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FROM FACEBOOK TO GRADEBOOK: AN EXAMINATION OF THE

RELATIONSHIP BETWEEN TEEN USE OF SOCIAL NETWORKING

SITES AND ACADEMIC ACHIEVEMENT

by

Melody Dickerson Swang

Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

December 2011

ABSTRACT

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by Melody Dickerson Swang

December 2011

Today's high school students are growing up in a technology-rich, technology-savvy, mass media environment. The interactions with print, cinema, radio, and television have been studied throughout the years in order to examine their effects on student achievement. Current research has broadened to include video games, computers, the Internet, and social networking. From books to cinema to radio to television to Web 2.0, the question has been asked: What is the impact of mass media on children?

This study examined the relationship between time spent on social networking sites and other displacement activities and academic achievement. This study also examined the extent to which certain demographic variables affect those relationships. One hundred forty-one students from four high schools in a large, urban southeast Louisiana public school district responded to a questionnaire. For the purpose of this study, academic achievement was defined as high school grade point average (HSGPA) and ACT score.

The findings showed that time spent on social networking sites and other displacement activities was not significantly correlated to GPA. However, time spent on social networking sites and other displacement activities was significantly and negatively

correlated with ACT scores. In addition, findings showed that certain demographic

variables predicted HSGPA, but did not predict ACT scores. The results of this study

offer insight into the relationships among the use of social networking sites, use of other

mass media, certain demographics, as well as academic achievement.

The University of Southern Mississippi

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A Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
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for the Degree of Doctor of Philosophy

Approved:

Ronald Styron
Director

Rose McNeese

James T. Johnson

Wanda Maulding

Susan F. Siltanen
Dean of the Graduate School

December 2011

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journey will understand. I also want to thank Team 13. The opportunity to work with such creative, witty, and intelligent people every day is a true blessing in my life.

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I end with an acknowledgement to the powerful presence of God in my life. The following scripture has been my mantra throughout my journey. It has kept me focused, on track, and full of faith:

> Love wisdom, and she will guard you; cherish her, and she will lift you high;
> if only you embrace her, she will bring you honor. She will set a garland of
> grace on your head and bestow on you a crown of glory.—Proverbs 4: 6 - 9

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CHAPTER I

INTRODUCTION

Background of the Problem

Today's high school students are growing up in a technology-rich, technology-

savvy, mass media environment. From classrooms equipped with interactive whiteboards

and active voter systems that graphically display student responses instantaneously to

homes with large, flat screen televisions and computers in each bedroom connected to the

Internet, these Digital Natives—born in the latter 1980s and raised with 21st century

digital technology—have as their birthright, the ability to digitally communicate and

digitally respond to their environment continuously and instantaneously (Prensky, 2001).

Whether at school researching on the World Wide Web or at home multitasking between

homework and Facebook while texting on their mobile phones, these students are

connected and engaged in the ongoing, fast-paced, and socially-networked digital world

of mass media.

Each new mass medium, from print to mobile, has had its proponents, its

naysayers, and its scholars. For almost 100 years, researchers have examined the role

that mass media plays in the lives of young people. Researcher May Seagoe's

observation over 50 years ago still holds true today regarding mass media and its impact

on society, "Whenever there is a new social invention, there is a feeling of strangeness

and a distrust of the new until it becomes familiar" (Seagoe, 1951, p. 143). To be sure,

Plato thought that the alphabetic print would make people cognitively lazy. Some feared

that books would replace rote memorization and impact memory skills. Concerns were

raised that cinema may be the demise of social interaction and television viewing might

lower academic achievement. Video games might produce "vid-kids" with joystick

arthritis and poor grades (Luke, 1999. p. 96). The alleged addictive power of the World Wide Web raised concern for some parents. Most recently, the popular social networking site, Facebook, has been associated with poor academic achievement (Karpinski, 2009).

Millions of young people log on to social networking sites every day to enter into virtual communities to communicate and interact with one another. They post messages, download music and videos, share music, update personal profiles, post photos, and are involved in numerous other activities on social networking sites (National School Boards Association, 2007). With 73% of American teens using social networking sites, the impact on their academic achievement is a topic that deserves critical, scholarly analysis (Rainie, 2009).

As long ago as 1917, researchers have explored the connections between mass media and academic achievement (Aksoy, 1995; Bremer & Rauch, 1998; Charters, 1933; Childers & Ross, 1973; Dehmler, 2009; Forman, 1934; Hightower, 1991; Hoban & Van Ormer, 1950; National Council of Public Morals, 1917; Scott, 1956; Seagoe, 1951; Witty, 1959). The introduction of both comics and motion pictures in 1918 saw the beginning of research activity concerning the impact of media on youth and their learning (Charters, 1933; Forman, 1934; Hoban & Van Ormer, 1950; National Council of Public Morals, 1917; Witty, 1941). It was, however, the onset of television in the 1950s that brought about "sustained scientific examination" (Roberts & Foehr, 2004, p. 6) of how mass media might be influencing children (Anderson et al., 2001; Bogart, 1956; Childers & Ross, 1973; Clark, 1951; Clark & Kurtz-Costes, 1997; Compton, 1983; Comstock, Murray, & Rubinstein, 1972; Dehmler, 2009; Gadberry, 1980; Gaddy, 1986; Gould, 1946; Greenstein, 1954; Koolstra, Van der Voort, & Van der Kamp, 1997; Lewis, 1949; Lyle & Hoffman, 1972; Martin, 2008; McLeod, Atkin, & Chaffee, 1972; Mokhtari,

Reichard, & Gardner, 2009; Razel, 2001; Ridder, 1963; Ridley-Johnson, Cooper, &

Chance, 1983; Schramm, Lyle, & Parker, 1961; Scott, 1956; St. John Mahony, 1953;

Thompson & Austin, 2003; Williams, Haertel, Haertel, &Walberg, 1982; Witty, 1959).

      The introduction of personal computers, video gaming, and the World Wide Web

brought about another wave of scholarly research regarding the impact of newer mass

media on youth (Bremer & Rauch, 1998; Dehmler, 2009; Hunley, Evans, Delgado-

Hachey, Krise, Rich, & Schell, 2005; Jackson et al., 2006; Lenhart, 2001; Martin, 2008;

Norris, 2010; Papadakis, 2001; Pew Internet and American Life Project, 2005;

Southwick, 2002; Tapscott, 1998; USC Annenberg School, Center for the Digital Future,

2005). The momentous and historic rise of Web 2.0 sparked current research regarding a

newer modality of mass media—social networking. Numerous studies have examined

the impact of social networking on the country's youth, specifically the impact on the

academic achievement of college students (Boogart, 2006; Dew, Ford, Lucas, & Sherrill,

2009; Karpinski, 2009; Kolek & Saunders, 2008; Legath, Burtnett, Sellner, & Sundar,

2009; Pasek, More, and Hargittai, 2009; Rideout, Roberts, & Foehr, 2005; Walz, 2008).

Studies also have examined the impact of academic achievement on high school students

(Martin, 2008; Norris, 2010; Windham, 2008). This study expands the current body of

research by examining 11th-grade students' use of social networking sites and its

relationships to academic achievement.

<div align="center">Rationale of the Study</div>

      The findings add to the current body of research, furthering the long line of

research that has been done for almost 100 years regarding mass media and its impact on

student academic achievement. It provides an examination of one of the latest modalities

of mass media, social networking, and its impact on academic achievement of 11th-grade students.

This study adds to the current body of research by examining the time that 11th-grade students spent on social networking sites and its impact on their academic achievement. The majority of studies to date involve college students. This study looked at the implications of social networking use on 11th-grade students. Further, it is the hope that the findings regarding the use of social networking by 11th-grade students might provide a prequel to the studies currently in place regarding college students' use of social networking and its relationship to their academic achievement.

Test scores on achievement tests are a major determinant for the future success of students in terms of graduation, entering college, and professional licensure in numerous fields (Barton, 2003; Belfield & Levin, 2007). Findings show that strong academic achievement in high school is positively associated with attainment of college degrees and early career successes. Students who are academically successful are clearer regarding occupational choices and perform better academically in secondary institutions. These students are more likely to graduate from college with a degree in their chosen career fields (ACT, 2007). Thus, it is imperative that mass media use be viewed from the critical standpoint of its impact on academic achievement, an indicator of potential future success for the country's youth.

Theoretical Framework

The conceptual framework for this study is drawn from research from earlier studies regarding the impact of mass media on academic achievement (Boogart, 2006; Dew et al., 2009; Karpinski, 2009; Kolek & Saunders, 2008; Legath et al., 2009; Martin, 2008; Norris, 2010; Pasek et al., 2009; Rideout et al., 2005; Walz, 2008; Windham,

2008). Mass media is media that is intended for a large audience. There are seven accepted forms of mass media. The development of the printing press in the 15th century by Johannes Gutenberg created print, the first mass media. Recordings, introduced in the late 19th century, are the second type of mass media. The third mass media, cinema, began in the early 1900s, followed by radio, the fourth mass media, in approximately 1910. Television, the fifth mass media, became available to most people in the 1950s. The Internet, the sixth mass media, became widespread in the 1990s. Finally, the latest technology, mobile, is the seventh mass media (Ahonen, 2008). For centuries, people have relied on mass media for news, information, entertainment, and social connections. For almost a century, people have questioned the impact of mass media on the country's youth, and often its impact on academic achievement.

Numerous studies have been conducted and various theoretical perspectives have been offered to explain the impact that mass media has on the academic achievement of adolescents (Anderson et al., 2001; Chan & Rabinowitz, 2006; Dehmler, 2009; Johnson, Cohen, Kasen, First, & Brook, 2004; Kooltra &Van der Voort, 1996; Norris, 2010; Perse, 2001; Schmidt & Vandewater, 2008; Shin, 2005; Subrahmanyam, Kraut, Greenfield & Gross, 2000). These theories provide a conceptual framework from which to examine the impact of mass media on academic achievement. Theories can be framed in the light of the Digital Native generation that has been raised in a world of interaction, communication, and connection.

Various hypothetical theories have been proposed to explain the processes that occur when interacting with media that either stimulates or reduces learning (Shin, 2005). The stimulation hypothesis proposes that children acquire and process information while viewing media, such as television. Today's television offers children a wide range of

activities that are entertaining and intellectually stimulating. Thus, the interaction may increase academic achievement since children can learn a variety of academic content from television, especially when educational programs are viewed (Shin, 2005). Numerous studies also have found that Internet use enhances how children learn. The interactivity and hands-on approach of learning using the World Wide Web have been shown to improve student learning (Oster, 2010; Roschelle, Pea, Hoadley, Gordin, & Means, 2001; Subrahmanyam et al., 2000).

The passivity hypothesis suggests that children become mentally passive when watching television (Perse, 2001). Some evidence suggests that less mental effort is required to watch television than reading (Shin, 2005). Children become mentally out of shape and unwilling to challenge themselves cognitively when called upon for academic tasks. According to Kooltra and Van der Voort (1996), the more hours that children spend watching television, the less time and mental effort they will put into mastering academic skills. Children will choose, instead, to watch easily understood television shows that are simply entertaining. Consequently, very little mental processing is needed for television viewing, which leads to exerting little mental effort when reading or attempting to solve challenging math problems in the classroom or at home (Shin, 2005).

Both the arousal hypothesis and the attention hypothesis propose that media interaction may promote hyperactive and impulsive behavior that can impact academic achievement. Watching fast-paced programming can cause shortened attention spans in children and lead to low levels of task perseverance and impulsiveness. Academic achievement is impacted; children are not able to focus on challenging tasks at hand and persevere until it is solved (Perse, 2001). Research regarding digital gaming found that high use of electronic media may be linked to mild attention difficulties (Schmidt &

Vandewater, 2008). Additional research found that one hour spent playing digital games resulted in self-reported attention difficulties (Chan & Rabinowitz, 2006). One study linked heavy use of Internet, cell phones, computers, and television to increased incidences of sleep disturbances in children (Johnson et al., 2004). Dehmler (2009), however, found no significant differences between high and low technology use and self-reported attention difficulties.

The most widely used theoretical framework to explain the relationship between media use and academic achievement and one that guided this research is time displacement theory (Anderson et al., 2001; Norris, 2010; Perse, 2001; Subrahmanyam et al., 2000; Wartella & Reeves, 2003; Zavodny, 2006). Time displacement theory is based on the assumption that media use displaces other activities that are considered more cognitively beneficial to children. Children and youths choose to spend less time on reading and homework to the detriment of academic achievement. Thus, watching television or interacting with other media takes time away from activities that can benefit academic achievement.

<center>Statement of the Problem</center>

Researchers have examined the effects of mass media on children for almost 100 years. From print to cinema to television to the Internet, scholars have examined the relationships between mass media and academic achievement. The interactions with print, cinema, radio, and television have been studied throughout the years in order to examine their impact on student learning. More recent research has broadened to include video games, computers, the Internet, and social networking. Concerns have been raised and studies have been conducted on the effects of mass media on children and their

learning. From books to cinema to radio to television to Web 2.0, the following question has been asked: What is the effect of mass media on children?

In spite of almost 100 years of research, there are no definitive answers regarding the impact of mass media on academic achievement. As a result of the introduction into society of newer mass media, such as Web 2.0, social networking use and its impact on student academic achievement have sparked current research. Studies in the past have sought to find relationships between the newest mass media of the time and its impact on student achievement. Studies have begun to examine the effects of the sixth mass media, the Internet and its related modality, social networking, on the country's youth.

Internet usage on social networking sites has witnessed unprecedented growth, with tens of millions of users now logging on to the Internet daily (Lenhart & Madden, 2007). For many adolescents, the Internet is used on a daily basis (Gross, 2004; Pew Internet and American Life Project, 2005; Willoughby, 2008). In 2007, 96% of students with Internet access reported that they used social networking sites and spent time on the Internet chatting, messaging, and blogging (National School Boards Association, 2007). Research shows that adolescents largely use the Internet for social networking (Gross, 2004; Pew Internet and American Life Project, 2005). Facebook, the number one social networking site in the world, had 16.1 million American teen users in 2009 (Nielson Report, 2009).

In the past few years, studies involving college students and academic achievement resulted in mixed results regarding social networking and its relationship to grades (Boogart, 2006; Dew et al., 2009; Karpinski, 2009; Kolek & Saunders, 2008; Legath et al., 2009; Pasek et al., 2009). Few studies to date have examined the relationships between time spent on social networking sites and the academic achievement of high

school students (Norris, 2010; Rideout et al., 2005; Windham, 2008). This study seeks to expand the current body of research by examining the relationship between teen use of social networking sites and academic achievement.

<div align="center">Research Questions/Hypotheses</div>

The implications of adolescents learning in a world saturated with mass media are ongoing, intriguing, and worthy of scholarly study. Currently, there are significant gaps in research regarding the use of social networking sites and its impact on the academic achievement of high school students. The present study attempted to fill some of those gaps and add to the current body of research.

This study examined the relationship between the amount of time 11th-graders spent using social networking sites and their academic achievement. This study also examined if other displacement activities had any effect on the relationship between the amount of time 11th-grade students spent using social networking sites and their academic achievement. In addition, this study examined if certain demographic variables had any effect on the relationship between the amount of time 11th-graders spent using social networking sites or other displacement activities and academic achievement. The study was guided by the following research questions:

1. Is there a statistically significant relationship between the amount of time 11th-grade students spend using social networking sites and academic achievement?

2. Is there a statistically significant relationship between the amount of time 11th-grade students spend on other displacement activities and academic achievement?

3. Is there a statistically significant relationship between certain demographic variables and the amount of time 11th-grade students spend using social networking sites or other displacement activities as well as academic achievement?

This study tested the following hypotheses:

H_{01}: The amount of time 11th-grade students spend using social networking sites will have no statistically significant relationship on academic achievement.

H_{02}: The amount of time 11th-grade students spend on other displacement activities will have no statistically significant relationship on academic achievement.

H_{03}: Certain demographic variables will have no statistically significant effect on the amount of time 11th-grade students spend using social networking sites or other displacement activities as well as academic achievement.

