounted for 6.69% of the variance. Factor VIII (missed class due to Internet and missed class due to Facebook) seems to represent missing class and will be called, “missed class.” Factor VIII accounted for an additional 6.15% of the variance. Factor IX (lose track of time while on Internet and lose track of time while on Facebook) seems to represent losing track of time and will be called, “lose track of time;” this final factor accounted for 5.60% of the variance.

All nine factors are included in the following analyses. Results of the Pearson correlations between time spent on academics and perceptions factors I through IX are presented in Table 17.

Table 17.

*Pearson Correlations of Time Spent on Academics with Perception Factors*

Factor	Pearson $r$	Probability
Factor I: Facebook detracts from academics	.001	.985
Factor II: Internet detracts from academics	-.072	.364
Factor III: Grades	-.124	.119
Factor IV: Regular use of Facebook	-.078	.330
Factor V: In-class use	-.144	.070
Factor VI: Addiction	.112	.158
Factor VII: Attempts to cut down	.267	.001
Factor VIII: Missed class	-.179	.024
Factor IX: Lose track of time	.083	.298

Two univariate correlations were significant beyond the .05 level. Students who reported spending more time studying and doing schoolwork were less likely to miss a class because of their Internet and/or Facebook use and more likely to have attempted to cut down on their Internet and/or Facebook use.

To determine which perception factors in combination correlate with time spent on academics, a full scale multiple regression with listwise deletion was computed using factors I through IX as the predictors. The criterion variable was time spent on academics. The results are presented in Table 18.

Table 18.

*Regression with Time Spent on Academics and Perception Factors*

Predictor variable	Beta	Significance
Factor I: Facebook detracts from academics	.001	.984
Factor II: Internet detracts from academics	-.072	.333
Factor III: Grades	-.124	.098
Factor IV: Regular use of Facebook	-.078	.299
Factor V: In-class use	-.144	.055
Factor VI: Addiction	.112	.134
Factor VII: Attempts to cut down	.267	.000
Factor VIII: Missed class	-.179	.017
Factor IX: Lose track of time	.083	.268

The adjusted  $R^2$  computed from the data above was .120.

The results of the regression are consistent with the correlational data; more time spent studying and doing schoolwork was related to students being more likely to attempt to cut down on Internet and/or Facebook use and less likely to miss classes due to Internet and/or Facebook use.

Next, Pearson correlations between cumulative GPA and perception factors were computed. The results of this analysis are presented in Table 19.

Table 19.

*Pearson Correlations of Cumulative Grade Point Average with Perception Factors*

Factor	Pearson $r$	Probability
Factor I: Facebook detracts from academics	-.005	.947
Factor II: Internet detracts from academics	-.091	.254
Factor III: Grades	-.357	.000
Factor IV: Regular use of Facebook	.017	.829
Factor V: In-class use	-.033	.675
Factor VI: Addiction	.051	.525
Factor VII: Attempts to cut down	-.082	.301
Factor VIII: Missed class	.033	.678
Factor IX: Lose track of time	.061	.442

Only one of the correlations between cumulative GPA and perception factors was significant. Students with higher GPAs were less likely to think that their grades were suffering, or not as high as they could be, as a result their Internet and/or Facebook use.

Another full scale multiple regression with listwise deletion was computed using factors I through IX as the predictors. The criterion variable was cumulative GPA. The results are presented in Table 20.

Table 20.

*Regression with Cumulative Grade Point Average and Perception Factors*

Predictor variable	Beta	Significance
Factor I: Facebook detracts from academics	-.005	.944
Factor II: Internet detracts from academics	-.091	.230
Factor III: Grades	-.357	.000
Factor IV: Regular use of Facebook	.017	.819
Factor V: In-class use	-.033	.657
Factor VI: Addiction	.051	.502
Factor VII: Attempts to cut down	-.082	.276
Factor VIII: Missed class	.033	.661
Factor IX: Lose track of time	.061	.417

The adjusted  $R^2$  computed from the data above was .100.

The results of the regression analysis are similar to the Pearson correlation; students with higher GPAs were less likely to believe that their grades were suffering, or not as high as they could be, because of Internet use. There were no other significant predictors of cumulative GPA among the perception factors.

## Secondary Research Questions

### *How Frequently Do Temple Students Check Their University Email Accounts?*

Students check their TUmial accounts an average of 3.6 times per day ( $SD = 1.92$ ). Percentages of daily use are presented in Table 21.

Table 21.

#### *Percentages of Daily Temple University Email System (TUmial) Use*

Activity	N	Times per day						
		One	Two	Three	Four	Five	Six or more	Other
TUmial	160	11.9	16.3	18.8	21.3	8.8	15.6	6.9

*Note.* Eight students chose “other” and indicated that they receive emails to their phone or handheld device, which enabled them to check emails as soon as messages reached their inboxes. Three students chose “other” and provided the following responses: “Check my emails constantly;” “Always up on my computer and my computer is on from when I wake up until I go to sleep;” “Multiple times a day.” One student left the response box blank.

### *Do Temple Students Use Facebook to Communicate about Course Related Issues?*

The survey included one item about the use of Facebook for communication with classmates regarding schoolwork. Table 22 lists percentages of responses to this question.

Table 22.

*Percentages of Academic Communication via Facebook*

Survey question	<i>n</i>	Strongly			Strongly		Mean
		disagree	Disagree	Neutral	Agree	agree	
I use Facebook to communicate with classmates about course related issues.	153	3.3	2.6	12.4	53.6	28.1	4.01

These results indicate that almost all participants with Facebook accounts use Facebook to communicate with classmates about course related issues.

*Are University Student Services Impacted by Student Facebook Use?*

Participants were asked if they ever had to wait for a computer at the TECH Center or the library because other students were on Facebook. Table 23 lists percentage of students' responses to this question.

Table 23.

*Percentages of Facebook Impact on Technology Resources and Services*

Survey question	<i>n</i>	Strongly			Strongly		Mean
		disagree	Disagree	Neutral	Agree	agree	
I have had to wait for a computer at the TECH Center or library because other students were on Facebook.	153	10.5	19.0	14.4	24.8	31.4	3.48

Results indicate that a large majority of participants have had their access to University computers impacted by other students' use of Facebook.

*How Accurate Are Self-Reported Grade Point Averages?*

This study was conducted during the fall semester, which meant new freshmen and first semester transfer students did not have Temple GPAs. Therefore, only students with Temple GPAs ( $n = 57$ ) were asked to report them. Fifty-one students (1 second semester freshman, 30 sophomores, 15 juniors, and 5 seniors) reported GPAs ( $M = 3.08$ ,  $SD = .58$ , range = 1.87 to 3.93). The other six either left the response box blank or indicated that they did not know their GPA. The Measurement and Research Center provided actual cumulative GPAs for the 57 students with GPAs as of second summer session 2010. The average cumulative GPA for this group was 2.98 ( $SD = .62$ , range = 1.33 to 3.93).

To answer the final secondary research question, a Pearson correlation was computed between self-reported and actual GPAs of the 51 students who answered the survey question, "What is your cumulative GPA (if you have one)?" The results indicate that self-reported and actual GPAs are highly positively correlated ( $r = .955$ ,  $p < .01$ ). This finding lends support for the use of self-reported GPAs in education research.

## CHAPTER 5

### DISCUSSION

#### **Summary of the Purpose and Results**

The purpose of this study was to describe college students' Internet and Facebook usage patterns, explore students' perceptions of how Facebook and other Internet use impacts their academic experience, and determine whether usage patterns and perceptions about the academic effects of use relate to time spent studying and/or academic performance. This study is distinct from previous studies of Facebook and academics in several ways. First, Facebook usage was examined within the context of overall Internet use. Second, frequency, duration, and intensity of use were taken into account. Third, academic performance was measured with actual as opposed to self-reported GPAs. Finally, the survey included two sets of Likert scale attitudinal questions designed to assess the various ways in which Facebook and other Internet use impacts students' academic performance. Specifically, this study addressed the following research questions:

1. What are college students' Internet and Facebook usage patterns?
2. What are students' attitudes about the Internet and Facebook?
3. How do Internet and Facebook usage patterns relate to time spent on academics and/or academic performance?
4. What are students' perceptions of their Facebook and other Internet use, and how do those perceptions relate to time spent on academics and academic performance?

*What Are College Students' Internet and Facebook Usage Patterns?*

The first research question explored the specific ways in which participants use the Internet and Facebook including: technological devices used to access the Internet, frequency of Internet and Facebook use, time spent on the Internet and Facebook, delay of Facebook use when studying and doing schoolwork, and most commonly used websites. While the results indicate that students use various combinations of technological devices to access the Internet, the majority (65%) of participants reported using either laptops alone or both laptops and handhelds to go online. This finding is similar to the results of a recent national study of college student technology use which reported that desktops are being replaced by portable technological devices (Smith et al., 2009).

On a typical day, students go online approximately six times, which amounts to just over four hours of total Internet use. More specifically, students spend an average of 2.5 hours on the Internet for recreational purposes and just under two hours for academic reasons. Students with Facebook memberships spend two hours per day on the site, which accounts for half of the total time spent on the Internet and approximately 80% of recreational use. The Facebook usage rates discovered in this study are higher than those reported in previous studies (Sheldon, 2008; Stern & Taylor, 2007). This is most likely due to the fact that Facebook use among teens and young adults has increased over the last several years (Lenhart et al., 2010), and not necessarily an indication that the participants in this study use the site more than other undergraduates. Interestingly, most students check Facebook every time they go online and almost half of Facebook users wait 30 minutes or less before checking their accounts when they are studying or doing

schoolwork. This discovery is similar to the results of an analysis of college students' Facebook messaging patterns, which determined that most Facebook activity occurred during the week when students were also engaged in schoolwork (Golder et al., 2007).

As might be expected, social network sites are the most common type of websites used by students, and Facebook is by far the most popular; 94% of the total sample identified Facebook as one of their top three sites. This is not surprising considering the previous research on the prevalence of social network site use among undergraduates, which indicated that approximately 90% of participants had Facebook accounts (Raacke & Bonds-Raacke, 2008; Salaway & Caruso, 2008; Sheldon, 2008).

University sites including TUmail, Blackboard, Temple University's homepage, and TUportal are the second most common type of websites used by the students in this study. Researchers have warned that college students do not check University email accounts frequently enough and are consequently missing important academic messages (Carnevale, 2006; Ellison, 2008). Conversely, this study found that most Temple students check TUmail and other University sites multiple times each day. Furthermore, because some students receive email notifications on their cell phones and other handhelds, messages are checked the moment they reach the inbox. Since the recruitment process for this study included an email invitation with a link to the survey, it is possible that more frequent email users were overrepresented in the sample. However, in order to prevent this type of sampling bias, an informational letter which was distributed to students during the in-class recruitment visits, also included the website address for the online survey.

All in all, the results of the current study show that Internet and Facebook use are integrated into students' daily routines. Students devote a significant amount of time to both academic and recreational Internet activities and go on Facebook in the midst of doing schoolwork. It should be noted that several respondents seemed to have difficulty quantifying their Internet and/or Facebook use, which could have been due to the multitasking nature of Internet and Facebook activities. These participants chose the other option and provided answers such as, "The Internet is always up on my computer" or "I am checking [Facebook] all of the time." The issue of measuring frequency and duration of Internet use will be addressed again later when limitations of the study and suggestions for future research are discussed.

*What Are Students' Attitudes about the Internet and Facebook?*

Students were asked open-ended questions about the positive and negative aspects of their Internet and Facebook use. These items were intentionally positioned before Likert scale perception questions in order to reduce possible response bias; the objective being to determine whether students would identify Internet related academic issues without prompting. Indeed, students spontaneously reported both academic advantages and disadvantages of Facebook and other Internet use. For instance, almost half of the sample indicated that they like the Internet because it is useful for academic purposes and finding information. On the other hand, approximately 67% of students listed procrastination, distraction, addiction, or time wasted/displaced as negative academic effects of Internet use. Additionally, almost 8% listed unreliable or inaccurate information as disadvantages of the Internet. Not surprisingly, most students (82%) reported that they like Facebook because it facilitates online socializing. However, two

students indicated that they like Facebook because it is useful for academic purposes. Alternatively, approximately 58% of students listed procrastination, distraction, addiction, or time wasted/displaced as negative academic effects of Facebook use.