Definition of Terms

Academic achievement. A term that generally refers to student performance in academic areas, such as reading or language arts, math, science, and history (PEATC-Parent Educational Advocacy Training Center-Helpfulinfo.glossary, 2011). For the purpose of this study, academic achievement is defined as high school grade point average (HSGPA) and ACT score.

ACT. A standardized test produced by ACT, Inc. for high school achievement and college admissions in the United States. It consists of four tests: English, Mathematics, Reading, and Science Reasoning. In 2005, an optional writing test was added. The main four tests are scored individually on a scale of 1-36. A composite score, the average of the four scores, also is provided (ACT, 2011). ACT scores mostly

assess educational achievement in college-preparatory courses (ACT, 1997). ACT scores

are related to the cognitive components of college GPA (Noble & Sawyer, 2002).

Free and reduced lunch. The National School Lunch program (NSLP) is a

federally assisted meal program that provides nutritionally balanced, low-cost, or free

lunches to children each school day who qualify based on income eligibility requirements

(National School Lunch Program," 2011).

GPA. For the purpose of this study, GPA is the grade point average of a college

student. Academic success is typically measured by first-year college GPA (ACT, 1997).

HSGPA. High school grade point average (HSGPA) is the grade point average

earned in high school. Cumulative HSGPA is considered the best predictor of college

performance (Noble & Sawyer, 2004). High school GPA is related to both the cognitive

and the noncognitive components of college GPA (Noble & Sawyer, 2002).

Multitasking. A term used to describe engagement in more than one media

activity at a time. For young people, much of the time spent multitasking revolves

around media use (Foehr, 2006).

Social interactive tec hnologies. Technologies that communicate using the

Internet and mobile phones, such as text messaging, email, and social networking sites,

are defined as social interactive technologies (Windham, 2008).

Social networking sites. Social networking sites are

> . . . web-based services that allow individuals to (1) construct a public or semi-
>
> public profile within a bounded system, (2) articulate a list of other users with
>
> whom they share a connection, and (3) view and traverse their list of connections
>
> and those made by others within the system (Boyd & Ellison, 2008, p. 211).

Socioeconomic status. Those students identified in the USDA federal food program as qualifying for free and reduced lunch in the school system. The percentage of students eligible for the federally subsidized free or reduced lunch program is often used as an indicator of family economics. The maximum family income for eligibility in the free or reduced lunch program is set at 185% of the federal poverty line, which was equivalent to $40,793 for a family of four in the 2009-2010 school year. School lunch data are considered the best measurement available to estimate the percent of low-income children in a school district (Greater New Orleans Community Data Center, 2006).

Time-shifting. The act of recording programming to a storage device in order to view or listen at a later time. Sixty-two percent of viewers in the United States use time-shifting technology (Bauder, 2010).

Web 1.0. A retronym that refers to the early World Wide Web that was mostly designed to read; it operates with a one-way flow of information. The vast majority of Web 1.0 users are considered consumers of content (Cormode & Krishnamurthy, 2008).

Web 2.0. A term that describes the World Wide Web that is a read and write web consisting of user-generated content that allows users to interact and collaborate with one another. Users of Web 2.0 are considered creators of content (Cormode & Krishnamurthy, 2008). Social networking sites are part of Web 2.0.

<p align="center">Delimitations</p>

1. This study was limited to 11th-grade students in four of the eight high schools in a large southeast public school system.

2. The students were from the same demographic region, and the homogenous sample may limit the results.

3. Data were gathered in one wave of collection so subjects absent on that day were not included.

4. A sample taken from four of the eight high schools in the school district means that the findings may or may not be generalized to other students, schools, or geographical areas with different demographics.

Assumptions

This study assumed that the subjects produced a representation of students in the age range. It is assumed that the subjects possessed a balanced representation of grade point averages and demographic data that made them representative of the average high school 11th-grader. It is also assumed that subjects reported their answers accurately and honestly.

Justification of the Study

This study examined the relationship between the amount of time 11th-grade students spent using social networking sites and its impact on their academic achievement. Mass media and its impact on academic achievement are concerns that have been raised since 1917, when motion picture films were first introduced into society and its impact on student learning was first questioned.

With the immense popularity of media use by teens, specifically social networking use, studies must examine the impact of teen use of social networking sites on academic achievement. This study also examined if media use impacted academic achievement. Numerous studies have examined the overall media use of teens (Lenhart, 2001; Martin, 2008; National School Boards Association, 2007; Nielson Report, 2009; Rainie, 2009; Roberts and Foehr, 2004; Roberts, Foehr, Rideout, & Brodie, 1999). This study adds to a growing body of literature. Examining the relationships among demographic variables,

such as gender, age, race/ethnicity, socioeconomic status, and college/noncollege-bound plans, media use, and academic achievement, provides researchers with a better understanding of the effects of social networking use on teen academic achievement.

<div align="center">Summary and Organization of the Study</div>

In Chapter I, the researcher introduced the study. Chapter II includes a review of the literature regarding time-displacement hypothesis, academic achievement, and numerous studies examining mass media and its effect on adolescent academic achievement. Research is presented within the historical context of the seven mass media: print, recordings, cinema, radio, television, Internet, and mobile. The methodology used in the study is presented in Chapter III.

CHAPTER II

REVIEW OF RELATED LITERATURE

The main purpose of this chapter is to review the literature related to the research

questions offered in this study concerning the relationship between the amount of time

11th-grade students in a large southeast public school district spent on social networking

sites and their academic achievement. First, a review of the literature regarding

numerous hypotheses, particularly time displacement hypothesis, offers a conceptual

framework for examining mass media's impact on academic achievement. Next,

discourse on academic achievement provides a historical perspective of the key events in

the history of academic achievement. Finally, a review of the literature regarding studies

examining mass media and its effect on youth and academic achievement is presented in

a historical context. Research is presented within the framework of the seven mass

media: print, recordings, cinema, radio, television, Internet, and mobile. The discussion

regarding the Internet is expanded to include research on computers and its associated

modalities, Web 1.0 and Web 2.0.

Conceptual Framework

The conceptual framework for this study was drawn from research from earlier

studies regarding the impact of mass media on academic achievement. Numerous studies

have been conducted and various theoretical perspectives have been offered to explain

the impact that mass media has on the academic achievement of the country's youth.

These theories continue to provide a conceptual framework from which to examine the

impact of newer mass media, such as Web 2.0, on academic achievement. Theories were

framed in the light of the Digital Native generation, born between 1990 and 1996, and raised in a world of interaction, communication, and connection (Nielson Report, 2009).

Research findings are varied regarding the impact of mass media on academic achievement. Both positive and negative relationships between mass media use and academic achievement have been found (Bremer & Rauch, 1998; Charters, 1933; Childers & Ross, 1973; Dehmler, 2009; Martin, 2008; Mokhtari et al., 2009; Norris, 2010; Ridder, 1963; Scott, 1956; Valkenberg, 2001;Williams et al., 1982). Throughout the years, various hypothetical theories have been used to explain the processes that occur when interacting with mass media that impacts academic achievement (Shin, 2005).

The stimulation hypothesis proposes that children acquire and process information while viewing television. Today's television offers children a wide range and variety of programming that is entertaining and intellectually stimulating. Thus, the interaction may increase academic achievement since children can learn a variety of academic content from television, especially when educational programs are viewed (Shin, 2005).

The passivity hypothesis suggests that children become mentally passive when watching television (Perse, 2001). Some evidence shows that less mental effort is required to watch television than reading (Shin, 2005). Children become mentally out of shape and unwilling to challenge themselves cognitively when called upon for academic tasks. According to Koolstra and Van der Voort (1996), the more hours children spend watching television, the less time and mental effort they will put into mastering academic skills. Children will prefer to watch easily understood television shows that are simply entertaining. Very little mental processing is needed for television viewing. Watching television may lead to the practice of exerting little mental effort when reading or attempting to solve challenging math problems in the classroom or at home (Shin, 2005).

Both the arousal hypothesis and the attention hypothesis propose that watching television promotes hyperactive and impulsive behavior that may impact academic achievement. Watching fast-paced programming can cause shortened attention spans in children and lead to low levels of task perseverance and impulsiveness. Academic achievement may be impacted; children are not able to focus on challenging tasks at hand and persevere until they are solved (Perse, 2001).

The earliest and most widely used theoretical perspective to explain the relationships between media use and academic achievement and one that guided this research is the time displacement hypothesis (Anderson et al., 2001; Anderson & Evans, 2003; Gadberry, 1980; Gaddy, 1986; Lieberman, Chaffee, & Roberts, 1988; Perse, 2001; Schramm et al., 1961; Subrahmanyam et al., 2000; Valkenberg, 2001). This theory is based on the belief that media use displaces other activities that are considered more beneficial to children who choose to spend less time on reading and homework. Instead, children interact with mass media, perhaps to the detriment of academic achievement. Thus, watching television may take time away from activities that can benefit academic achievement. This hypothesis also has been used to determine if media use moderates imaginative play, creativity, hyperactivity, impulsivity, and violent behavior (Gross, 2004; Subrahmanyam et al., 2000; Valkenberg, 2001).

Academic Achievement

There are significant historical events in the discourse regarding academic achievement. As early as 1893, educators expressed concern over an increasingly diverse population and a disparate curriculum that developed in the 19th century. The National Education Association formed a group called The Committee of Ten and asked them to decide how much of the curriculum should be designed for college-bound students and

how much of the curriculum should reflect the needs of students who did not plan to attend college. The committee ultimately recommended that all students should take a college preparatory curriculum. Thus, academic achievement became the cornerstone of education in America (Armstrong, 2006).

Standardized testing programs were implemented shortly thereafter. In 1905, Alfred Binet created the first intelligence test. In 1909, Edward Thorndike, an early educational psychologist, developed the first standardized achievement test for use in the public schools, called the Thorndike Handwriting Scale. In 1916, Lewis Terman, a Stanford professor, published a revised edition of Binet's intelligence test. Terman followed a suggestion by German psychologist William Stern and created a single intelligence quotient for the test. Known as the Stanford-Binet intelligence test, it became the first IQ test. One year later, Terman helped design the first mass intelligence test. Millions of American soldiers took the test during World War I. In 1919, Terman developed an intelligence test in order to test children on a national scale. By 1920, 400,000 children had been tested (Armstrong, 2006). Terman developed the first national achievement test, the Stanford Achievement Test, in 1923. Other comprehensive national achievement tests followed, including the Metropolitan Achievement test developed in 1932 and the Iowa Test of Basic Skills developed in 1935. The creation of these standardized tests began mass standardized testing. These standardized tests have been given to millions of students throughout the years and are a primary force behind academic achievement discourse in the United States (Armstrong, 2006).

The 1955 publication of the national best seller by Austrian émigré Rudolph Flesch, *Why Johnny Can't Read,* became another key event in the history of academic achievement. He claimed that school children in America were making slower advances

in reading than European children. He believed that this failure by the American educational system threatened democracy. Due to the popularity of radio and television during that time, the topic reached the masses quickly and turned into a national debate on education in America. Flesch's comparison of American school children's academic achievement to their European counterparts placed American education in a global perspective that most Americans had not considered. Coupled with its alleged threat to democracy in the midst of the Cold War, the state of education in America became the principal discourse during this time.

On October 4, 1957, the Soviets launched Sputnik I into outer space and the discourse on academic achievement heightened. American scientist, Edward Teller, stated in a *Time* magazine article the following month that the most probable way Russia would defeat the United States would not be by an attack, but that the Russians "will advance so fast in science and leave us so far behind that their way of doing things will be the way, and there will be nothing we can do about it" (Time, 2011a).

Congress passed the National Defense Education Act in 1958, authorizing $887 million for college loans, scholarships, and research in math, science, and foreign languages. Math and science instruction joined the reading lesson as important and well-funded subjects throughout the United States (Armstrong, 2006). In 1965, as part of President Johnson's War on Poverty, Congress passed the Elementary and Secondary Education Act. It gave billions of dollars to poor schools to assist in closing the academic achievement gap.

With the federal government beginning to play an important role in funding education, a national assessment system to assess the effectiveness of government funding to schools was developed. In 1969, the National Assessment of Educational

Progress called "The Nation's Report Card" assessed student achievement in reading, math and science. In 1970, the word *accountability* showed up in discourse on academic achievement.

The "Back-to-Basics" movement, a response to the falling test scores of the open classroom environment of the 1960s and early 1970s, influenced the national education agenda regarding academic skills and higher academic standards. Then, in 1983, *A Nation at Risk,* a report that conveyed the findings of the quality of education in America's schools, condemned the poor performance of schools and recommended national academic standards and a common core curriculum. The message that all children can learn charged educators to set higher standards. As a result, states and school districts looked closer at standards and curricula, upgraded graduation requirements, and pushed for students to enroll in more academic subjects.

In 1989, President Bush developed a national agenda called *America 2000,* a program that contained more rigorous academic requirements than previous legislations. By the year 2000, six goals were to be met, including reaching a 90% high school graduation rate, students in grades 4, 8, and 12 showing competency in English, math, science, history, and geography, and American students being number one in math and science achievement.

In 1994, President Clinton signed into law a version of *America 2000* called *Goals 2000.* This legislation established national standards for academic achievement. Also, in 1994, legislation was passed that required each state to write performance standards, design assessments that aligned to standards, and establish adequate yearly progress benchmarks.

The federal legislative activity in the 1990s led to the *No Child Left Behind Act* (NCLB) in 2001. Signed by President G. W. Bush, this landmark legislation required states to design school accountability systems based on yearly assessments of student academic achievement in order to insure all students meet minimum standards and to reduce the gap in educational attainment. The NCLB Act, which reauthorized the Elementary and Secondary Education Act of 1965, included increased accountability for schools, greater school choice for parents, more flexibility in the use of federal education monies, and a stronger emphasis on reading. Assessment results were required to be broken down by various criteria including ethnic background, disability, poverty rate, race, and limited English proficiency in order to ensure that no group was left behind. Schools that met or exceeded annual yearly objectives or that closed achievement gaps were eligible for state academic achievement awards.

In 2009, President Obama signed into law the *American Recovery and Reinvestment Act*. It provided $4.35 billion for *Race to the Top*, a competitive grant program designed to reward states for educational innovation and reform, significant improvements in student achievement, closing achievement gaps, improving high school graduation rates, and preparing students for success in college and the workplace.

The history of federal legislation directed at schools represents a collective desire in the country for a strong and effective school system. Findings show that academic achievement in high school is an indicator of future success for America's youth. Students who are academically successful in high school perform better academically in secondary institutions and ultimately embark on their planned career paths (ACT, 2007; Barton, 2003; Belfield & Levin, 2007). Thus, it is imperative that the discourse on

academic achievement includes dialogue regarding the use of mass media and its impact on academic achievement, an indicator of potential future success for the country's youth.

Mass Media

Mass media is media intended for a large audience. With the onset of each new mass medium throughout the 20th century, debates waged, parents voiced concerns, and scholars conducted studies. Wartella and Jennings (2000) observed that, when examining each mass medium and its introduction into society within a historical context, patterns emerged. Early research consisted of examining media access, media ownership, the amount of time children and teens spent with the medium, and their preferences for different genres or types of media. As technology use became more widespread, research shifted to content-related issues and to examinations of the mass medium's effect on children (Wartella & Reeves, 1985). Understanding the powerful role that media have played within a historical context offers a reflection of the impact of mass media on society, including our children, and anticipation of what is yet to come.

There are seven accepted forms of mass media (Ahonen, 2008). The development of the printing press in the 15th century by Johannes Gutenberg created print, the first mass medium. It includes books, magazines, newspapers, and pamphlets. The late 19th century witnessed the introduction of recordings, the second mass medium. Gramophone records, cassette tapes, CDs, and DVDs are all examples of recorded media. The third mass medium, cinema, began in the early 1900s, followed by radio, the fourth mass medium, in approximately 1910. Television, the fifth mass medium, became available to most people in 1950. Together, both radio and television are considered broadcast media. The Internet, the sixth mass medium, became widespread in the 1990s. Mobile, the

newest technology, is the seventh mass medium (Ahonen, 2008). Collectively, Internet and mobile are categorized as digital media.

Today's mass media is highly visible and pervasive in the lives of teens. It is extremely influential in everyday life. For centuries, people have relied on mass media for news, information, entertainment, and social connections. For almost a century, people have questioned the impact of mass media on children and, often, its impact on academic achievement.

Print

Comics were introduced in 1935, and with it a quick rise in popularity evolved. Many parents expressed delight in seeing their child reading. Approximately 95% of 8- to 14-year-olds and 65% of 15- to 17-year-olds were reading comic books by the 1940s (Sones, 1944). Some parents and teachers, however, were alarmed. Many adults criticized comics. Parent-teacher organizations condemned the sale of comics. Studies began to examine comic reading and its impact on learning. Witty (1941) studied the nature and extent of interest in comic reading in 334 middle-school children. They read comic magazines and comic books regularly. Findings revealed that the children's interests in comics equaled their interests in reading books, watching cinema, and listening to the radio.

Additional studies examined the role of print in the lives of children. A study in 1958 revealed that 57% of sixth graders and 66% of 11th graders in San Francisco read the newspaper daily (Shramm, Lyle, & Parker, 1960). Similar to Witty's research, a 1960 study examined the role of reading in the lives of children. It showed that through the fourth grade, children often read comics. After that, there was a decrease in comic book reading. Researchers found that few students read the newspaper before the sixth

grade, but newspaper reading increased after the eighth grade. During the teenage years, more students read the newspaper. The study also found that brighter children placed a higher value on reading the newspaper than their counterparts (Shramm et al., 1960).

A survey in 1999 showed that children and adolescents read an average of 45 minutes each day, with 25 minutes spent reading books, 16 minutes reading magazines, and four minutes reading newspapers (Roberts et al., 1999). A study published in 2004 showed that between 80% and 90% of children in America read a few minutes each day for pleasure. Younger children were more likely to read books, while adolescents preferred reading magazines (Roberts & Foehr, 2004).

In 2008, young people still read the newspaper. Twenty-eight percent of 18- to 20-year-olds in America reported that they read the newspaper daily. Thirty-four percent of young people read the Sunday paper (Nielson Report, 2009). However, in 2008, only 56% of Internet users ranked newspapers as important, ranking it well below Internet and televison. Twenty-two percent of Internet users stated in one study that they would not miss the print edition of a newspaper if it was not available (USC Annenberg School, Center for the Digital Future, 2010).

Recordings

A recording is a process of capturing information onto a format that is stored on physical material that holds data. Recordings require a piece of equipment for playback. Vinyl records, magnetic tapes, cassette tapes, 4-track and 8-track cartridges, CDs, and DVDs are all forms of mass media categorized as recordings.

Today, audio media is ubiquitous in the lives of most adolescents. It is difficult to measure accurately the time young people spend with audio media due to its functionality as background activity at times (Rideout et al., 2005). Technological advancements gave

adolescents the ability to stream and download music, store vast numbers of songs on MP3 players, and create personalized playlists and CDs. The introduction of the Sony Walkman in 1978, a personal and portable audio cassette player, brought about a huge shift in listening habits by allowing people to carry their music with them and listen through headphones. Today's teens now use a number of different types of technology to do the same, including Apple's highly popular iPod, a digital music player equipped with headphones and speakers. The iPod launched in 2001; by 2007, Apple had sold over 100 million iPods (Ahonen, 2008). The ubiquitous ownership of this device gave rise to a generation of iPod of users (Ahonen, 2008).

A study by Took and Weiss (1994) looked at the impact of music on academic achievement. These researchers found that heavy metal and rap music influenced academic performance. Adolescents who preferred heavy metal and rap music had a higher incidence of below average grades in school. A survey of media use in 1999 found that teens spent 6 hours and 43 minutes each day interacting with media, and 22% of that time teens listened to music (Roberts et al., 1999). In 2004, 75% of American children between the ages of 2 and 4 years heard approximately 49 minutes of audio media each day. Ninety-six percent of teens between the ages of 15 and 18 years old listened to approximately 2½ hours of recorded audio daily. By the time a child reached the age of 15 years, more time was spent listening to CDs and tapes than the radio. Children reported spending more time listening to audio media than viewing television (Roberts & Foehr, 2004). A 2008 survey found that 75% of teens worldwide listened to a few CDs each week. In 2009, the average teen in America purchased slightly over two CDs each year (Nielson Report, 2009).

A 2010 study surveyed 503 Canadian youth regarding their music habits. Eighty-two per cent of the respondents obtained their music from friends or downloaded it from websites. Not surprising, 41% of the participants stated that they were embarrased by their parents' choice in music. A study in 2011 revealed that 81% of girls and 66% of boys listened to music while doing their homework (CNW Group, 2011). One study examined the impact of background music on homework and found that music playing in the background did not affect homework performance. There was also no indication that background media influenced the amount of time spent to complete homework assignments (Pool, Koolstra, & Van der Voort, 2003).

Interactive video games, another form of recordings, arrived on the mass media landscape in 1962. Video arcades housed these games until the arrival of the home computer. In 1972, Atari released *Pong*, a game with simple two-dimensional graphics. *Pong* became the first video game to reach mainstream America. The quick success of *Pong* marked the beginning of the video gaming industry.

The mid-1980s led to a rise in the popularity of video games. Nintendo, a computer used strictly for gaming, arrived in the late 1980s and interest surged again in video gaming. The growth of the CD-ROM games with improved graphics spurred on the video gaming industry (Paik, 2001). In 2006, Americans spent $12.5 billion in console and handheld video gaming devices and $7.4 billion in computer gaming software ("Game Sales Charts-Computer and Video Game Market Sales," 2007).

Researchers examining the impact of mass media on children and youth expanded their studies to include video gaming. In 1998, the average student spent slightly over 7 hours a day interacting with various forms of media, more than any other waking activity.

When multitasking was factored in, students spent 8 hours daily using media. America's youth had become, in a very short time, a generation of media users (Roberts et al.,1999).

A 1988 study examined the academic performance of eighth-graders in light of the time the students spent using computers, playing video games, and watching television. Students who played video games frequently and who identified themselves as heavy television viewers had the lowest grades in school. Light television viewers who used the computer for schoolwork performed the best in school. Another finding in the study suggested that computer use displaced time spent reading. Frequent computer users read the least, while those students who used computers the least amount of time were the most frequent leisure-time readers (Lieberman et al., 1988).

Additonal studies conducted on children, adolescents, and college students showed negative relationships between academic achievement and the amount of time spent playing video games (Gentile, Lynch, Linder, & Walsh, 2004; Roberts et al., 1999). One study found that undergraduate students who had higher time commitments to video gaming were associated with lower grade point averages (Anderson & Dill, 2000). The Kaiser Family Foundation study reported that 55% of boys and 23% of girls between the ages of 8 and 15 years played video games each day (Roberts et al., 1999). In addition, males tended to invest more time playing video games than females (Strasburger & Wilson, 2002). High school students who spent more money purchasing and playing video games had lower grades in English (Gentile et al., 2004). A study in 2008 found a small negative correlation between academic achievement, specifically history grades, and time spent playing video games (Martin, 2008).

New gaming technological inventions and improvements kept video gaming a popular choice within the myriad of choices regarding media ownership. The

introduction of Nintendo's Wii in 2001 impacted media ownership demographics. Younger and older people began video gaming. A 2008 report showed that Xbox 360, the most popular video gaming console for teens, garnered 23% of the American gaming audience. Eighty-three percent of teens owned at least one video game console, with the heaviest ownership (75%) associated with 12- to 17-year-old males, compared to 57% of 12- to 17-year-old females. The typical teen spent approximately 25 minutes per day playing video games. Another technological innovation, the handheld video game system, is extremely popular in the United States. In 2008, 73% of teens in America owned a handheld video game system (Nielson Report, 2009)..

Another technogical invention associated with the second mass medium, recordings is the digital video recorder (DVR). In 1999, 35% of teens had a DVR in their homes, and 41% percent reported that they time-shifted at least one program each day. Teens watched approximately 8 minutes of DVR playback daily in 2008 (Nielson Report, 2009).

In 2008, teens bought more than eight DVDs. They also watched DVDs an average of 17 minutes each day. Rental services for DVDs continue to be popular. Forty percent of teen households used at least one video rental service in 2009 (Nielson Report, 2009).

Cinema

When the mass medium of cinema emerged, researchers watched with increasing curiosity the seeming power that motion pictures had on young viewers. Technological discoveries, advancements in photography, and an increased knowledge and understanding of human perception and vision led to the development of motion pictures. With the introduction of sound technology, "talkies" became increasingly popular. In

1926, weekly movie attendance averaged 60 million. By 1929, it reached 95 million. The average child went to the movies 1.6 times weekly during this time (Paik, 2001).

Adults became alarmed at the possible impact that movies had on children. In a 1917 study, perhaps the first study to look at cinema and its impact on children, English researchers investigated the physical, social, educational, and moral influences of cinema (National Council of Public Morals, 1917). Researchers found that too much cinema weakened the intellectual morale of children and, with it, their capacity to concentrate. In spite of such findings, researchers stated that "the cinema, moreover, has undoubtedly come to stay, and will exert a powerful effect on the moral, mental, and social development on young children for generations to come" (National Council of Public Morals, 1917, p. 11).

Researchers in America also examined the impact of both silent and sound cinema on student learning. Sumstine examined students in Pittsburg Public Schools in 1918, and Lacy studied New York City students in 1919. Both raised questions about motion pictures and their effects upon learning (Hoban & Van Ormer, 1950). In 1922, Weber studied the influences of motion pictures on learning when using a "pictorial medium" (Hoban & Van Ormer, 1950, pp. 2-3). A 1924 study by Freeman compared teaching effectiveness of films with traditional materials and procedures. Freeman utilized audience participation to elicit responses during the viewing of a film. This practice was found to increase student learning (Hoban & Van Ormer, 1950).

In 1929, a groundbreaking national research project, recommended by the Motion Picture Research Council and subsidized by the Payne Fund, examined the degree of influence and the effects of motion pictures on children's learning, attitude, conduct, public morals, emotional excitement, and sleep. Twelve separate studies, supervised by

W. W. Charters of Ohio State University, were conducted by professors from various universities across the country. Charters (1933) summarized the findings in separate reports. One study found that children who attended movies four to five times weekly did poorer work in their school subjects, were rated lower in reputation by their teachers and classmates, and were less cooperative (Charters, 1933). In another of the studies, 35% of the students in New York City who went to the movies once a week were considered accelerated in school compared to only 19% of children who attended the movies four times a week. In spite of such wary findings, movies held promise for learning. One study showed that children retained and recalled very high amounts of information when viewed on a movie screen, much more than when getting information from other sources (Charters, 1933). Information retention appeared to be a major finding in another study in 1933. Early researchers thought that children did not understand motion pictures nor could they remember them. Findings in this study proved that children not only comprehended the information from movies, but also remembered it months later. Retention at the end of one month was almost as high as immediately after viewing a movie (Holaday & Stoddard, 1933).

Another study found that increased learning took place when motion pictures were integrated into the educational process. When motion pictures supplemented the textbook in the classroom, student learning increased from 20% to 40% (Forman, 1934). Researchers found that not only did students learn better with the integration of motion pictures, but they also retained what they learned. When months later to see what information might be retained after watching a motion picture, second- and third-graders recalled 91% of what they had originally retained, fifth- and sixth-graders recalled 90%, and high school students recalled 88% of the information. Researchers also found that

"visually attained knowledge" carried with it an expansive quality (Forman, 1934, p. 3).

Some students remembered more than they had initially been able to recall. These

findings led researchers to the powerful conclusion that "film must emerge as one of the

most potent of all educational instruments" (Forman, 1934, p. 3). Further, Forman

concluded that "the screen becomes one of the most powerful single instruments in the

education of our population" (Forman, 1934, pp. 66-67). Little did these researchers

know that the movie screen would eventually coexist alongside a television screen and a

computer screen and captivate millions of users in much the same way as the early

cinema.

Cinema continued as a popular mass medium in America, impacted only by two

significant drops in average weekly attendance. When radio made its appearance in the

early 1930s, attendance at movies dropped from 90 million to 60 million, but reversed

quickly in a few short years. Attendance at movies steadily increased throughout World

War II. In 1947, however, movie attendance plummeted with the appearance of

television and never regained its early stature in popular mass media culture (Paik, 2001).

Yet, teens continued to go to the movies. In spite of a plethora of at-home viewing

options in the modern digital age, teens prefer to view movies at the theater. In 2008,

32% of U.S. teens between the ages of 12 and 17 years preferred watching movies at the

theater to watching DVDs, renting online, and using Movies-On-Demand. During that

year, teens viewed approximately 10.8 movies in the theater, the highest average of any

age group. Teens also are a potential audience for 3D movies. Twenty-seven percent of

teens saw at least one 3D movie in 2008, and 75% of those expressed a desire to see

another one (Nielson Report, 2009).

Radio

Radio began in 1897 when Guglielmo Marconi received a British patent for the wireless telegraph. In 1919, Marconi sold its American subsidiary to General Electric, thus launching Radio Corporation of America. One year later KDKA in Pittsburg, PA went on the air to broadcast the presidential elections. Although very few households had radios, it sparked one of the largest boons in the country's history. By 1922, the demand for radios far exceeded production. By 1924, sales reached one-half million. In spite of the popularity of cinema, radio flourished in the 1930s and 1940s. By 1930, 46% of American households owned a radio. The number increased to 80% by 1940 (Siepmann, 1950).

For some children, radio was their first mass medium. Lyness (1952) studied children and their radio use and found that children listened to the radio approximately two to three hours daily. The average person in America spent more leisure hours listening to the radio than doing anything else but sleeping (Siepmann, 1950). Thus, most American families spent their evenings sitting around the radio during this time, enjoying news programs and favorite radio shows.

In an Iowa study in 1951, students selected the radio as the mass medium they would keep if they had to give up all but one media. Students stated they would give up newspapers, magazines, books, and comic books instead (Lyness, 1952). Radio had become America's favorite pastime.

Just as had been done with cinema, the introduction of this latest mass medium came with promises of its huge potential to offer information and entertainment to children and society. Opponents, though, were concerned that listening to the radio would displace such important activities as reading and attending church (Wartella & Jennings, 2000). In 1937, Clark studied radio listening preferences and patterns in

children. Results showed that girls preferred romantic and historical dramatizations.

Boys preferred novelty and dance programs. Studies examined a wide range of effects on

children, including school performance. Studies revealed that the effects of media use

could be powerful, but that other factors, such as the child's developmental level and

family circumstances, could modify the impact (Paik, 2001).

A study of radio ownership trends shows that ownership has consistently increased

since its inception. Unlike movie attendance, television did not displace the radio

permanently (Paik, 2001). By the 1970s, 98% of the U.S. population owned radios. A

1972 study showed that 24% of 10th-graders reported listening to the radio 5 hours daily.

Americans continued to listen to the radio, though it was not their main media preference.

A study done in the 1990s reported similar results (Paik, 2001). In 2001, radio ownership

was at 99%. In 2008, only 16% of teens worldwide reported the radio as their primary

source for listening to music (Nielson Report, 2009).

Television

The late 1940s and 1950s ushered in television, an exciting new form of mass

media that became popular very quickly and easily diverted people from going to the

movies and listening to the radio. A primitive form of a television system was actually

available a few years after the advent of radio. Telecasting began on an experimental

basis in 1928. The public demonstration at the 1939 World's Fair, along with regulations

passed by the Federal Trade Commission a few years earlier, gave television its impetus.

Once the government lifted its freeze on the formation of new television stations after

World War II, television debuted (Edgerton, 2009).

Television engaged children far more than the mass medium of radio. Listening to

the radio fell to almost zero in the early months of television (Schramm et al., 1961).

Although radio listening would gradually reemerge, it would never regain the prominence it held before the onset of television. The number of televisions in households grew quickly. In 1948, fewer than 100,000 televisions were in use in the United States. At the beginning of 1950, one out of every 15 homes had a television. By the end of the decade, seven out of every eight homes had families tuned into television regularly (Schramm et al., 1961).

Similar to motion pictures, this new mass medium created its share of questions and concerns about its impact on the country's youth. A 1949 questionnaire administered to 1,700 high school students showed that they spent an average of 3.4 hours per day watching television (Lewis, 1949). Proponents of radio predicted that "our way of entertainment, our way of information, and our way of education are to be revolutionized by the elusive electron" (Gould, 1946, p. 314).