Overall, students' open-ended responses regarding academic advantages and disadvantages of Facebook and Internet use suggest that they like the Internet because it enables them to do research and access information, even though some participants complained that information obtained online is not always accurate. On the other hand, students dislike the Internet because it takes them away from studying, doing schoolwork, and other productive "real life" activities. Similarly, many students consider Facebook a "major distraction" which wastes time that could be spent on academics or "in-person" social interactions. The fact that well over half of the students in this study spontaneously identified academically related "likes" and "downsides" of Facebook and other Internet use suggests that they have relatively high levels of self-awareness regarding how the use of these applications impacts their academic experience. This issue will be addressed again later when the relationships between students' perceptions of the academic impact of Internet and Facebook and academic performance are discussed.

*How Do Internet and Facebook Usage Patterns Relate to Time Spent on Academics  
and/or Academic Performance?*

Results show that students who spend more time on academics also spend more time on the Internet for academic purposes, wait longer to check Facebook when they are studying, and spend less time on the Internet for fun. Despite these findings, a regression analysis revealed no significant relationships between Internet and Facebook usage

patterns, and academic performance; a discovery which challenges previous claims about the negative relationship between Facebook use and grades (Boogart, 2006; Karpinski & Duberstein, 2009). Limitations of the study and the results derived from students' responses to the perception questions, both discussed below, provide insight into why academic performance seemed to be unaffected by Facebook and other Internet use.

*What Are Students' Perceptions of Their Facebook and Other Internet Use, and How Do Those Perceptions Relate to Time Spent on Academics and Academic Performance?*

Factor analysis of the perception questions revealed nine factors, which were then entered as predictors in two separate multiple regression analyses using time spent on academics and cumulative GPA as the criterion variables. The first two factors, "Facebook detracts from academics" and "the Internet detracts from academics," were not significant predictors for either time spent on academics or cumulative GPA. Nevertheless, it is important to point out that the majority of students believe Facebook and other Internet use distracts them from doing schoolwork, leads to procrastination, and results in less time spent studying. Additionally, almost half of students with Facebook memberships agreed or strongly agreed that they would get a lot more studying and schoolwork done if Facebook did not exist.

It should also be noted that a modest number of students think they would be earning better grades if they spent less time on the Internet and Facebook (17% and 14%, respectively), and several students reported that their grades were suffering because of their online activities (6% for the Internet and 3% for Facebook). Moreover, results indicate that students who believe their grades are either suffering, or not as high as they

could be, because of Facebook or other Internet use, do in fact have lower cumulative GPAs.

Notwithstanding confirmatory reports of distraction, procrastination, study time displacement, and lower grades due to online activities, the majority of students believe they are able to control their Facebook (62%) and other Internet use (61%) so that it does not interfere with academics. One student's response to the final survey item, which invited respondents to elaborate on previous answers, is a good representation of this perception:

In regards to the questions on Facebook having an effect on my school work and grades: I do realize that I spend a ridiculous amount of time on Facebook, but I don't think I would ever be able to say that time on Facebook has altered my grades because I do have the ability to notice when enough is enough and eventually sign off and get to what's most important. I can't lie and say that a portion of my "study time" doesn't get spent on Facebook or other social networks, but even if I run over the amount of time I intended to spend on a particular assignment because I've been on Facebook, I make sure that the assignment gets done, regardless of how much later I have to stay up or what plans I had outside of school work.

While many students believe they can regulate their Facebook and other Internet activities, a modest number of participants indicated that they are not able to control their use (9% for Facebook and 12% for the Internet), to the extent that it interferes with studying and doing schoolwork. Even though perceived lack of control over Internet behavior was not significantly related to having a lower cumulative GPA, the discovery that approximately one-tenth of students believe they do not have control over Facebook and/or other Internet use is somewhat concerning. Also concerning is the finding that

35% of Facebook users think they are addicted to Facebook and an even larger number of students believe they are addicted to the Internet (47%); though it is doubtful that so many students are truly addicted to using Facebook and/or other Internet sites. Perhaps if a definition of addiction had been provided, fewer students would have agreed or strongly agreed with this item. Nonetheless, agreement with the addiction question certainly speaks to the importance of the Internet in the lives of the respondents and may indicate a real problem for some students.

Another remarkable finding is that more than 30% of students have attempted to decrease their use of the Internet, and almost 45% of students with Facebook accounts have tried to limit their use of the site. According to a regression analysis, “attempts to cut down” was a significant predictor for spending more time on academics, which suggests that some students may have successfully reduced time spent on the Internet and Facebook in order to make more time for studying and doing schoolwork. Because students were not asked to distinguish between successful and unsuccessful attempts to cut down on Internet activities, it is unclear exactly how many of them actually reduced time spent online. However, open-ended responses to the questions about the downsides of the Internet and Facebook indicate that several students have successfully restricted their use, while others have struggled, and in some cases even failed, to limit time spent online.

Findings regarding in-class use of Facebook and other recreational Internet sites are also noteworthy. Results suggest that almost half of students with Facebook memberships go on Facebook while they are in class and an even larger number of students use the Internet for personal reasons during class time (57%). These in-class

usage rates are higher than those previously reported by Jones et al. in 2007 (26%) and Miller et al. in 2009 (32%). While in-class Internet use was not significantly related to academic performance, the fact that students go online during class suggests that they may be missing important course content and/or class discussions.

Despite students' reports of the negative academic effects of online behavior, they clearly recognize the Internet as a powerful technological tool with various academic benefits including: access to research databases and other credible sources of news and information, course management systems such as Blackboard, and portals that connect them to online University resources and services. Not surprisingly, 94% of students reported that when doing research for a college course, they primarily use the Internet as a source of information. Furthermore, 72% of students believe the Internet has had an overall positive impact on their academic performance. Facebook has academic advantages as well. For example, Smith et al. (2009), in their national study of technology use, found that almost 50% of students talk with other students about academics via Facebook. In this study, an even greater percentage of students (80%) indicated that they use the site to connect with classmates about course related issues.

Overall, the results suggest that most students: spend a considerable amount of time on Facebook and other Internet sites; are aware that their online activities can be distracting and procrastinatory; and believe they are able to control their recreational Internet use in order to study, do schoolwork, and ultimately succeed academically. At first glance, it seems counterintuitive that so many students think Facebook and other Internet use distracts them from studying, leads to procrastination, and displaces time that would have otherwise been spent on academics while academic performance seems

unaffected by students' online activities. However, a careful review of all results, including students' detailed accounts of their experiences with Facebook and other Internet sites, suggests that students' awareness of how their online behavior affects the learning process may actually help them limit their use of these applications.