Labeled by some as a childhood vice, watching television alarmed some researchers. A 1956 study found television as the first choice over other mass media, including movies, newspapers, and radio (Bogart, 1956). As one researcher stated, "The mere addition of the sense of sight to the sense of hearing in the nation's homesteads, aver they, automatically will enrich our culture beyond our fondest dreams" (Gould, 1946, p. 314). Researchers began to investigate television's impact on children's academic performance.

In 1950, Greenstein studied sixth-grade students and found no significant differences regarding the impact of time spent watching television upon grades, although students who watched less than the daily mean of 3.9 hours of television had higher grade point averages. These findings led him to suggest a negative relationship between hours spent watching television and academic achievement (Greenstein, 1954). Greenstein,

though, found it necessary to include a remark in his findings from one school principal who stated the belief that "students who neglect their homework because they are watching television would fail to do their homework for some other reason if they had no TV" (Childers & Ross, 1973, p. 317).

In 1951, Clark surveyed almost 1,000 children in the sixth and seventh grades, correlating their mental age, grades in school, and hours spent viewing television. The study revealed no significant relationships. Clark stated, however, that it would be an inaccurate analysis of the data to confer that television viewing habits did not affect school achievement since the data revealed that poor television habits, lower IQs, less parental controls of television, and low academic achievement tended to be found in the same child (Clark, 1951).

Witty, too, found in a 1951 study that although intelligence was unrelated to the amount of time spent watching television, hours spent in front of the television could be associated with lower academic achievement. His study showed that the higher the test score, the lower the numbers of hours a child spent watching television (Witty, 1951). A survey of 500 students in 1953 yielded similar findings. St. John Mahony found that 67.5% of the participants believed that watching television did not help their schoolwork. One sixth of those students admitted that their grades were lower due to television. In spite of such admissions, the majority of the students felt that television helped their achievement in schools (St. John Mahony, 1953).

These findings alarmed parents and educators who expressed concern that this latest mass medium may be interfering with academic studies. In 1954, "America's first television generation" became part of a landmark study (Scott, 1956, p. 26). The study questioned 456 sixth- and seventh-graders and found that children averaged 13 hours per

week in front of the television. A comparison of mean achievement scores of light and heavy viewers of television revealed no statistically significant differences in language achievement and spelling achievement. But the light viewers, those children who watched television 10 hours a week or less, scored significantly better on arithmetic and reading achievement tests than heavy viewers of television who watched as much as 69½ hours of television per week. These heavy viewers of television achieved less proficiency in standardized test scores for reading and math and had overall lower achievement scores (Scott, 1956).

A 1956 study found that watching television displaced homework time. One fifth of all the students questioned stated that television interfered with their homework. Thirty-three percent of the students felt that television impacted their reading habits, while others stated that television stimulated reading interest in new subjects. Thirty-one per cent of students questioned believed that television helped them with their schoolwork (Bogart, 1956). Witty (1959) completed another study in 1959 that revealed excessive viewing of television was associated with poor academic performance in children.

By the early 1960s, most homes had at least one television. Teachers, like many parents, continued to be skeptical that television had any positive effect on schoolwork. One teacher remarked, "Competing with Hopalong Cassidy, Milton Berle, or the Lone Ranger for the interest of pupils is a formidable problem" (Bogart, 1956, p. 257). This concern regarding the competiton between schoolwork and mass media continues to resonate throughout many classrooms today.

Similar to results in earlier studies, a groundbreaking study in 1961 found that two out of every five teenagers admitted that television interfered with their schoolwork

"somewhat" or "very much." Teens who claimed to be heavy users of television tended to score lower on knowledge tests in school than teens who watched less television. The study found that heavy television viewing by young children was associated with higher mental ability, but that heavy televison viewing by adolescents was associated with lower mental ability (Schramm et al., 1961). A study by Ridder (1963) revealed the popularity and commonplace role of televison in young people's lives. Slightly over 69% of the students had at least one television in their homes, 26.4% reported two televisions in their homes, and 4.3% had three or more televisions. These young people reported that they could not remember a time when television had not been available to them. When, in the early to mid-1960s, color television became affordable for America's living rooms, its popularity for parents and children alike was unchallenged. To be sure, color television would become "the single most significant mass medium," reaching even farther than black-and-white television (Comstock et al., 1972). Like future satellite technology, television connected the country together in a way unimagined and, when Disney's Wonderful World of Color debuted in 1962, students across the country who owned color televisions were most likely displacing time spent on schoolwork to watch.

Ridder's (1963) study revealed that the mean television viewing time for participants was 17.8 hours weekly, with extreme times ranging from 2 hours to over 50 hours of viewing time. Unlike some earlier studies, two thirds of the sample believed that televison helped their schoolwork. Approximately two fifths of the students stated that they completed their homework while watching television. One fifth of the participants thought that watching television increased their desire to read fiction books, while one fourth of the students believed that television inspired them to read non-fiction books. Four fifths of the students surveyed preferred watching television to reading

books. One student boldly stated that his schoolwork interfered with his desire to watch television. Ridder's (1963) findings were similar to earlier studies. No significant relationship was found between academic achievement and the total number of hours spent viewing television. Similar to past observations, it was believed that students who neglected their schoolwork to watch television would continue to neglect their schoolwork for other activities if they did not own a television (Ridder, 1963).

In spite of such findings, parents and educators continued to be concerned about the impact of television on academic achievement. Most believed that there was a direct correlation between the number of hours spent watching television and student achievement. Parents and teachers alike thought that not watching television meant more time for homework. Thus, many parents continued to punish their children's poor school performances by curtailing the number of hours available for television viewing. In turn, researchers continued to question whether there was a significant correlation between the number of hours spent viewing television and student achievement.

In 1972, Lyle and Hoffman reporteded to the Surgeon General's Scientific Advisory Committee on Television and Behavior that there was little difference in the hours that first and sixth grade children watched television among different ability groups. However, brighter students had a tendency to watch fewer hours of television (Lyle & Hoffman, 1972). McLeod et al. (1972) reported important findings to the Surgeon General as well. Their study of seventh- and 10th-grade children showed that total time spent watching television had a significant and negative correlation to school performance in one of two samples of children.

In 1973, the mean number of hours spent watching television was 3.31 hours daily. It had changed little in the past 20 years (Childers & Ross, 1973). Childers and Ross

studied the relationships among television viewing hours, IQ, achievement scores, and HSGPA of 100 students. Analysis showed only a slightly negative, nonsignificant relationship between hours spent watching television and HSGPA. As past studies had found, IQ scores did not correlate to the number of hours children spent watching television. Little evidence signified that varying hours of television, independently or with other student variables, had any correlation with HSGPA. Thus, the number of hours spent watching television was not considered a predictor of student achievement (Childers & Ross, 1973).

The potential effect of television on children's academic performance continued to be the overarching concern and a topic for continued scholary research. Years of research had produced mixed results regarding television's relationship to academic achievement. Thanks to the growth of cable televison, watching television remained a popular family pasttime in spite of competition from other media. Familes could then watch television 24 hours a day, with channels dedicated to music, sports, news, children's programming, and much more.

Cable television gave viewers a host of viewing options. It began shortly after World War II as a service to homes in remote areas of the country (Parsons, 2003). The cable industry began offering services to local areas, competing with broadcast televison. The Federal Communication Commission (FCC) responded by placing limits on cable programming. In 1972, the FCC relaxed their policy and the nation's first pay-to-watch network, Home Box Office (HBO) was offered to customers via satellite connections. By 1988, more than 50% of homes with televisions had cable (Dominick, Sherman, & Copeland, 1990). The expanded content of television shows on cable television included numerous channels of children's programming (Paik, 2001).

As in earlier studies, children continued to spend an average of 3 hours each day watching television. In the 1980s, the average household had its televison turned on over 6 hours per day (Compton, 1983). With only a foreshadowing of a future immense, digital world that would create an entirely new focus for research, researchers continued to examine the current popular mass medium—television.

Ridley-Johnson et al. (1983) studied the television viewing behavior of a large sample of middle-school students and their school achievement scores. Researchers also employed a measure of viewing behavior more comprehensive and more precise than instruments used in earlier research. The study found that overall television viewing negatively correlated to reading grades and IQ scores. The study also examined the types of shows that the participants watched in hopes of uncovering patterns that might be related differentially to academic achievement. The study found that reading grades negatively correlated with the number of comedy, mystery/adventure, and police/detective shows viewed.

A study by Gadberry (1980) supported earlier findings that children who had restricted television viewing increased the amount of time they spent reading. Findings also revealed several viewing preferences. Sports, family, game, and cartoon shows were associated with higher grades in math, while grades in reading had no association with viewing preferences. Mystery and adventure shows were correlated to high IQ scores. Results also suggested that children who had their hours of televison watching restricted by parents performed better in school and had higher IQ scores than other children. This finding corroborated the results found by Williams et al. (1982). Researchers found a predominantly negative but small relationship between the amount of television viewing hours and school achievement. In their meta-analysis of 23 studies examining television

viewing and school achievement, the relationship between achievement scores and television viewing produced predominantly negative results.

In 2008, a study that examined multimedia use and grades among high school students found no significant relationships between grades and media exposure (Martin, 2008). Similar to Ridley-Johnson et al. (1983), part of Martin's study examined relationships between types of televisions programs viewed and academic achievement. Watching music television programs positively correlated to science and history grades. Animated sitcoms and news programs positively correlated with English grades. These results contrasted with the results found by Ennenmoser and Schneider (2007) who found a negative correlation between television viewing and reading achievement.

In spite of an abundance of technological options, a typical teen watched 104 hours and 24 minutes of television per month in 2009 (Nielson Report, 2009). Thus, in 2009, television remained the dominant mass medium for teens.

Internet

The Internet, the sixth mass medium, is a global network connecting millions of computer systems around the world. It began in the Cold War era as a redundant communications network initiated by the U.S. Government to manage the country in case of a nuclear war (Ellerman, cited in Windham, 2008). In 1969, ARPANET, a large wide-area network created by the United States Defense Advanced Research Project Agency connected four western universities that had U.S. Department of Defense contracts to five government research centers. ARPANET, a precursor to the Internet, allowed these facilities to communicate to one another via a network (Paik, 2001).

Then, in 1989, Tim Berners-Lee, a physicist at CERN (the European Organization for Nuclear Research, found a way to connect hypertext with the Internet and personal

computers in order to help CERN physicists share their computer-stored information with one another. In 1990, it was given the name World Wide Web. By spring of 1991, a browser allowed anyone with an Internet connection to access the Web, regardless of the kind of computer used. In December 1991, the first server in the United States was installed at SLAC (Stanford Linear Accelerator Center). There were 26 servers worldwide by November 1992. Less than one year later, there were 200 servers worldwide (CERN, 2008).

Personal computers could then communicate with one another, and, in turn, so could teens. The World Wide Web and the Internet grew exponentially as one; these two terms are often used interchangeably. As of June 30, 2010, the estimated number of people using the Internet worldwide was 1.97 billion (Miniwatts Marketing Group, 2010).

Computers. The Internet could not have established its place in mass media history without the development of the personal computer. Personal computers first appeared in the late 1970s (Turow & Kavanaugh, 2003). The invention of the microprocessor led to the development of the microcomputer, a small, low-cost computer that could be purchased by an individual. These personal computers first appeared in the 1970s and quickly became part of the 1980s landscape. Early computers such as the Altair 8800 were sold as build-it-yourself kits to hobbyists through mail order. The mass marketing of home computers began soon thereafter. Early models included the Commodore PET, the Apple I, and the IBM personal computer. The IBM personal computer quickly became extremely popular, along with the newer Apple II.

By 1981, 750,000 personal computers were in American homes. By the end of 1982, 250 different computer games were available. That year, $2 billion worth of

computer games were sold. Early computer users purchased telephone modems in order to access the Internet. In 1981, 180,000 American homes had modems. By 1988, 10.9 million American homes had modems and the number of home computers increased to 39.4 million. Early computer users logged on to bulletin board services to exchange ideas with other computer users. Early social networking had begun. The personal computer had captured the attention of America. In January 1983, a personal computer appeared on the cover of *Time Magazine* as their Machine of the Year (Time, 2011b).

Results of a study in 1989 conducted by the National Center for Education Statistics showed that 20% of the students surveyed used a computer at home. By 1993, 58% of students nationwide were using home computers (Hunley et al., 2005). In 1997, 36.6% of households in America owned personal computers. Fifty-one percent of those households had children between the ages of 6 and 17 years (Paik, 2001). In 2003, two thirds of nursery school-aged children and 80% of kindergartners used computers (DeBell & Chapman, 2006). In 2009, more than 50% of homes had two or more computers (USC Annenberg School, 2010).

The average child growing up in America in 2000 lived in a household with three televisions, two VCRs, three radios, three tape players, two CD players, a video game player, and most with at least one computer (Roberts et al.,1999). A media-connected and media-savvy society had emerged. Research began to reveal the prevalance of personal media in the bedrooms of children. One half of the children on the cusp of the 21st century had televisions, CD players, and tape players in their bedrooms. Seventy percent owned radios and one third had video game systems. Eighty-eight percent of households had two or more televisions, 60% of households had three or more, and 53% of children had a television in their bedrooms. Adolescents had their own radios and CD

players with personal headphones. Sixty-nine percent of households with children under 18 years old owned a computer. Most children lived in households with multiple types of media (Rideout et al., 2005; Roberts et al.,1999). Although televison was still the dominant choice of media for young children, with 83% watching televison daily, the use of the newest mass media, computers, steadily increased. Forty-two percent of America's youth used the computer, and 30% played video games daily (Roberts et al., 1999).

Web 1.0. Web 1.0, a retronym for the World Wide Web, began in 1991. It quickly became the favorite mass media of most teens (Heitner, cited in Martin, 2008). Forty-five percent of children growing up in the 1990s had access to the Internet (Pew Internet and American Life Project, 2005; Roberts et al., 1999). By 1996, the number of Internet users increased from 600,000 to 40 million. At one point, the number of users doubled every 53 days (Quittner, 1999). The Census data in 1997 showed that almost 20% of children accessed the Internet from home (Paik, 2001). In 1998, 8.6 million children and 8.4 million teens accessed the Internet. The amount of time that adolescents spent on the Internet increased each year. In 2003, 23% of nursery school children used the Internet, 50% of third graders used it, and by high school approximately 79% went online (DeBell & Chapman, 2006). In 2008, 90% of teens used the Internet at home, and 73% had access to a computer at school. In addition, 55% of the teens that used the Internet at home accessed the Internet through a wireless connection (Nielson Report, 2009).

The Internet became a huge presence in the lives of teens, with almost 90% of American teenagers online on a regular basis (MacGill, 2007; Pew Internet and American Life Project, 2005). A study in 2007 found that adolescents were the largest consumers

of the Internet (Subrahmanyam & Lin, 2007). Teenagers had the highest level of Internet use of any age group. Estimates of usage by adolescents ranged from 93% to 97%, with more than one half going online every day (MacGill, 2007; USC Annenberg School, Center for the Digital Future, 2005).

By 2005, 60 million Americans had broadband connections to the Internet, a connection much faster than the less expensive dial-up connection. By 2008, the number of Americans with broadband connections increased to 55%. In household incomes of $75,000-$100,000 per year, 82% had broadband connections (Smith, Salaway, & Caruso, 2009).

This newest mass media played a central role in the lives of America's youth. The Internet was pervasive in their homes, schools, and communities. This generation of Internet users, young people immersed in technology all of their lives, had advanced technical skills and learned differently from their previous generation and had a seemingly unlimited access to information—and to each other (Bennett, Maton, & Kervin, 2008). The examination of young people's media environments led researchers to identify children's households as media-rich. Newer findings indicated that there was an astonishingly high amount of media in most homes. In 2005, young people lived in an environment that was not just media-rich, but media-saturated (Rideout et al., 2005).