### **Limitations of the Study**

As previously mentioned, the fact that there were no significant relationships found between usage patterns and academic performance could have been due, in part, to limitations of the study. For instance, the sample comprised student volunteers who were not offered extra credit or any other form of compensation for participation. Therefore, it is quite possible that more conscientious, higher-achieving students were overrepresented in the study. Indeed, the mean cumulative GPA of study participants was 3.15, while the expected cumulative GPA for this group, based on the average cumulative GPAs of Temple undergraduate students as of fall 2010, was 2.95.

There was also a significant underrepresentation of men in the sample (26%), which may have influenced results. Previous research on Internet addiction among college students indicates that men are significantly more likely than women to experience Internet related academic problems (Anderson, 2001; Kubey et al., 2001; Morahan-Martin & Schumacher, 2000; Scherer, 1997). Perhaps the relationships between usage patterns and academic performance, or between perception factors and academic performance, would have been significant if the sample had been more balanced in terms of gender. It should be noted that there were only three significant gender differences found in this study. According to the results of a two-tailed independent samples t-test, women reported spending more hours per day studying ( $M =$

2.81,  $SD = 1.39$ ) compared to men ( $M = 1.99$ ,  $SD = 1.14$ );  $t(158) = 3.75$ ,  $p < .01$ . Women also reported spending more hours per day on Facebook ( $M = 2.14$ ,  $SD = 1.52$ ) compared to men ( $M = 1.65$ ,  $SD = 1.01$ );  $t(149) = 2.25$ ,  $p < .05$ . Additionally, women were more likely than men to report that they lose track of time when they are on the Internet and Facebook,  $t(158) = 2.54$ ,  $p < .05$ .

The survey used in this study asked students to provide retrospective self-estimates of the frequency and duration of their Internet and Facebook use. The multitasking nature of online activity may have made it difficult for participants to accurately measure time spent online, particularly since some students indicated that they frequently have Facebook and other Internet sites up and in the background while they are doing schoolwork on the computer. Students with higher GPAs might have over reported hours of use, while students with lower GPAs may have under reported actual time spent online. Either or both of these scenarios could have concealed significant relationships between Internet and Facebook usage patterns and cumulative GPA.

According to the results of two separate regression analyses, the factors “Facebook detracts from academics” and “the Internet detracts from academics” were not significant predictors for academic performance. These factors were made up of several survey items designed to ascertain students’ perceptions about the academic effects of their Facebook and other Internet use. Participants with limited self-awareness might have been unable to provide an accurate assessment of how Facebook or other Internet use impacts their academic experience, which may have masked a relationship between the above mentioned factors and cumulative GPA.

The data used in this study were derived from the self-report survey responses of a convenience sample of students from one university, which limits the generalizability of the results. However, the fact that students from all undergraduate schools and colleges at Temple were included in the study increased the sample's representativeness of the Temple University student population. Additionally, as with all survey research, the results of this study are descriptive and correlational and cannot be used to infer causal relationships between variables.

### **Implications for the Field**

College students use the Internet in general and Facebook in particular at very high rates. Therefore, it is important for higher education professionals to understand the academic, social, and psychological effects of Internet and Facebook use. This study described Temple undergraduates' use of the Internet and Facebook as well as how usage patterns, and perceptions about the academic effects of use, relate to time spent studying and academic performance. Despite the fact that usage patterns were unrelated to cumulative GPA, the results indicate that spending more time on recreational Internet activities is a significant predictor for spending less time on academics. Additionally, considerable numbers of students believe their Internet and Facebook use leads to negative academic effects including distraction, procrastination, less time spent on schoolwork, and lower grades. Moreover, many students agreed or strongly agreed that they go on Facebook and other recreational Internet sites while they are in class and that their access to University computers has been negatively impacted by other students' use of Facebook.

These findings could be used to inform, and provide support for, the development of new advising practices (e.g., user-education/guidelines for incoming students, interventions for students on academic warning or probation) designed to help students increase awareness of: how much time they spend on the Internet and Facebook, how their Internet and/or Facebook use might impact their academic performance, and how their use of University computers to access Facebook and other recreational Internet sites affects fellow students. Students who are currently unaware of the consequences of their Internet behaviors may decide to reduce nonproductive or excessive use of Facebook and/or other Internet applications if this issue is addressed by advisors and other higher education professionals.

Some institutions offer guidelines designed to increase student awareness of issues such as privacy and professionalism with regard to their use of social network sites in general and Facebook in particular (e.g., Cornell University, 2006). Based on the findings of this study, university administrators may want to consider adding a segment about Internet related academic issues to guidelines that address college student Internet use. Additional suggestions for faculty and other higher education professionals include: educating students about the advantages and disadvantages of Internet use at new student orientation, in first year seminars, and in academic classes; training student leaders on how to use Facebook appropriately so they can serve as role models for younger less experienced students; taking notice of students who spend exorbitant amounts of time on Facebook or other Internet sites and making appropriate referrals to University resources including advising centers and counseling services; creating classroom management strategies that reduce use of computers for personal reasons during class time; and

developing University policies and procedures regarding appropriate use of online social networks and other recreational Internet sites while using computers provided by the University (e.g., libraries, TECH center, computer labs).

### **Suggestions for Future Research**

This study investigated whether there is a significant relationship between time spent on the Internet and Facebook and time spent on academics, as well as whether students believe time spent on these activities displaces time spent studying and doing schoolwork. Several students indicated that their Internet use takes the place of other forms of entertainment. For instance, one student wrote, “The Internet replaces a lot of other activities that people spend a lot of time doing, such as watching television or playing video games. I just spend that time...on the computer.” Follow up studies could explore time spent on the Internet and Facebook within the context of time spent on all daily activities. Additionally, as previously mentioned, some students seemed to have difficulty quantifying Internet and Facebook usage. Future studies could replace retrospective survey questions about time use, with diaries in which participants could track daily Internet and Facebook usage for a designated period of time.