Just as in numerous studies throughout the years regarding various mass media and its impacts on academic achievement, research examined the effect of time spent on the Internet and academic achievement (Bremer & Rauch, 1998; Papadakis, 2001; Southwick, 2002; Tapscott, 1998; Young, 2004). College students reported poor study habits and low grades from excessive Internet use (Young, 2004). Other studies produced different results. Research showed that teenagers who used the Internet used it

for school research. Parents were not only supportive of their children using the Internet, but 90% believed the Internet helped their children academically (Lenhart, 2001). Research conducted with middle-school students and their Internet use found no impact on academic performance in school (Southwick, 2002).

A longitudinal study of children from low socioeconomic backgrounds reported that more time spent on the Internet equated to higher grades in school and on higher standardized reading achievement test scores. The research also found that not only did African American children and younger children use the Internet less than Caucasians and older children, respectively, but African Americans had lower grade point averages and scores on standardized tests than Caucasians. When controlling for race, Internet use over a period of one year was associated with higher reading comprehension and total reading scores (Jackson et al., 2006).

Another study found no significant relationship between total time spent using the computer, time spent using the Internet, and grade point averages of 10th-tenth grade adolescents from three public high schools (Hunley et al., 2005). In 2005, more than 60% of students 18 years old and younger stated that the Internet was very important or extremely important in doing their schoolwork. Eighty percent of those parents reported that their children's use of the Internet had not impacted their grades (USC Annenberg School, Center for the Digital Future, 2005). Willoughby (2008) surveyed 1,591 adolescents in Canada regarding their Internet use. The results indicated that approximately 95% of the surveyed adolescents reported using the Internet on a regular basis.

Web 2.0. Teen access to media has changed from print, radio, phonographs, motion pictures, and a few black-and-white, grainy television channels to a world

saturated with hundreds of vibrant television channels, CD and DVD players and recorders, MP3 players, satellite radio, electronic books and newspapers, video games, computers, and access to a Web-connected world, all literally at their fingertips.

This ability to connect anytime and anywhere was due to the emergence of Web 2.0 user-centered Web-enabled applications that allow interaction and collaboration from the user (DiNucci, 1999). What began as the original World Wide Web, Web 1.0 with more or less one-way communication and considered mostly a read-only, passive experience evolved into Web 2.0, a two-way World Wide Web, fueled by a majority of user-generated and user-manipulated information.

Web 2.0 allows users to do more than just access information. Web 2.0 users provide the data, interact with the data, and add meaning and value to the experience. Users no longer just surf the Web and passively read, watch, or listen. Instead, Web 2.0 users share, socialize, collaborate, and, most importantly, create (Hof, 2005). Eckart Walther, vice-president of Yahoo! Inc., correctly predicted in 2005 that Web 2.0 "[is] the second coming of the Web" (Hof, 2005). With the onset of the socially-driven Web 2.0, World Wide Web users are not just consumers of information, but participants and creators of their online experiences. Web 2.0 users are producing, communicating, bookmarking, photo-sharing, video-sharing, analyzing, annotating, tagging, blogging, constructing their own understanding, and ultimately creating their own online experience. As one user stated, "Who, now, is content to merely surf the web? We seek to swallow it whole, to process it, filter it, repackage it, redirect it, and spit it out with our name on it" (Robson, 2007).

Social networking sites. The evolved and user-friendly, interactive Web 2.0 gave rise to online social networking, a modality of the sixth mass media, Internet. As mass

media did in the past, Web 2.0 impacted the lives of teens and changed the way they interacted with each other and the world. Computer-mediated social interaction was part of ARPANET in the 1960s. Early online communities sought to bring people together through shared interests and online chat rooms. By the year 2000, a new generation of social networking sites emerged that offered virtual online communities to users.

Social networking sites rose quickly in popularity and usership. An early site, Friendster, which was designed to attract adults in their 20s and 30s, began in 2002. Friendster users could create personal profiles, search for old friends, and meet potential partners (Boyd, 2004). Membership grew quickly. In just one year, Friendster had more than 3 million registered users (Nickson, 2009). When music bands began using the site to advertise shows and to interact with their fans, Friendster did not approve of the practice and removed bands' profiles. These bands eventually left Friendster to become charter members of MySpace (Boyd, 2007). In 2008, Friendster had 115 million viewers nationwide, with over 90% of its traffic coming from Asia (ComScore, 2008).

MySpace launched in 2003 and its popularity grew quickly, mainly with musicians. Two young Internet entrepreneurs in California, Tom Anderson and Chris DeWolfe, created the site and encouraged musicians to promote their music on the site. Fans could listen and download music from a band's profile page for free (Boyd, 2007). By 2005, MySpace was very popular with teenagers and was receiving more page views than Google (Rosenbush, 2005). By 2007, MySpace had over 100 million members worldwide (Sellers, 2006).

The popularity and success of Friendster and MySpace spawned hundreds of other social networking sites over the next 10 years. The *2011 Social Networking Websites Review* listed the top five social networking sites in 2010 as Facebook, MySpace, Bebo,

Friendster, and hi5, but it is Facebook that broke all of the social networking sites records (TechMediaNetwork, 2010). An indication of Facebook's immense popularity was its mention in President Barack Obama's State of the Union Address in 2011. President Obama stated, "We are the nation that put cars in driveways and computers in offices; the nation of Edison and the Wright Brothers; of Google and Facebook" (Obama, 2011).

Facebook launched in 2004 and has since become the largest social networking site in the world (Paul, 2010). Facebook earned the title of being the most visited website in 2010, beating out search giant Google for the first time. Facebook founder, Mark Zuckerberg, also earned the honor of being selected as *Time* Man of the Year (Caulfield, 2010; Grossman, 2010; Time, 2011b).

In 2003, Zuckerberg, a student at Harvard, started a website called Facemash. Users were restricted to Harvard students. In 2004, Zuckerberg created The Facebook, based upon a paper document distributed across the Harvard campus each year that consisted of photographs and limited biographical information of students, staff, and professors. Professors used it to help identify new students. Students used it look up friends and classmates. Zuckerberg created an online version of The Facebook that included extensive profile features that allowed students to create an online network of friends through shared interests, study groups, and social connections. The initial site had 450 visitors who viewed 22,000 photos in its first four hours (Locke, 2007). More than one half of the undergraduate students at Harvard became members within the first month of Facebook's creation. Soon, almost the entire Harvard student body had joined (Tabak, 2004).

Once logged in, students and staff with Harvard e-mail addresses could upload photographs, personal data, and academic information. It expanded to Boston University,

MIT, Northeastern University, Boston College, and all Ivy League schools shortly thereafter. The next year more universities were added. Membership opened to the general public in 2005, and The Facebook name changed to Facebook. By 2006, its usership had increased 89%, with many users leaving MySpace for Facebook. By May 2007, 26.6 million visitors joined Facebook and stayed for an average of 186 minutes at the site. The number of pages of content viewed increased to 15.8 billion, an increase of 143% from the prior year. Users in the 12-year-old to the 17-year-old age group increased 149% (ComScore, 2007). In a few short years, Facebook became the most popular networking site in the world, reaching its 500 million viewer mark in July 2010, only 6 years after its inception (Paul, 2010). If recent growth continues, Facebook could have one billion users by August, 2012 (Ford, 2010).

In 2010, Facebook received 100 billion hits per day, managed 2 trillion cached objects, received hundreds of millions of requests each second, and had 130 terabytes of logs every day (Johnson, 2010). Facebook stored 50 billion photos and became the number one photo sharing site in the world. In 2010, users uploaded almost 3 million photos (Wasserman, 2010). People spent over 700 billion minutes per month on Facebook. One-half million people joined Facebook each day, with those over the age of 30 being the fastest growing group on Facebook. In 2010, if Facebook could have been classified as a nation, it would have been the world's third largest country, after China and India (Ford, 2010; Goodwill Community Foundation, 2010).

In spite of its vastness, Facebook has many features that personalize it for interaction among friends. Communicating with friends is done via a chat feature or by posting private or public messages. Once logged on, members post messages on their Wall, a space on every user's profile page where friends can post messages for their

friends to read. Users also can update their personal profiles with pictures, music, and videos, read their friends' Wall messages, and even "friend" or "unfriend" someone. In 2009, the *New Oxford American Dictionary* announced that "unfriend" was its "Word of the Year," an indication that Facebook vocabulary had indeed become part of the vernacular (Heunnser, 2009).

The user-friendly, multi-tasking, and social networking capacity of Facebook has made it a popular site for teens. In 2007, social networking sites had tens of millions of users (Lenhart & Madden, 2007). In 2009, there were approximately 33 million teenagers between 13 and 19 years old in the United States. Approximately one half of those teens used Facebook (Nielson Report, 2009). Thus, 16.1 million teens in America were logged on to Facebook at any given time to communicate with one another. In addition, there were more than 150 million users who accessed Facebook through their mobile devices ("Statistics-Facebook," 2011). Many new smartphones offer access to the Facebook services either through their web-browsers or an application, thus giving users 24-hour access to Facebook.

Ninety-six percent of students in 2007 with Internet access reported that they used social networking sites and spent time on the Internet chatting, text messaging, and blogging (National School Boards Association, 2007). For many adolescents, the Internet is used on a daily basis (Gross, 2004; Pew Internet and American Life Project, 2005; Willoughby, 2008). Research shows that adolescents largely use the Internet for social networking (Gross, 2004; Pew Internet and Life Project, 2005).

Young people continue to communicate online when they graduate from high school and enter college. A study done between 2006 and 2009 showed that 18- and 19-year-old undergraduate students were the highest users of social networking sites, 93.1%

of these students used social networking sites in 2006. Student use increased to 95.9% in

2009 (Smith et al., 2009).

Pew Internet and American Life Project (2005) surveyed 100 adolescents (ages 12

to 17 years) about their Internet use. The results indicated that almost 90% of adolescents

used the Internet. Many used the Internet for social networking. They reported

preferring instant messaging over e-mail to communicate with their friends. About 75%

of the adolescents reported using instant messaging, and 32% used it on a daily basis.

The popularity of social networking sites may be impacting the use of instant messaging.

One longitudinal study of undergraduate students found that in 2009 the use of instant

messaging dropped 23.2% while communicating via social networking sites increased

32.6% (Smith et al., 2009).

Rogers, Taylor, Cunning, Jones, and Taylor (2006) administered a survey for an

adolescent health pilot study to 200 high school students regarding Internet use. The

study found that most of the students surveyed had memberships in at least one social

networking site. Fifty-four percent of the students reported uploading pictures to the

Internet, 30% reported blogging, and 32% participated in online chat groups. Further,

89% of the students reported owning a cell phone, the majority of whom had text

messaging (95%), Internet access (75%), and a built-in digital camera (61%).

The high number of teens logged on to social networking sites daily may have an

interesting and important impact on the academic achievement of adolescents. It is a

modality of mass media that should be studied in light of its enormous popularity and its

academic implications. Studies researching the relationships between social networking

use and academic achievement of young people have produced varied results. Although

numerous studies have researched the relationships between social networking use and

the academic achievement of college students, limited studies exist on social networking use and its implications on the academic achievement of high school students.

Two studies involving high school students produced similar results. Pierce and Vaca (2007) found a link between use of My Space and declining grades of adolescents. Windham (2008) investigated the relationships among socially interactive technologies, psychosocial adjustment, and academic performance of high school students. The study found a relationship between use of socially interactive technologies, particularly text messaging and social networking sites and lower academic performance.

Studies that examined the impact of Facebook use on college students produced varied findings. A study in 2006 looked at the relationship between time spent using Facebook and GPA. Findings revealed a significant and negative relationship between the two variables (Boogart, 2006).

Kolek and Saunders (2008) studied undergraduates who had Facebook profiles. The mean grade point average had a slight difference between the target population (2.94) and the sample population (2.95), suggesting that there may not be a relationship between Facebook use and grade point averages.

A 2009 study examined Facebook's effect on student performance in two undergraduate classes at Penn State University. Researchers found no significant relationship between the number of hours spent on Facebook and reported cumulative grade point averages when controlling for purpose of use, time spent on other online social network sites, school work, and other online media use (Legath et al., 2009).

Another study in 2009 examined the relationship between use of Facebook and grade point averages. First-year students at University of North Carolina at Chapel Hill documented their time spent on Facebook, both in class and outside of class. Results

showed that there was a negative correlation between Facebook use and grade point average (Dew et al., 2009).

One recent study in 2009 created brief media frenzy with its findings, an indication of the immense popularity of Facebook ("Does Facebook Lower Academic Performance? It's Still Too Soon to Say," 2009; "Facebook Fans Do Worse in Exams," 2009; "Facebook Messes Up Your HSGPA," 2009; "Study: Facebook Hurts Grades," 2009; "Study Finds Link Between Facebook Use, Lower Grades in College," 2009). Aryn Karpinski, a doctoral student at Ohio State University, surveyed 102 undergraduates and 117 graduate students regarding hours spent on Facebook and their grade point averages. Karpinski presented her findings at a poster session at the 2009 American Educational Research Association. Karpinski's (2009) research found that students who used Facebook spent less time studying and had significantly lower grade point averages than students who were not members of Facebook.

Mobile

Mobile is the seventh mass medium and the newest mass media to date. It is the first personal mass media. Mobile is the latest technology that, like the impact of mass media before it, has changed the way people live and the way they interact with the world. Mobile is considered the most private and personal accessory owned (Ahonen, 2008).

Early research on frequency characteristics and the invention of frequency modulation at Bell Labs during the 1920s through 1940s set the stage for the cellular concept of mobile phones. During this time, Motorola developed the world's first handheld portable two-way radio system. In 1946, AT&T introduced a primitive mobile radio telephone service that required operator assistance. In 1947, the Federal

Communication Commission (FCC) approved citizens' band radio (CB) service,

providing an early form of mobile communication to many. In the 1960s, AT&T

developed a primitive forerunner of mobile telephone service for the Amtrak Metroliner.

In 1973, Motorola produced the DynaTAC 8000X, the world's first portable

cellular telephone. This telephone measured over one foot long, weighed almost 2

pounds, had a battery capable of one hour of talk time, and cost $3,995 (Cassavoy, 2007).

In 1982, Nokia introduced its first mobile phone called the Mobira Senator, a bulky

device that weighed almost 21 pounds and was designed for use in cars (Nazz, 2009).

In 1983, the first pilot cell phone system began operating in Chicago and shortly

thereafter in the Baltimore and Washington area. The pilot systems were extremely

successful. By the end of 1984, Motorola's sales of cell phones reached $180 million

annually from basically zero the year before (Roessner, Carr, Feller, McGeery, &

Newman, 1998).

By 1990, over 5 million people were cell phone subscribers. By 1992, the

number of cell phone subscribers doubled. In 1993, IBM and BellSouth jointly marketed

the Simon Personal Communicator, the first mobile phone to carry PDA features. It was

a pager, phone, calculator, address book, and fax machine and allowed for email access.

It weighed 20 ounces and cost $900 (Cassavoy, 2007.)

By 1995, cell phone usership reached 25 million. The Motorola StarTAC,

introduced in 1996, ushered in the idea that mobile phones could be stylish as well as

functional. The phone weighed only 3.1 ounces and could be easily clipped to a belt

(Roessner et al., 1998).

Palm Computing introduced the Pilot 1000 in 1996. Although not a cell phone, it

did encourage anytime and anywhere mobile data use with its 16MHz processing power,

128KB memory capabilities, and affordable price. Palm Pilots were purchased by many young executives in the dot-com decade of the late 1990s. During this time, Nokia introduced one of the bestselling mobile phones of the 1990s. It had an external antenna, monochrome display, was 5.2 inches tall, and weighed six ounces. In 2000, the sleeker Nokia 8260 had a colorful case, was four inches tall, and weighed only 3.4 ounces (Roessner et al., 1998).

In 2002, the Blackberry 5810 was released and gained popularity quickly due to its functionality as a mobile phone that had email capability and ability to surf the Internet. Apple introduced the iPhone in 2007 and revolutionized mobile web browsing with its intuitive touch screen. As a result, Apple sold one million iPhones its first year. Google unveiled its Android in 2009. By the end of its first year, its open-source mobile operating system was used on more than 7% of all smartphones in the United States. Motorola's Droid, released in 2009, sold more than 1 million units in its first 74 days on the market. In 2010, Sprint released the EVO, a flagship device that allowed users to take advantage of its high-speed network (Reed, 2010).

Cell phone use and ownership quickly overshadowed other technology use. In 2007, there were 3.3 billion cell phone users. There were three times as many cell phones subscriptions as total Internet users. There were four times as many cell phones as personal computers. There were twice as many cell phones as television sets. There is no other media as widely adopted and as pervasive as the cell phone (Ahonen, 2008).

In the United States in 2009, 77% of teens owned mobile phones, with another 11% stating that they used a borrowed one. Only 12% of the teens in America did not have access to mobile technology in 2009. Eighty-three percent of teens used text messaging. The average mobile teen sent or received 2,899 text messages monthly

compared to 191 voice calls. Text messaging was preferred by 66% of U.S. teens who said it is the reason they purchased a mobile phone. This preference is reflected in the 566% increase in text messaging in 2 years, while voice calls remained almost steady. In 2009, communicating through text messaging outnumbered voice calls (Nielson Report, 2009).

Thirty-seven percent of U.S. teens accessed the Internet on their mobile phones in the beginning of 2009, second only to China (Nielson Report, 2009). During that year, the average iPhone users spent 45% of their time making voice calls and 55% of their time browsing the web and using smart phone applications (Keane, 2010). Also, during that year, mobile technology use exceeded desktop use, and data and video usage exceeded voice calls. Over 33% of teens downloaded ringtones, instant messaged, or used the mobile Web, while 25% of U.S. teens downloaded games and applications on their mobile phones. The average teen user watched over 6 hours of mobile video in 2009 (Nielson Report, 2009).

In 2010, 80% of the U.S. population owned mobile phones, and 35% of U.S. adults used their mobile devices for wireless Internet access (Keane, 2010). During 2010, 1.3 billion mobile phones were shipped globally, and 250 million of the mobile phones shipped were smartphones. One billion mobile devices accessed the Internet, a steady gain on the 1.3 billion personal computers that accessed the Internet that same year ("Trends Spotting Market Research," 2010). Forty percent of iTouch and iPhone users accessed the Internet more often on their mobile devices than on their desktop computers (Keane, 2010).

A study in 2011 found that 83% of adults in America owned a mobile phone, and 42% of those mobile phones were smartphones. Twenty-five percent of the smartphone

users relied mostly on their smartphones to access the Internet. The study showed that 87% of smartphone owners used their smartphone to access the Internet or check email, with 68% doing so on a typical day (Smith, 2011).

Analysts predict that by the end of 2011, 99% of mobile phones will be data-capable devices. In 2012, purchases of smartphones will exceed purchases of personal computers (Keane, 2010). By the year 2015, practically all phones purchased will be smartphones ("Trends Spotting Market Research," 2010).

Mobile will soon be the principal digital means that consumers use to connect and interact with the world (Burson-Marsteller and Proof Integrated Communications, 2010). Mobile is personal, permanently carried, always on, available at the point of inspiration, and has the capacity to capture social context (Ahonen, 2008). Mobile is indeed the most compelling mass media because "the need to communicate is more powerful than the need to compute, to be entertained, or to be informed" (Ahonen, 2008, p. 1).

This capacity of mobile to capture social context has positive implications when considering the sociality of Facebook. Of the 500 million users on Facebook, 100 million of them access Facebook using their mobile phones. Facebook mobile users are twice as active on the site as non-mobile technology users (Keane, 2010). Facebook users are connecting to others without being tied to a particular location, giving Facebook a boon in mobile digital traffic.

Responding to the social realm is only part of the experience for mobile users. They also are creating knowledge and meaning by interacting with their world and their ideas and responding to both using the mass medium of mobile. In this ideal constructivist environment that is collaborative, interactive, tactile, visual, aural, engaging, social, and mobile, Digital Natives are making way for Generation C, a new

generation of young people born after 1990 who have lived their adolescent years after 2000. They are a generation of mobile users who are "communicating, content-centric, computerized, community-oriented, always clicking" (Friedrich, Peterson, & Koster, 2011). They are a social-networked generation of teens and young adults who have learned to keep in touch with friends and colleagues using their mobile devices "at all times and in all situations" (Ahonen 2008, p. 105) and connecting and responding in real time, as it happens, to their digital communities, with feedback and support of friends instantaneously. The impact of mobile, powerful seventh mass medium, on this new group of teens and their academic achievement will be left for future researchers but, no doubt, the impact will be worthy of scholarly study.

<div align="center">Summary</div>

The implications of mass media on adolescent academic achievement have been examined for almost 100 years, igniting extensive research throughout generations of students and extraordinary technological advancements. That 16.5 million U.S. teens, who are using Facebook, the most popular social networking site in the world, is reason enough to conduct scholarly research that examines teen use of social networking and its impact on academic achievement. If the goal of such research is to provide a better understanding of the implications of this powerful mass medium on young people who seek meaning, understanding, and connection anytime, anyplace, and anywhere, then scholars' research could indeed make a difference.

In Chapter II, the researcher reviewed the literature. The methodology for this study is presented in Chapter III, which follows.

CHAPTER III

METHODOLOGY

Overview

This study examined the relationships between the amount of time 11th-grade students spent using social networking sites or other displacement activities and academic achievement. In addition, this study examined the extent to which certain demographic variables (e.g., gender, age, race/ethnicity, socioeconomic status, and college-bound and noncollege-bound plans) affected the relationship between the amount of time 11th-grade students spent using social networking sites or other displacement activities as well as academic achievement.

Research Questions

The study was guided by the following research questions:

1. Is there a statistically significant relationship between the amount of time 11th-grade students spend using social networking sites and academic achievement?

2. Is there a statistically significant relationship between the amount of time 11th-grade students spend on other displacement activities and academic achievement?

3. Is there a statistically significant relationship between certain demographic variables and the amount of time 11th-grade students spend using social networking sites or other displacement activities as well as academic achievement?

Research Hypotheses

This study tested the following hypotheses:

H_{01}: The amount of time 11th-grade students spend using social networking sites will have no statistically significant relationship on academic achievement. In one study involving high school students, Pierce and Vaca (2007) found a link between use of My Space and declining grades. Windham (2008) found that use of socially interactive technologies, particularly text messaging and the use of social networking sites, had a significant negative relationship on grade point averages of high school students.

The majority of current research has focused on college students and the time spent on social networking sites and its impact on grade point averages. These studies have produced mixed results. A study of undergraduate college students in 2006 looked at the relationship between time spent using Facebook and GPA. Findings revealed that there was a significant relationship between the two variables (Boogart, 2006). Kolek and Saunders (2008) studied undergraduates who had Facebook profiles and found that there was no clear relationship between those students who had Facebook profiles and GPA. Another study showed no significant relationship between time spent on Facebook and reported cumulative GPA when controlling for purpose of use, time spent on other online social network sites, school work, and other online media use (Legath et al., 2009). However, Karpinski (2009) found that students who used Facebook spent less time studying and had significantly lower GPAs than students who were not users of Facebook. Education Database Online (2011) reported that college students who used Facebook studied less. A logical assumption can be made that with the mixed results of current research on college students, similar results may be found when studying social networking use and its relationship to the academic achievement of 11th-grade students.

The present hypothesis tested whether this effect extended to 11th-grade students with respect to social networking use and academic achievement.

H_{02}: *The amount of time 11th graders spend on other displacement activities will have no statistically significant effect on academic achievement.* Studies on teen ownership and use of media reflect the pervasiveness of media in the lives of America's youth. In 2005, young people spent an average of 6½ hours each day with media. One study examined the media consumption of a typical U.S. teenager on an average day. The findings showed that teens interacted with all types of media, not just social networking media. For example, teens watched approximately 3 hours of television, used a computer for 52 minutes, surfed the Internet for 23 minutes and sent or received 96 text messages (Nielsen Report, 2009).

A study in 2005 showed that television remained the dominant medium for young people, though many watched cable TV instead of broadcast television. Young people spent an average of 3 hours each day watching television and almost 4 hours each day when videos and time-shifted shows were included. Forty-eight percent of children also said that they multitasked while watching television (Rideout et al., 2005).

According to data gathered from several sources by Education Database Online Blog, multitasking may hurt grades. Data revealed that 20% of the students who multitasked between Facebook and studying had lower grades (Education Database Online, 2011). One study conducted with children between the ages of 8 and 18 years showed that while 26% of the time young people used one type of media, they multitasked with another type of media. Thirty percent of young people in the study stated that they multitasked while doing homework (Rideout et al., 2005).

Young people are still reading for pleasure in spite of competition by new media. One study found that on a typical day 73% of young people read for pleasure, spending approximately three-quarters of one hour of each day reading. Those young people with televisions in their bedrooms, those in homes with televisions left on all of the time, and those young people who have no rules for watching television spent less time reading than others. The study also found that young people who watched more than 5 hours of television each day spent the same amount of time reading than other young people. Those who played console video games for more than one hour each day spent more time reading than those who played fewer video games or none at all (Rideout et al., 2005).

Facebook use can also impact part-time work. Eighty-five percent of Facebook users worked less than 5 hours each week compared to 80% of non-Facebook users who worked over 16 hours a week. The college students who were Facebook users were also twice as likely to be involved in extracurricular activities on campus.

One study found that teens embrace new media, not at the expense of the old media, but as a supplement to it. Thus, teens are not necessarily displacing old media for new media but are embracing new media as a supplement to what they already use, further saturating their lives with more and more media (Nielsen Report, 2009). A Kaiser Family Foundation study in 2005 revealed that young people's use of newer media (e.g., computers and video games) did not appear to displace their traditional media (e.g., television and music). Youth who spent more than 2 hours daily using a computer watched more television, played more video games, and listened to more music than the young people who did not use a computer that day (Rideout et al., 2005).

The current hypothesis tested whether there is a statistically significant relationship between the amount of time 11th-grade students spent on other displacement activities

such as texting on a cell phone, talking on a cell phone, listening to music, watching television, doing homework, reading books, magazines or newspapers, physically hanging out with friends, participating in extracurricular activities, working a part-time job, playing console video games, surfing the Internet, or multitasking and academic achievement.

H_{03}: *Certain demographic variables will have no statistically significant effect on the amount of time 11th-grade students spend using social networking sites or other displacement activities as well as academic achievement.* Studies involving social networking use and gender have produced mixed results. A study by Walz in 2008 found that male students' use of social networking sites was associated with a stronger sense of belonging or higher sense of connectedness to others than female college students. Windham (2008) found that gender did not moderate relationships between social interactive technologies and psychosocial adjustment, nor did the use of interactive media by males correlate to better college adjustment. Social networking sites and social interactive technologies share some of the same interactivity characteristics, such as friend's lists, user profile, and posted information that a user's friends can see (Windham, 2008). Thus, the assumption can be made that the effect of gender on the use of social networking sites may be similar to the relationship between gender and social interactive technologies.

In addition, a study done by Boogart (2006) found that African Americans reported using Facebook more often than other students to make interpersonal connections which they could not make in the physical world. Another 2006 study found that African Americans used the Internet less than Caucasians and there was no gender difference in regard to Internet use (Jackson et al., 2006). One study found that African

American teens that went online were significantly more likely to use the Internet to research information for colleges and universities than Caucasian teens (Lenhart, 2001).

A study that examined the relationships between socioeconomic status, education, and technology found that families with highly educated parents were more likely to have access to technology. The researchers hypothesized that children from lower socioeconomic households may have more difficulty learning to use technology due to lack of availability (Dehmler, 2009; Koivusilta, Lintonen, & Rimpelä, 2007). These findings corroborate an earlier study that found that African Americans from low socioeconomic status use the Internet less often than their European American counterparts (Jackson et al., 2006). Significant differences also were found in the amount of time young people spent interacting with different types of media based on age, gender, and race (Rideout et al., 2005). A study by Norris (2010) showed that after controlling for Internet use and family social capital variables, demographic differences in gender, ethnicity, and race were either reduced or non-significant predictors of academic achievement. The current hypothesis tested whether the findings in these studies extended to high school student use of social networking sites or other displacement activities and academic achievement when considering certain demographic variables, such as gender, race/ethnicity, socioeconomic status, and college-bound and noncollege-bound plans.

<div align="center">Research Design</div>

Pearson correlation procedures were conducted to determine whether there would be a relationship between the number of hours spent social networking and academic achievement and whether there would be a relationship between the number of hours spent on displacement activities and academic achievement. Multiple regression

procedures were used to determine which displacement activities (time spent texting, talking on a cell phone, listening to music, watching television, doing homework, reading books or magazines, physically hanging out with friends, participation in extracurricular activities, working at a part time job, playing games on a computer, surfing the Internet, or multitasking) significantly predicted HSGPA and ACT scores. In addition, several multiple linear regression procedures were conducted to determine whether certain demographic variables (gender, age, race/ethnicity, socioeconomic status, and college-bound/noncollege-bound plans) significantly predicted time spent social networking, time spent on displacement activities and academic achievement. Frequencies, means, and standard deviations for intervening variables were calculated, including item-level descriptive statistics.

<div align="center">Participants</div>

Participants in the study consisted of 141 eleventh graders from four of the eight high schools in a large, urban southeast public school system (approximately 36,000 students). Approximately 1,400 eleventh graders were eligible to participate in the study. Those students willing to participate in the study signed an Assent form (see Appendix A) and their parents signed an Informed Consent form (see Appendix B).

<div align="center">Instrumentation</div>

The survey instrument (see Appendix C) was a researcher-designed questionnaire that consisted of 36 questions designed to identify the main social networking sites students used, the amount of time spent daily on that site, and the amount of time spent on other displacement activities. The survey instrument also included general questions regarding the students' social networking use, such as the number of social networking friends they had and what activities they were involved in the most while using a social

networking site. Research question one was addressed in survey questions 32 and 33. Research question two was addressed in survey questions 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 26, and 27. Research question three was addressed in survey questions 1, 2, 3, 4, and 5.

Demographics were collected to identify the effects that the variables of gender, age, race/ethnicity, socioeconomic status, and college-bound/noncollege-bound plans have on social networking use, other displacement activity use, and academic achievement. Time spent interacting with other media was collected to analyze its effect on academic achievement.

Prior to administering the pretest to the sample group of students, a panel of experts reviewed the survey instrument. Necessary adjustments were made to the instrument before submission to The University of Southern Mississippi's Institutional Review Boards. After receiving approval from USM's IRB (see Appendix D), the survey instrument was tested in a pilot study with seventeen 11th-grade students in the same school district where the study was conducted. The pilot study was conducted in order to gather feedback from students regarding their understanding of the questions that were asked and to estimate the amount of time it would take a typical student to complete the survey. Data collected from the pilot study was not included in the results of this study.

<div align="center">Procedures</div>

The researcher complied fully with the policy of The University of Southern Mississippi Institutional Review Boards (IRB) with regard to protection of human subjects. After permission was obtained from the school district's superintendent of schools (see Appendix E), teachers with 11th-grade students were informed that their students were invited to participate in a study (see Appendix F). Approximately 1,400

11th-grade students in the St. Tammany Parish Public School System were asked to participate in this study. During a designated class, teachers of 11th-grade students distributed a parent letter (see Appendix G), the Informed Consent form, and the Assent form to their 11th-grade students. Those students whose parents agreed to permit their child to participate in the study returned the signed paperwork by a designated date. To enhance student participation, four participating students from each of the four high schools were awarded one $25 iTunes gift card each after all the surveys were collected from the participating schools.

During a designated class period, each teacher with 11th graders received a roster of the students in their class eligible to participate in the survey. Eligible students were 11th-grade students who returned a signed Informed Consent form and signed the Assent form. Teachers were given directions (see Appendix H) regarding distribution of the quantitative survey, Social Networking Site Use Questionnaire, to each eligible student. The survey took approximately 5 to 10 minutes to complete. The questionnaire was comprised of 36 questions associated with social networking use. Students were asked to complete the questionnaire and return it to their teacher upon completion. Teachers were asked to check off the names of the students on the roster who completed the survey and turn the roster in with the completed surveys. The teachers were asked to place all questionnaires into the envelope provided, seal it, and return it to the office immediately following the class period. All questionnaires were picked up from the school office at the end of the school day by the principal investigator.