The positive and negative academic effects of Facebook and other Internet use may be mediated by individual differences. For example, one student who earned a first semester GPA of 3.94 wrote, “I am on the Internet for a lot of my day and I am always checking Facebook. I am really good at organizing my time though, and I always get my work done.” While another student whose cumulative GPA increased from a 2.63 before fall 2010 to a 2.90 afterward, seemed unable to moderate his Facebook use, as evidenced

by his decision to deactivate his account for the fall semester in order to prevent procrastination:

Facebook was probably my number one distraction from doing my school work because all of my friends were right there in front of me. I could talk to numerous people at once holding totally different conversations. I love the concept and idea of Facebook and even though my account is currently deactivated I cannot wait until Thanksgiving or winter break [when] I am able to sign back on without having to worry about procrastinating.

According to LaRose, Lin, and Eastin (2003), problematic Internet use could be due to a reduced ability to self-regulate. Future studies might investigate whether measures of self-control or the ability to delay gratification moderate the academic effects of Facebook and other Internet use. An exploration into how successful students regulate their use of the Internet is also recommended. Finally, researchers could conduct studies to determine whether the interventions suggested above actually help students reduce negative Internet related academic effects including distraction, procrastination, and study time displacement.

### **Conclusion**

Some of the first studies of Internet use found support for the existence of a new phenomenon called Internet addiction (Brenner, 1997; Greenfield, 1999; Griffiths, 1997; Young, 1998c). Shortly thereafter, mental health professionals and researchers began to express concern about college student susceptibility to developing problematic Internet use (Kandell, 1998; Lavin et al., 1999; Young, 2004). Early studies of Internet dependence among undergraduates indicate that between 8 and 13% of college students are Internet addicted (Anderson, 2001; Morahan-Martin & Schumacher, 2000; Scherer,

1997). More recently, researchers have discovered significant positive relationships between problematic Internet use and academic difficulties (Kubey et al., 2001; Malaney, 2005).

It has been suggested that use of Facebook and other social network sites may increase time spent online (Lenhart et al., 2010). Furthermore, “Facebook addiction” and its impact on studying and doing schoolwork has been mentioned in several recent reports (Barratt et al., 2005; Charnigo & Barnett-Ellis, 2007; Hafner, 2009; Martínez-Alemán & Lynk-Wartman, 2009; Sandvig, 2009; Stern & Taylor, 2007). Yet, scholarly research on the relationship between Facebook use and academics has been limited, and the few studies conducted so far have produced mixed results.

This study expanded on previous studies by examining Facebook use within the context of overall Internet use; taking frequency, duration, and intensity of use into account; measuring academic performance with actual GPAs; and exploring specific ways in which Facebook and other Internet use impacts academic performance. The results suggest that Facebook and other Internet use is heavily integrated into students’ daily routines; so much so that students access these applications while they are doing schoolwork and when they are in class. Even though more time spent on the Internet for academics, longer delay of Facebook use while studying, and less time spent on the Internet for fun were all significant predictors for more time spent on academics; there were no significant relationships found between Internet and Facebook usage patterns and academic performance, which challenges previous claims about the negative relationship between Facebook use and grades (Boogart, 2006; Karpinski & Duberstein, 2009). While cumulative GPA seemed to be unaffected by Facebook and other Internet

usage, students' survey responses indicate that online behaviors do impact the learning process as a majority of students believe online activities distract them from studying, lead to procrastination, and displace time that would have otherwise been spent on academics. Even though many students believe they can control their Facebook and other Internet use so that it does not interfere with academics, a modest number of students reported not being able to control their online activities. More research is needed to determine whether Internet related interventions would help college students improve their ability to regulate online behavior and limit potentially nonproductive or excessive Internet use.

### **Epilogue**

After conducting this study, I am even more convinced than I was at the start, that students' use of the Internet in general and Facebook in particular play a role in their academic lives. In the preface, I mentioned that undeclared Temple students on academic warning or probation are required to complete a self-assessment, designed to help them identify issues that may have affected their ability to make satisfactory academic progress in the previous semester. I also explained that I added three items about technology use to the spring 2010 version of the assessment. During the fall of 2010, 89 students on warning or probation completed the same self-assessment and the results were similar to the spring 2010 findings: just over 28% of students reported that they spent too much time on the Internet and not enough time studying/preparing for classes, 18% indicated that they used technology (personal computer, PDA, cell phone, etc.) to the extent that they were not able to focus on their school work, and almost 6% reported that they attended class but did not pay attention because they were texting and/or surfing the

Internet. While this study found no relationship between Facebook and Internet usage patterns and academic performance, these additional data are yet another indication that students believe their technology use impacts the learning process.

That being said, it is crucial to recognize the positive aspects of the Internet and Facebook as well as the importance of these applications in the everyday lives of college students. Despite the fact that I did not offer any incentive to join my study, almost half of the students I recruited chose to participate. I believe this was due, in part, to students' genuine interest in my research topic. During recruitment visits, I explained that students could request a copy of my results by providing their email addresses at the end of the survey. When I closed the online survey and downloaded the data, I was delighted to discover that 81 students (51% of the sample) had asked to receive a copy of the results of this study. Additionally, students' responses to open-ended questions about the Internet and Facebook were thoughtful, detailed, and in some cases touching; it really seemed as though students wanted to make sure I understood their Internet and Facebook experiences. Furthermore, after the study was completed, two students scheduled appointments with me to discuss their interest in studying Facebook addiction among college students, and Facebook's impact on students' academic experiences, for their final *Tweens and Teens* research projects. Upon publication, students who provided their contact information will receive an email with instructions on how to access this dissertation as well as a synopsis of the results and discussion. I am hopeful that sharing my research with undergraduates who seem interested in this topic will make them aware that it is possible to study fun and interesting subjects and maybe even inspire a few of

them to engage in undergraduate research opportunities or develop research projects of their own.