Data Analysis

Data were entered into SPSS (Version 18) and subjected to the following statistical procedures. Frequencies, means, and standard deviations for all variables were calculated. For each of the hypotheses, the data were analyzed as follows:

H_{01}: The amount of time 11th-grade students spend using social networking sites will have no statistically significant relationship to academic achievement. To test this hypothesis, Pearson correlation procedures were conducted to determine whether there would be an association between the number of hours spent social networking and academic achievement.

H_{02}: The amount of time 11th-grade students spend using other displacement activities will have no statistically significant relationship to academic achievement. To test this hypothesis, Pearson correlation procedures were conducted to determine whether there would be an association between the number of hours spent on displacement activities and academic achievement.

H_{03}: Certain demographic variables will have no statistically significant effect on the amount of time 11th-grade students spend using social networking sites or other displacement activities and their academic achievement. To test this hypothesis, several multiple linear regression procedures were conducted to determine whether certain demographic variables would significantly predict time spent social networking, time spent on displacement activities, and academic achievement.

<center>Limitations</center>

The following limitations were accepted for the scope of this study:

1. This study was limited by the personal ownership of media and Internet availability of the respondents since survey questions are related to the use of social networking sites outside the school environment.

2. A limitation of this study was that it asked for students to self-report their time spent on social networking sites, their HSGPA, and their ACT score. Subjects were asked to identify, if any, the social networking sites they used and the amount of time that they interacted with the sites daily. Students were also asked to state their HSGPA and ACT score. Subjects may have overestimated or underestimated their social networking site use, their HSGPA, and their ACT score.

3. This study was limited due to a one-hour increment of time that was omitted from the possible responses of questions 31 and 32 in the survey instrument.

4. This study was limited due to restriction of range on some of the responses in the survey instrument.

5. The correlational research design of this study was limited in its ability to show a causal effect between the use of social networking sites and academic achievement. However, this study attempted to determine if relationships existed.

Summary

The focus of Chapter III was to present the methodology for this study which examined the relationships between the amount of time 11th-grade students spent using social networking sites or other displacement activities and their academic achievement. This study also examined the extent to which demographic variables affected the amount of time 11th-grade students spent using social networking sites or other displacement activities and their academic achievement. Chapter IV presents the results of the study.

CHAPTER IV

ANALYSIS OF DATA

The study examined the relationships between the amount of time 11th-grade students spent using social networking sites or other displacement activities and their academic achievement. In addition, the study examined the extent to which demographic variables (i.e., gender, age, ethnicity, socioeconomic status, personal ownership and use of media and college-bound/noncollege-bound plans) affected the amount of time 11th-grade students spent using social networking sites or other displacement activities and their academic achievement.

In line with this, the following research questions were examined:

1. Is there a statistically significant relationship between the amount of time 11th-grade students spend using social networking sites and academic achievement?

2. Is there a statistically significant relationship between the amount of time 11th-grade students spend on other displacement activities and academic achievement?

3. Is there a statistically significant relationship between certain demographic variables and the amount of time 11th-grade students spend using social networking sites or other displacement activities as well as academic achievement?

In the current chapter, the results of the statistical procedures conducted to answer the three research questions are detailed. First, the statistics describing the sample are presented. Thereafter, the statistical results for each of the research questions are summarized.

Description of the Sample

Demographic Variables

As shown in Table 1, the majority of the participants were female (63.8%), White (78.7%), did not receive free and reduced lunches (73.8%), and were very likely to attend college (89.4%). Participants were between the ages of 15 and 19 years with a mean age of 16.87 ($SD = 3.23$).

Table 1

Frequencies and Percentages for the Demographic Variables (N = 141)

Variable	n	%
Sex		
Female	51	36.2
Male	90	63.8
Ethnicity		
Caucasian	111	78.7
African American	22	15.6
Hispanic	3	2.1
Asian or Pacific Islander	2	1.4
Other	3	2.1
Free lunch		
No	104	73.8
Yes	35	24.8
Unsure	2	1.4
Likelihood of attending college		
Not at all	1	.7
Undecided	6	4.3
Somewhat likely	8	5.7
Very likely	126	89.4

Academic Achievement Measures

As presented in Table 2, the 11th graders' GPAs ranged from 1.4 to 4.0; the mean

GPA was 3.13 (*SD* = .59). Respondents indicated that they were somewhat confident

(53.9%) or very confident (37.6%) that the GPAs they reported were accurate.

Respondents' ACT scores ranged from 14 to 33; the mean ACT score was 22.67 (*SD* =

4.18). Respondents indicated that they were very confident (91.1%) of the accuracy of

the ACT scores they reported.

Table 2

Descriptive Statistics for Age and Academic Achievement

Variable	*n*	Range	*M*	*SD*
Age	141	15.0 to 19.0	16.87	3.23
GPA	139	1.4 to 4.0	3.13	.59
ACT	90	14.0 to 33.0	22.67	4.18

Social Networking and Displacement Time Measures

The reliability for the displacement and social networking measures was assessed

with Cronbach's alpha. The displacement measure had a Cronbach's alpha of .94 for the

pilot study and .70 for the actual study. The social networking measure had a Cronbach's

alpha of .91 for the pilot study and .83 for the actual study. Given the reliability

coefficients, the measures had adequate internal consistency (see Table 3).

Table 3

Reliability Coefficients for the Displacement and Social Networking Measures (N = 141)

Measure	Pilot α	Study α
Displacement	.94	.70
Social networking	.91	.83

Note. α = Cronbach's alpha.

The findings in Table 4 reveal that the primary social network the respondents used was Facebook (92.2%). About a third of the respondents accessed their preferred social network site only via computer (30.5%); a minority accessed it only via cell phone (7.8%); while more than one half accessed it via both computer and cell phone (56.7%).

Table 4

Frequencies and Percentages for the Social Networking Measures (N = 141)

Variable	*n*	*%*
Preferred social networking site		
Facebook	130	92.2
Hi5	2	1.4
Other	2	1.4
Do not use any	7	5.0
Access site via		
Computer	43	30.5
Cell phone	11	7.8
Both computer and cell phone	80	56.7
Do not access site	7	5.0

The findings in Table 5 show that 11th graders spent between 2 to 10 hours per week on their preferred social networking site; the mean number of hours spent was 4.51 ($SD = 2.14$). Respondents spent between 8 and 66 hours per week on displacement activities; the mean number of hours spent was 25.43 ($SD = 9.27$).

Table 5

Descriptive Statistics for Hours Spent on Social Networking and Displacement Activities

Variable	*n*	Range	*M*	*SD*
Social networking	133	2.0 to 10.0	4.51	2.14
Displacement activities	141	8.0 to 66.0	25.43	9.27

Respondents spent an average of 3.70 hours ($SD = 1.44$) listening to music and 3.40 hours ($SD = 1.56$) hanging out with friends. Respondents also spent an average of 2.74 ($SD = 1.20$) hours doing homework. In contrast, respondents spent only 1.52 hours ($SD = 1.14$) playing online games and only 1.22 hours ($SD = .84$) in virtual gaming activities, such as Second Life. The descriptives for the other displacement activities respondents engaged in can be found in Table 6.

Table 6

Descriptive Statistics for Other Displacement Activities

Displacement activity	*n*	Range	*M*	*SD*
Using cell phone	141	1.0 to 6.0	2.54	1.51
Texting	140	1.0 to 6.0	4.41	1.56
Listening to music	141	1.0 to 6.0	3.70	1.44
Watching TV	141	1.0 to 6.0	2.82	1.45
Doing homework	141	1.0 to 6.0	2.74	1.20
Reading books	141	1.0 to 6.0	1.99	1.22
Spending times with friends	141	1.0 to 6.0	3.40	1.56
Extracurricular activities	141	1.0 to 6.0	2.79	1.51
Working at job	141	1.0 to 6.0	2.68	2.14
Internet	141	1.0 to 6.0	2.88	1.36
Playing console games	140	1.0 to 6.0	1.74	1.30
Playing online games	141	1.0 to 6.0	1.52	1.14
Watching You Tube videos	141	1.0 to 6.0	1.84	1.15
Downloading iTunes	141	1.0 to 6.0	1.83	1.21
Virtual environment	140	1.0 to 6.0	1.22	.84
Multitasking	141	1.0 to 6.0	3.38	1.47

Results of Hypotheses Tests

The Relationship Between Time Spent Social Networking
and Academic Achievement

The first research question sought to determine whether there would be an

association between the number of hours spent social networking and academic

achievement. To answer this research question, Pearson correlation procedures were

conducted. The Pearson correlation findings in Table 7 reveal that time spent social

networking was not significantly correlated to GPA, $r(130) = -.10$, $p = .252$. But time

spent social networking was significantly and negatively associated with ACT scores, r

$(86) = -.28$, $p = .010$. Thus, the more hours 11th graders spent on their social networking

site, the lower their ACT scores.

Table 7

Pearson Correlations Between Time Spent Social Networking and Academic
Achievement

Variable	1	2
1 Social networking		
2 GPA	-.10	
3 ACT	-.28**	.59***

Note. n for GPA = 130. n for ACT = .86.
*$p < .05$. **$p < .01$. ***$p < .001$.

The Relationship between Time Spent on Displacement
Activities and Academic Achievement

Associations between displacement activities and academic achievement. The second research question sought to determine whether there would be an association between the number of hours spent on displacement activities and academic achievement. To answer this research question, Pearson product-moment correlation procedures were conducted. The Pearson correlation findings in Table 8 reveal that time spent on displacement activities was not significantly correlated to GPA, $r = -.16$, $p = .058$. However, time spent on displacement activities was significantly and negatively associated with ACT scores, $r = -.32$, $p = .002$. Thus, the more hours 11th graders spent on various displacement activities, the lower were their ACT scores.

Table 8

Pearson Correlations Between Time Spent On Displacement Activities and Academic Achievement

Variable	1	2
1 Displacement activities		
2 GPA	-.16	
3 ACT	-.32**	.59***

Note. n for GPA = 138. *n for ACT = 90.*
*$p < .05$. **$p < .01$. ***$p < .001$.

Predictors of GPA. To determine which displacement activities significantly predicted GPA, a multiple linear regression procedure was conducted. The regression results in Table 9 reveal that number of hours spent listening to music significantly and negatively predicted GPA, $\beta = -.23$, $p = .035$. Thus, the more time 11th graders spent

listening to music, the lower their GPA. In addition, the number of hours spent on downloading iTunes significantly positively predicted GPA, $\beta = .28$, $p = .005$. Therefore, the more time 11th graders spent on downloading iTunes, the higher their GPA.

Table 9

Multiple Linear Regression Results for the GPA Model (n = 135)

Variable	β
Using cell phone	-.03
Texting	-.18
Listening to music	-.23
Watching TV	-.08
Doing homework	.17
Reading books	.05
Spending times with friends	-.15
Extracurricular activities	-.05
Working at job	-.04
Time spent on Internet	-.09
Playing console games	-.07
Downloading iTunes	.28**
Virtual environment	.07
Multitasking	.00

Note. Model $F(16, 118) = 2.19$, $p = .009$. Model $R^2 = .229$.
*$p < .05$. **$p < .01$. ***$p < .001$.

Predictors of ACT scores. To determine which displacement activities

significantly predicted ACT scores, a multiple linear regression procedure was

conducted. The regression results in Table 10 reveal that number of hours spent listening

to music significantly and negatively predicted ACT scores, β = -.34, p =.011. Thus, the

more time 11th graders spent listening to music, the lower their ACT score. In addition,

the number of hours spent on downloading iTunes significantly and positively predicted

ACT scores, β = .34, p = .010. Therefore, the more time 11th graders spent downloading

iTunes, the higher their ACT scores.

Table 10

Multiple Linear Regression Results for the ACT Model (n = 87)

Variable	β
Using cell phone	-.15
Texting	-.15
Listening to music	-.34*
Watching TV	.02
Doing homework	-.09
Reading books	.17
Spending times with friends	-.21
Extracurricular activities	.07
Working at job	-.14
Time spent on Internet	-.11

Table 10 (continued)

Variable	β
Playing console games	-.14
Playing online games	.09
Watching You Tube videos	-.13
Virtual environment	.14
Multitasking	-.14
Downloading iTunes	.34**

Note. Model $F(16, 70) = 2.65$, $p = .003$. Model $R^2 = .377$.
*$p < .05$. **$p < .01$. ***$p < .001$.

*The Relationship between Demographics and Time Spent
on Social Networking and Displacement Activities and
Academic Achievement*

The third question sought to determine whether certain demographic variables would significantly predict time spent social networking, time spent on displacement activities, and academic achievement. To answer this question, several multiple linear regression procedures were conducted.

Time spent social networking. The regression results in Table 11 indicate that none of the demographic variables significantly predicted the number of hours 11th graders spent social networking.

Table 11

Multiple Linear Regression Results for the Demographics and Social Networking Model (n = 123)

Variable	β
Gender	.17
Age	-.04
Ethnicity	.15
Full-price lunch	.04
Likelihood of attending college	.09

Note. Model, $F(5, 177) = 2.05$, $p = .077$. Model, $R^2 = .080$.
*$p < .05$. **$p < .01$. ***$p < .001$.

Time spent on displacement activities. The regression results in Table 12 reveal that age significantly predicted time spent on displacement activities, $\beta = .20$, $p = .034$. Thus, the older the respondents, the more time they spent on displacement activities.

Table 12

Multiple Linear Regression Results for the Demographics and Displacement Activity Model (n = 131)

Variable	β
Gender	-.00
Age	.20*
Ethnicity	.06

Table 12 (continued).

Variable	β
Full-price lunch	-.15
Likelihood of attending college	.07

Note. Model, $F(5, 136) = 2.35, p = .048$. ACT Model, $R^2 = .084$.
*$p < .05$. **$p < .01$. ***$p < .001$.

GPA. The regression results in Table 13 show that age significantly and negatively predicted GPA, $\beta = -.17, p = .046$. The older the respondents, the lower their GPAs. Full-price lunch status significantly predicted GPA, $\beta = .27, p = .006$. Finally, likelihood of attending college significantly predicted GPA, $\beta = .22, p = .009$.

Table 13

Multiple Linear Regression Results for the Demographics and GPA Model (n = 128)

Variable	β
Gender	.09
Age	-.17*
Ethnicity	.09
Full-price lunch	-.27**
Likelihood of attending college	.22

Note. Model, $F(5, 122) = 8.96, p = .000$. Model, $R^2 = .269$.
*$p < .05$. **$p < .01$. ***$p < .001$.

ACT. As revealed in Table 14, none of the demographic variables significantly predicted ACT scores.

Table 14

Multiple Linear Regression Results for the Demographics and ACT Model (n = 83)

Variable	β
Gender	.05
Age	.08
Ethnicity	-.28
Full-price lunch	.22
Likelihood of attending college	.04

Note. Model, $F(5, 77) = 3.75$, $p = .004$. Model, $R^2 = .196$.
*$p < .05$. **$p < .01$. ***$p < .001$.

CHAPTER V

SUMMARY

The purpose of this chapter is to summarize the findings of the research that examined the relationships between the amount of time 11th-grade students spent using social networking sites or other displacements activities and academic achievement. Recommendations for policy will be discussed that could inform the practices of educational leaders, parents, and others who are interested in media use and its relationships to teens. In addition, limitations will be discussed in light of the results of this study. Finally, based on the findings of this study, recommendations will be offered for future research.

Conclusions and Discussion

This study was conducted with 141 eleventh graders from four high schools in a large, urban southeast public school system. The goal of the study was to examine the relationships between the amount of time 11th-grade students spent using social networking sites or other displacements activities and academic achievement. In addition, the study sought to examine the extent to which certain demographic variables affected the amount of time 11th-grade students spent using social networking sites or other displacement activities and academic achievement.

For the purpose of this study, academic achievement was defined as students' high school grade point average (HSGPA) and ACT scores. Separate analyses were conducted to examine the relationships between HSGPA and time spent on social networking and other displacement activities. Separate analyses were also conducted to

examine the relationships between ACT scores and time spent on social networking and other displacement activities.

The study was guided by three research questions. The first research question sought to determine if there was a statistically significant relationship between the amount of time 11th-grade students spend using social networking sites and academic achievement. The amount of time 11th-grade students spend using social networking sites was predicted to have no statistically significant relationship on academic achievement.