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**APPENDICES**

**APPENDIX A**  
**SURVEY OF INTERNET**  
**AND FACEBOOK USE**

## Survey of Internet and Facebook Use

**Please complete the following:**

Name: \_\_\_\_\_ TUID: 9\_ \_ \_ \_ \_

1. What is your gender? \_\_\_\_\_
2. What is your age? \_\_\_\_ years
3. What is your year in school? \_\_\_\_\_
4. What is/are your major(s)? \_\_\_\_\_
5. On a typical day, how much time do you spend studying/doing schoolwork?  
     \_\_\_ hours    \_\_\_ minutes

**Please answer the following questions about your Internet use:**

6. Which technologies do you use to access the Internet? Circle all that apply.  
     Desktop computer, laptop computer, handheld (iPhone, Blackberry, Smartphone, etc), other
7. How frequently do you use the Internet? **Fill in the appropriate blank (for example, if you go online one or more times per day, you should leave “times per week” blank).**  
     \_\_\_ times per day    \_\_\_ times per week
8. On a typical day, how much time do you spend on the Internet via personal computer (laptop or desktop) and/or handheld (iPhone, Blackberry, Smartphone, etc.)?  
     \_\_\_ hours    \_\_\_ minutes
9. On a typical day, how much time do you spend on the Internet for school related purposes?  
     \_\_\_ hours    \_\_\_ minutes

10. On a typical day, how much time do you spend on the Internet for non-essential purposes (just for fun)?

\_\_\_ hours \_\_\_ minutes

11. Which Internet sites do you visit most often? How frequently? Fill in the appropriate blank.

\_\_\_\_\_ \_\_\_ times per day \_\_\_ times per week

\_\_\_\_\_ \_\_\_ times per day \_\_\_ times per week

\_\_\_\_\_ \_\_\_ times per day \_\_\_ times per week

12. If you did not list TUmial above, please indicate how frequently you check your university email account? Fill in the appropriate blank.

\_\_\_ times per day \_\_\_ times per week \_\_\_ times per month

13. What do you like about using the Internet?

14. What are the downsides, if any, of using the Internet?

**Please answer the following questions about your use of Facebook:**

15. Do you have a Facebook account? Yes or No

If you answered yes, skip to question 17

If you answered no, answer question 16 and then skip to question 41

16. What are your reasons for never creating or deleting a previously created Facebook account?

17. How frequently do you use Facebook? **Fill in the appropriate blank.**

\_\_\_ times per day \_\_\_ times per week \_\_\_ times per month \_\_\_ times per year

18. On a typical day, how much time do you spend on Facebook?

\_\_\_ hours \_\_\_ minutes

19. On a typical day, when you are studying or doing schoolwork, how much time goes by before you check Facebook?

\_\_\_ hours \_\_\_ minutes

20. On a typical day, what do you do most when you are on Facebook? How frequently?

\_\_\_\_\_ \_\_\_ times per day \_\_\_ times per week

\_\_\_\_\_ \_\_\_ times per day \_\_\_ times per week

\_\_\_\_\_ \_\_\_ times per day \_\_\_ times per week

21. What do you like about using Facebook?

22. What are the downsides, if any, of using Facebook?

**Please rate how strongly you agree or disagree with the following statements about your use of Facebook:**

23. Facebook has become part of my daily routine

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

24. I log on to Facebook and check it regularly whenever I am on the computer

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

25. I lose track of time when I am on Facebook

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

26. I have tried to cut down on my Facebook use

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

27. I would be upset if I were no longer able to use Facebook

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

28. Sometimes I go on Facebook while I am in class

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

29. When I am not on Facebook I find myself wondering what I am missing

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

30. I think I might be addicted to Facebook

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

**Please rate how strongly you agree or disagree with the following statements about how your use of Facebook impacts you academically:**

31. Facebook distracts me from studying/doing schoolwork

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

32. I use Facebook to procrastinate when I should be studying/doing schoolwork

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

33. The time I spend on Facebook takes away from studying/schoolwork time

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

34. If Facebook did not exist, I would get a lot more studying and schoolwork done

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

35. I have missed a class because I was on Facebook

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

36. I would be getting better grades if I spent less time on Facebook

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

37. My grades are suffering because of my Facebook use

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

38. I am able to control my use of Facebook so that it does not interfere with studying/doing schoolwork

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

39. I have had to wait for a computer at the TECH Center or library because other students were on Facebook

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

40. I use Facebook to communicate with classmates about course related issues

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

**Please rate how strongly you agree or disagree with the following statements about your use of the Internet (not including Facebook):**

41. I lose track of time when I am on the Internet

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

42. I have tried to cut down on my Internet use

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

43. I would be upset if I were no longer able to use the Internet

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

44. Sometimes I go on the Internet for personal reasons while I am in class

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

45. I think I might be addicted to the Internet

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

**Please rate how strongly you agree or disagree with the following statements about how your use of the Internet (*not including Facebook*) impacts you academically:**

46. The Internet distracts me from studying/doing schoolwork

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

47. I use the Internet to procrastinate when I should be studying/doing schoolwork

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

48. The time I spend on the Internet takes away from studying/schoolwork time

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

49. If the Internet did not exist, I would get a lot more studying and schoolwork done

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

50. I have missed a class because I was on the Internet

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

51. I would be getting better grades if I spent less time on the Internet

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

52. My grades are suffering because of my Internet use

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

53. I am able to control my use of the Internet so that it does not interfere with studying/doing schoolwork

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

54. When I am doing research for a course, I primarily use the Internet as a source of information

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

55. Overall the Internet has had a positive impact on my academic performance

1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

56. If you would like to elaborate on any of your answers to questions about Facebook or the Internet, please do so in the space provided below.

*Thank you for participating in this survey!*

**APPENDIX B**

**ONLINE SURVEY OF INTERNET AND FACEBOOK USE**

**Online Survey of Internet and Facebook Use**  
**www.surveymonkey.com/internetfacebooksurvey (no longer available online)**

**Demographic and Academic Information**

**Please provide your name and Temple University ID number (TUID).**

First Name

Last Name

TUID

**What is your gender?**

- Male  
 Female  
 Transgendered

**What is your age?**

- 18 years  
 19 years  
 20 years  
 21 years  
 22 years  
 23 years  
 24 years  
 Other (please specify)

**What is your year in school?**

- Freshman  
 Sophomore  
 Junior  
 Senior  
 Fifth Year Student  
 Other (please specify)

**What is/are your major(s)?**

Major 1

Major 2

**What is your cumulative GPA (if you have one)?**

Cumulative GPA

**On a typical day, how much time do you spend studying/doing schoolwork?**

- 15 minutes
- 30 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours
- 6 hours
- Other (please specify)

**The Internet**

**Please answer the following questions about your Internet use.**

**Which technologies do you use to access the Internet? Choose all that apply.**

- Desktop computer
- Laptop
- Handheld (iPhone, Blackberry, Smartphone, etc)
- Other (please specify)

**How frequently do you use the Internet?**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 times per day
- 6 times per day
- Other (please specify)

**On a typical day, how much time do you spend on the Internet?**

- 15 minutes
- 30 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours
- 6 hours

Other (please specify)

**On a typical day, how much time do you spend on the Internet for school related purposes?**

- 15 minutes
- 30 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours
- 6 hours
- Other (please specify)

**On a typical day, how much time do you spend on the Internet for non-essential purposes (just for fun)?**

- 15 minutes
- 30 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours
- 6 hours
- Other (please specify)

**Which Internet sites do you visit most often?**

Website 1

Website 2

Website 3

**How frequently do you use each of the websites listed above?**

**Website 1**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day

- 5 times per day
- 6 times per day
- Other (please specify)

**Website 2**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 times per day
- 6 times per day
- Other (please specify)

**Website 3**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 times per day
- 6 times per day
- Other (please specify)

**If you did not list TUmail above, please indicate how frequently you check your university email account?**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 times per day
- 6 times per day
- Other (please specify)

**What do you like about using the Internet?**

**What are the downsides, if any, of using the Internet?****Do you have a Facebook account?**

- Yes (*respondents who answer "Yes" automatically advance to the Facebook section*)
- No (*respondents who answer "No" automatically advance to the Internet section*)

If no, what are your reasons for deleting or never creating a Facebook account?

**Facebook**

**Please answer the following questions about your use of Facebook.**

**How frequently do you use Facebook?**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 times per day
- 6 times per day
- Other (please specify)

**On a typical day, how much time do you spend on Facebook?**

- 15 minutes
- 30 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours
- 6 hours
- Other (please specify)

**On a typical day, when you are studying or doing schoolwork, how much time goes by before you check Facebook?**

- 5 minutes
- 15 minutes
- 30 minutes
- 45 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- Other (please specify)

**On a typical day, what do you do most when you are on Facebook?**

Activity 1

Activity 2

Activity 3

**How frequently do you engage in each of the Facebook activities listed above?**

**Activity 1**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 times per day
- 6 times per day
- Other (please specify)

**Activity 2**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 times per day
- 6 times per day
- Other (please specify)

**Activity 3**

- Once a week
- Once a day
- 2 times per day
- 3 times per day
- 4 times per day
- 5 times per day
- 6 times per day
- Other (please specify)

**What do you like about using Facebook?****What are the downsides, if any, of using Facebook?****Facebook Use**

**Please rate how strongly you agree or disagree with the following statements about your use of Facebook.**

**Facebook has become part of my daily routine.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I log on to Facebook and check it regularly whenever I am on the computer.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I lose track of time when I am on Facebook.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I have tried to cut down on my Facebook use.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I would be upset if I were no longer able to use Facebook.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**Sometimes I go on Facebook while I am in class.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**When I am not on Facebook I find myself wondering what I am missing.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I think I might be addicted to Facebook.**

- Strongly Agree
- Agree
- Neutral
- Disagree

- Strongly Disagree

### **Facebook and Academics**

**Please rate how strongly you agree or disagree with the following statements about how your use of Facebook impacts you academically.**

**Facebook distracts me from studying/doing schoolwork.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I use Facebook to procrastinate when I should be studying/doing schoolwork.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**The time I spend on Facebook takes away from studying/schoolwork time.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**If Facebook did not exist, I would get a lot more studying and schoolwork done.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I have missed a class because I was on Facebook.**

- Strongly Agree
- Agree
- Neutral
- Disagree

Strongly Disagree

**I would be getting better grades if I spent less time on Facebook.**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

**My grades are suffering because of my Facebook use.**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

**I am able to control my use of Facebook so that it does not interfere with studying/doing schoolwork.**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

**I have had to wait for a computer at the TECH Center or library because other students were on Facebook.**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

**I use Facebook to communicate with classmates about course related issues.**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

**Internet Use**

**Please rate how strongly you agree or disagree with the following statements about your use of the Internet (not including Facebook).**

**I lose track of time when I am on the Internet.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I have tried to cut down on my Internet use.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I would be upset if I were no longer able to use the Internet.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**Sometimes I go on the Internet for personal reasons while I am in class.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I think I might be addicted to the Internet.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

### **The Internet and Academics**

**Please rate how strongly you agree or disagree with the following statements about how your use of the Internet (not including Facebook) impacts you academically.**

**The Internet distracts me from studying/doing schoolwork.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I use the Internet to procrastinate when I should be studying/doing schoolwork.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**The time I spend on the Internet takes away from studying/schoolwork time.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**If the Internet did not exist, I would get a lot more studying and schoolwork done.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I have missed a class because I was on the Internet.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I would be getting better grades if I spent less time on the Internet.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**My grades are suffering because of my Internet use.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**I am able to control my use of the Internet so that it does not interfere with studying/doing schoolwork.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**When I am doing research for a course, I primarily use the Internet as a source of information.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**Overall the Internet has had a positive impact on my academic performance.**

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

**If you would like to elaborate on any of your answers to questions about Facebook or the Internet, please do so in the space provided below.**

**If you would like a copy of the survey results please provide your email address in the space provided below.**

Thank you for participating in this survey!

**APPENDIX C**  
**INFORMATIONAL LETTER**

Dear Tweens and Teens Student,

I would like to invite you to participate in my dissertation research study entitled, "Facebook and Other Internet Use and the Academic Performance of College Students." The goal of the study is to learn how undergraduates at Temple use Facebook and other Internet sites as well as to determine whether Temple students think their use of the Internet (including Facebook) impacts their academic performance in any way.

Participation involves completing an online survey, which is available at [www.surveymonkey.com/internetfacebooksurvey](http://www.surveymonkey.com/internetfacebooksurvey). You will also receive an email invitation with a link to the survey from your instructor via Blackboard. If you choose to participate, you will be able to access to the survey for the next seven days. Completing the survey in its entirety will take approximately 15 minutes.

All students enrolled in fall 2010 sections of Education 0819, Tweens and Teens are being invited to participate, and every student who volunteers will be included in the study. Participation is completely voluntary and declining to join the study will not result in any penalty.

At the beginning of the survey you will be asked to provide your name and Temple University ID, which will enable a confidential third-party Temple representative to access your GPA at the end of the semester. In order to ensure your anonymity, your name and TUID will be coded so that your identifying information will not be connected to your GPA or survey responses.

If you have questions about the survey or the study, please contact Shannon O'Brien at [shannon@temple.edu](mailto:shannon@temple.edu) or 215-680-2167.

Thank you for your time and consideration!

Sincerely,

Shannon J. O'Brien  
Educational Psychology Doctoral Candidate

**APPENDIX D**

**EMAIL INVITATION TO PARTICIPATE**

SUBJECT LINE: Invitation to Complete the Survey of Internet and Facebook Use

Dear Tweens and Teens Student,

I recently visited your Tweens and Teens class and invited you to participate in my research study by completing a confidential online survey about your use of the Internet and Facebook.

The purpose of the study is to learn how undergraduates at Temple use the Internet and Facebook and to determine whether students believe Facebook and/or other Internet use affects their academic experience.

The Survey of Internet and Facebook Use, which takes about 15 minutes to complete, will be accessible 24 hours a day for the next seven days at:  
[www.surveymonkey.com/internetfacebooksurvey](http://www.surveymonkey.com/internetfacebooksurvey)

Please do not hesitate to contact me with questions about my research or the survey (shannon@temple.edu or 215-680-2167).

I truly appreciate your willingness to consider participating in this research experience.

Sincerely,

Shannon J. O'Brien  
Educational Psychology Doctoral Candidate  
Temple University

**APPENDIX E**  
**ELECTRONIC INFORMED CONSENT**

### **Consent Form**

**Title:** Facebook and Other Internet Use and the Academic Performance of College Students

**Principal Investigator:** Joseph P. DuCette, PhD, Educational Psychology, 215-204-5513

**Student Investigator:** Shannon J. O'Brien, MA, Educational Psychology, 215-680-2167

Dear Participant:

We are currently studying the relationship between Internet and Facebook use and the academic performance of college students. To help us gain further insight into this area we will ask you to fill out a confidential online survey, which will take approximately 15 minutes to complete.

All students enrolled in Education 0819, Tweens and Teens, are being invited to participate, and every student who volunteers will be included in the study. Participation is totally voluntary and declining to join the study will not result in any penalty. If you choose to complete the survey, you will be able to opt out of answering any question. You may also withdraw from the study at any time.

At the beginning of the survey, we will ask you to provide your name and Temple University ID (TUID). Providing your TUID will enable a third-party Temple University representative to access your cumulative grade point average (GPA) at the end of the fall 2010 semester. In order to ensure your anonymity, all TUIDs will be coded so that we, the researchers, will not be able to connect you to your survey responses or GPA.

Please make sure you understand the following information about confidentiality and your rights as a research subject before you sign this electronic consent form.

All documents and information pertaining to this research study will be kept confidential, unless required by applicable federal, state, and local laws and regulations to be disclosed. I understand that records and data generated by the study may be reviewed by Temple University and its agents, the study sponsor or the sponsor's agents (if applicable), and/or governmental agencies to assure proper conduct of the study and

compliance with regulations. I understand that the results of this study may be published. If any data is published, I will not be identified by name.

If I have any questions about my rights as a research subject, I may contact the Institutional Review Board Coordinator at (215) 707-3390. The IRB Coordinator may also be reached by email: [IRB@temple.edu](mailto:IRB@temple.edu) or regular mail:

Institutional Review Board Coordinator  
Temple University Research Administration  
Student Faculty Conference Center  
3340 North Board Street – Suite 304  
Philadelphia, PA 19140

Clicking on the "I agree" button below indicates that:

- you have read the above information
- you voluntarily agree to participate
- you are at least 18 years of age

If you do not wish to participate in the research study, please decline participation by clicking on the "I disagree" button.

Please select your choice below.

- I agree
- I disagree

**APPENDIX F**

**SECOND EMAIL INVITATION TO PARTICIPATE**

SUBJECT LINE: Survey of Internet and Facebook Use Available for 7 More Days

Dear Tweens and Teens Student,

I recently visited your Tweens and Teens class and invited you to participate in my research study by completing a confidential online survey about your use of the Internet and Facebook.

If you already completed the survey, thank you for your participation!

If you have not yet completed the survey and would like to join the study, the Survey of Internet and Facebook Use, which takes about 15 minutes to complete, will be available at: [www.surveymonkey.com/internetfacebooksurvey](http://www.surveymonkey.com/internetfacebooksurvey) for seven more days.

Please do not hesitate to contact me with questions about my research or the survey (shannon@temple.edu or 215-680-2167).

Thank you for your time and consideration!

Sincerely,

Shannon J. O'Brien  
Educational Psychology Doctoral Candidate  
Temple University

**APPENDIX G**

**INSTITUTIONAL REVIEW BOARD APPROVAL**



**TEMPLE**  
UNIVERSITY®

Office for Human Subjects Protections  
Institutional Review Board  
Medical Intervention Committees A1 & A2  
Social and Behavioral Committee B

3400 North Broad Street  
Philadelphia, Pennsylvania 19140  
Phone: 215.707.3390 Fax: 215.707.8387  
e-mail: [richard.throm@temple.edu](mailto:richard.throm@temple.edu)

### Certification of Approval for a Project Involving Human Subjects

Protocol Number: **13331**  
 PI: **DUCETTE, JOSEPH**  
 Approved On: 22-Oct-2010  
 Review Date: 22-Oct-2010  
 Committee: B BEHAVIORAL AND SOCIAL SCIENCES  
 School/College: College of Education  
 Department: PSYCH STUDIES IN EDUC (1904)  
 Project Title: The Relationship Between Internet and Facebook Use And The Academic Experience of College Students

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 In accordance with the policy of the Department of Health and Human Services on protection of human subjects in research, it is hereby certified that protocol number 13331, having received preliminary review and approval by the department of PSYCH STUDIES IN EDUC (1904) was subsequently reviewed by the Institutional Review Board in its present form and approved on 22-Oct-2010 with respect to the rights and welfare of the subjects involved; appropriateness and adequacy of the methods used to obtain informed consent; and risks to the individual and potential benefits of the project.

In conforming with the criteria set forth in the DHHS regulations for the protection of human research subjects, and in exercise of the power granted to the Committee, and subject to execution of the consent form(s), if required, and such other requirements as the Committee may have ordered, such orders, if any, being stated hereon or appended hereto.

**It is understood that it is the investigator's responsibility to notify the Committee immediately of any untoward results of this study to permit review of the matter. In such case, the investigator should call Richard Throm at 215-707-8757.**