Results showed that time spent social networking was not significantly correlated to HSGPA. This finding is consistent with studies involving college students. Kolek and Saunders (2008) found no clear relationship between students with Facebook profiles and GPA. Another study also found no significant relationship between time spent on Facebook and self-reported GPA of undergraduate students (Legath et al., 2009).

This finding, however, contrasts with studies that involve high school students (Pierce & Vaca, 2007; Windham, 2008), as well as some studies that examined post-secondary social networking use (Boogart, 2006; Karpinksi, 2009). Pierce and Vaca (2007) found a significant relationship between high school student use of MySpace and lower grades. Windham (2008) found that greater use of socially interactive technologies, particularly text messaging and the use of social networking sites, was associated with lower levels of academic performance of high school students. When examining college students, Boogart (2006) and Karpinski (2009) found a significant and negative relationship between heavy Facebook use and lower GPA.

It may be that the respondents of this current study were able to balance their HSGPA and the time they spent using social networking. The respondents spent

approximately 4½ hours weekly using a social networking site. The time spent using a social networking site did not significantly impact their HSGPA.

Findings of this current study showed that time spent social networking was significantly and negatively associated with ACT scores. A review of the literature did not find any studies that examined the relationships between social networking use and ACT scores of high school students. It may be that time spent social networking displaced time that could have been spent preparing for the ACT, which is certainly an area for future research.

The second research question sought to determine whether there would be an association between the number of hours spent on displacement activities, such as texting on a cell phone, talking on a cell phone, listening to music, watching television, doing homework, reading books, magazines, or newspapers, physically hanging out with friends, participating in extracurricular activities, working a part-time job, playing console video games, surfing the Internet, or multitasking and academic achievement. The amount of time 11th graders spent on these displacement activities was predicted to have no statistically significant effect on academic achievement.

Separate analyses were conducted to look for relationships between HSGPA and time spent on other displacement activities and between ACT score and time spent on other displacement activities. Findings revealed that time spent on displacement activities was not significantly correlated to HSGPA. This finding supports numerous studies that have looked at the relationships between media use and HSGPA throughout the years. Clark (1951), Greenstein (1954), and Scott (1956) found no significant relationships between watching television and HSGPA. In addition, Ridder's (1963) study revealed no significant relationship between academic achievement and the total

number of hours spent viewing television. A study by Childers and Ross (1973) found

that the number of hours spent watching television was not considered a predictor of

student achievement. Research conducted with middle-school students and their Internet

use found no impact on academic performance in school (Southwick, 2002). Another

study found no significant relationship between total time spent using the computer, time

spent using the Internet, and grade point averages of 10th-grade adolescents from three

public high schools (Hunley et al., 2005). In 2008, a study that examined multimedia use

and grades among high school students found no significant relationships between grades

and media exposure (Martin, 2008). Additonal studies conducted on children,

adolescents, and college students also showed no significant relationships between

academic achievement and the amount of time spent playing video games (Gentile et al.,

2004; Roberts et al.,1999). One study examined the impact of background music on

homework and found that music playing in the background did not affect homework

performance (Pool et al., 2003).

The finding of this current study, however, contrasts with numerous studies that

found negative relationships between media use and HSGPA. An early study found that

children who attended movies four to five times weekly did poorer work in their school

subjects (Charters, 1933). A study by Witty (1951) showed that the higher the test score,

the lower the numbers of hours a child spent watching television. Witty completed

another study in 1959 that revealed excessive viewing of television was associated with

poor academic performance in children. These findings are similar to another study that

found heavy televison viewing by adolescents was associated with lower mental ability

(Schramm et al., 1961).

A study by Gadberry (1980) suggested that children who had their hours of televison watching restricted by parents performed better in school and had higher IQ scores than other children. This finding corroborated the results found by Williams et al. (1982). Ridley-Johnson et al. (1983) found that overall television viewing negatively correlated to reading grades and IQ scores. These results were similar to the findings by Ennenmoser and Schneider (2007) who found a negative correlation between television viewing and reading achievement.

In addtion, studies that examined the amount of time high school students spent playing video games found negative relationships between time spent video gaming and HSGPA. A 1988 study found that students who played video games frequently and who identified themselves as heavy television viewers had the lowest grades in school (Lieberman et al., 1988). High school students who spent more money purchasing and playing video games had lower grades in English (Gentile et al., 2004). A small, negative correlation between academic achievment and time spent playing video games was found in a study by Martin (2008).

In addtion, Anderson and Dill (2000) found that undergraduate students who had higher time commitments to video gaming were associated with lower GPAs. College students reported poor study habits and low grades from excessive Internet use (Young, 2004). A recent analysis of data revealed that 20% of the students who multitasked between Facebook and studying had lower grades (Education Database Online, 2011).

This current finding is consistent with the earlier finding which showed that social networking use, another form of displacement, was not significantly correlated with HSGPA. Even though the respondents in this study averaged approximately 25 hours per

week on displacement activities, they were able to balance their academic achievement, specifically GPA, and the time they spent on displacement activities.

However, another finding of this current study showed that the number of hours spent listening to music significantly and negatively predicted HSGPA. Thus, the more time 11th graders spent listening to music, the lower their HSGPAs. This finding may support a study by Took and Weis (2004) who found that adolescents who listened to certain types of music (heavy metal and rap) had below average grades in school. This study did not assess the type of music to which students listened. Future research should examine this variable to determine the differential effect by type of music. This current finding may reflect students who multitasked between homework and listening to music, which may have negatively impacted their HSGPA.

Current findings also revealed that the number of hours spent on iTunes significantly and positively predicted HSGPA. Therefore, the more time 11th graders spent on iTunes, the higher their HSGPA. Since there is a cost associated with iTunes use, this may have skewed the population that uses iTunes to exclude the students who are on free and reduced lunch. The finding in this current study showed that full-price lunch positively and significantly predicted GPA. Thus, the possibility exists that student use of iTunes was tempered by their socioeconomic status.

This current finding regarding the significant and positive relationship between iTunes use and HSGPA appears at odds with the previous finding that showed a significant and negative relationship between listening to music and HSGPA. However, a test for collinearity between the variables of listening to music and downloading songs from iTunes showed no relationship. This may be an interesting topic for future research.

Although findings of this current study showed that time spent on displacement activities was not associated with HSGPA, time spent on displacement activities was significantly and negatively associated with ACT scores. Thus, the more hours 11th graders spent on various displacement activities, the lower their ACT scores. It may be that time spent on displacement activities, such as working at a part-time job or participating in extracurricular activities, displaced time spent preparing for the ACT. A review of the literature did not find any studies that examined the relationships between displacement activities and ACT scores of high school students. This, too, is an area for future research.

The third research question sought to determine if there was a statistically significant relationship between certain demographic variables and the amount of time 11th-grade students spent using social networking sites or other displacement activities as well as academic achievement. Certain demographic variables were predicted to have no statistically significant effect on the relationships between the amount of time 11th-grade students spent using social networking sites or other displacement activities as well as academic achievement.

Findings showed that none of the demographic variables significantly predicted social networking site use. This finding contrasts to research by Boogart (2006) who found that African Americans reported using Facebook more often than other students to make interpersonal connections that they could not make in the physical world. It may be that research conducted with greater ethnic diversity might yield different results. It may also be that ethnicity simply plays no role in time spent on social networking. Perhaps, adolescent use of social networking sites is irrespective of culture.

However, when examining predictors of other displacement activities, findings showed that age significantly predicted time spent on displacement activities. Thus, the older the respondents, the more time they spent on displacement activities. This may be explained due to the fact that, oftentimes, older students have more access to various technologies and the permission to use them more often and for longer periods of time. In addition, older students may be more likely to work at part-time jobs, which are defined as a displacement activity for the purpose of this study.

Numerous predictors for HSGPA were found. Findings showed that age significantly predicted HSGPA. Thus, the older the respondents, the lower their HSGPAs. Full-price lunch also significantly and positively predicted HSGPA. Thus, students who had full-price lunches had high HSGPAs and students who qualified for free and reduced lunches had lower HSGPAs. This finding corroborates with other research that found socioeconomic status is a strong determinant of HSGPA (Sackett, Kuncel, Arneson, Cooper, & Waters, 2009). However, Geiser and Santelices (2007) found only a weak relationship between high school HSGPA and socioeconomic status.

The likelihood of attending college also significantly predicted HSGPA. Thus, respondents who planned to attend college had higher HSGPAs, and those who were unsure or not planning to attend college had lower HSGPAs. It may be that students who made the decision to attend college are aware of the importance of a high HSGPA for potential scholarships and admission into college. Geiser and Santelices (2007) found that HSGPA is a strong predictor of cumulative four-year college grades. Therefore, a high HSGPA may predict academic success in college. The findings of this current study contrast findings by Norris (2010) who showed that after controlling for Internet use and

family social capital variables, demographic differences in gender, ethnicity, and race were either reduced or non-significant predictors of academic achievement.

Findings also showed that none of the demographic variables significantly predicted ACT scores. This finding is supported by a study that found after controlling for courses taken, grades earned, and high school attended, race/ethnicity accounted for no more than 1-2% of additional variance in ACT scores (Noble, Davenport, Schiel, & Pommerich, 1999). However, this finding is in contrast to studies by Swanson (2009) and Webb (2005) who found that participation in the free and reduced lunch program was a significant predictor of ACT scores.

<center>Recommendations for Policy and Practice</center>

High school academic success is closely linked to success in college and future careers (Barry, 2005; Battle & Lewis, 2002). It is imperative that there be an ongoing examination of the latest predictors of student academic achievement for continued policy review and updated recommendations. *No Child Left Behind* legislation rewards schools with federal monies for improving test scores. With the federal focus on test scores, it is important to examine factors associated with academic achievement in light of the relationship they have to not only student success, but also to the acquisition of additional federal school dollars. Studies such as this one can be used to assess if current policies and practices in place are helping schools meet the academic goals mandated by *No Child Left Behind* legislation.

The findings of this study offer information regarding the impact of the latest mass media on HSGPA and ACT scores. The findings suggest that there is no significant relationship between social networking use and other displacement activities and HSGPA. This finding may bode well for students who insist to teachers and parents that

Facebook use or other displacement activities are not negatively impacting their grades. The findings in this current study showed that the majority of respondents surveyed did not feel that time spent on social networking hurt their HSGPAs.

However, the findings of the present study reveal a significant and negative relationship between social networking use and other displacement activities and ACT scores. Thus, for students, parents, and educators, the results of this study should be taken into account for those students planning to enter college. ACT test scores are often seen as a predictor of future college success, especially in the first year of college, and key to accessing many of the top colleges in the country ("ACT News Release: ACT Scores Are Better Than High School HSGPA," 2002). Therefore, students, parents, and educators should consider the potential impact that the use of social networking sites and other displacement activities may have on ACT scores and future college success.

It would, however, behoove educational policymakers to examine social networking use as an engaging new teaching tool with potential to positively impact student learning and achievement. Student engagement is considered crucial to student success (Schlechty, 2011). The engaging aspects of social networking use within the classroom lesson or while doing homework could very well prove to be a key factor in increased academic achievement. Thus, school leaders and policymakers may want to consider a new social networking paradigm that incorporates the attraction and power of social media so that, whether in the classroom or at home, students are not forced to displace learning for their need to understand, communicate, and process their world through social networking. To be sure, harnessing the power and presence of social networking as a new teaching tool could pave the way for an entire new way of learning that engages the innate intuitiveness and interests of young people who want to learn

collaboratively, communicatively, and connected, albeit, digitally, to one another. Perhaps, administrators should foster and encourage the use of safe social networking in the schools and at home in order to capitalize on the interest and immense popularity of social networking instead of resisting it and legislating against it.

<div align="center">Limitations</div>

The findings in this study should be interpreted carefully in view of the following limitations. This study surveyed four high schools within one school district in a specific geographical area of the country. It is possible that these findings cannot be generalized to students in other areas of the country. Participation was limited to 11th-grade students which narrowed the scope of the findings. Moreover, the lack of diversity in the sample size may have made the findings in this study less applicable to the general population as a whole.

This study also was limited by the personal ownership of media and Internet availability of the respondents since survey questions were related to the use of social networking sites outside of the school environment. In addition, this present study asked participants to self-report their time spent on social networking sites and other displacement activities. Subjects may have overestimated or underestimated the amount of time that they interacted daily with social networking sites and other displacement activities.

Students were also asked to state their HSGPAs and their ACT scores. Subjects may have overestimated or underestimated their HSGPAs and their ACT scores. The use of self-report for time spent on social networking sites and other displacement activities, HSGPA, and ACT scores calls into question the accuracy of the relationships among the variables examined. Research acknowledges reliability and validity concerns when

studies include self-reported data (Gonyea, 2005). However, a meta-analysis by Kuncel, Crede, and Thomas (2005) showed that students report a relatively high level of validity in self-reported HSGPAs. In addition, Cassady (2001) found relatively high correlations between actual and self-reported SAT scores. Further, Cole and Gonyea (2010) found that ACT scores were reported more accurately than SAT scores.

Another limitation of this study was the restriction of range due to the design of the responses in the survey instrument. Range restriction may impact score validity, reliability, and statistical power (Weber, 2001). Further, students were offered an incentive to participate in this study. Therefore, it is possible that participants may not have entered accurate or thoughtful responses. In addition, a one-hour increment of time was omitted from the possible responses of questions 31 and 32 in the survey instrument. Thus, students may have under-predicted or over-predicted their social networking usage. Finally, the correlational research design of this study was limited in its ability to show a causal effect between the use of social networking sites and other displacement activities and academic achievement. However, this study attempted to determine if relationships exist.

Recommendations for Future Research

Although research regarding the implications of technology use and social networking use among students is increasing, further studies are necessary to more fully understand the effects of such use on students and academic achievement. Numerous implications for future research can be drawn from this study. For example, studies could involve a larger sample from different geographical areas that include additional grade levels with a more diverse socioeconomic status. Results from such a study may produce results that could be more readily generalized to the broader population. In addition,

access to student records, as difficult as that may be to obtain, could offer a more accurate assessment of student HSGPA and ACT scores. In addition, future research that includes results from other standardized tests may offer parents, educators, and policymakers an even greater understanding of the impact of the latest use of mass media on the academic achievement of students.

This study examined the impact of social networking use and other displacement activities outside the school environment. Research is needed to more fully understand the impact of social networking use on academic achievement, specifically within the school setting. It would be valuable to examine the implications of the integration of social networking use as an integral part of lesson design that uses social networking sites made especially for the classroom.

Additional studies also could be conducted utilizing longitudinal designs to allow for long-term analysis. It would be interesting to examine the relationships among social networking use, use of other displacement activities, and academic achievement while following the same students throughout their high school careers, perhaps even into college.

<div align="center">Summary</div>

The implications of mass media on adolescent academic achievement have been examined for almost 100 years, igniting extensive research throughout generations of students and extraordinary technological advancements. Throughout modern history, researchers have examined the implications of print, recordings, cinema, radio, television, Internet, and mobile on the academic achievement of children. Current research has expanded to include studies regarding the impact of computers, Web 1.0 and Web 2.0, specifically the use of social networking sites on academic achievement.

Using the framework of time displacement theory, this current study examined the relationship between time spent on social networking sites and other displacement activities and academic achievement of 11th-grade students from a large southeast public school district. Findings showed no significant correlations between time spent on social networking sites and other displacement activities and HSGPA. However, a significant and negative correlation was found between time spent on social networking sites and other displacement activities and ACT scores. In addition, findings showed that certain demographic variables predicted HSGPA but did not predict ACT scores.

These findings build on the nearly 100 years of research that examined the effects of mass media on children and teens. From devoted fans gathered around early radio shows, to the television generation of the Ed Sullivan Show, to the Digital Natives who grew up wired and plugged in, to the socially-networked teens of Generation C who collaborate and communicate non-stop, the impact of mass media on America's young people has intrigued and inspired researchers. Studies will undoubtedly continue in order to more fully understand and respond to the educational and social implications of mass media on the academic achievement of future generations. To be sure, the latest technological advancements of mass media are impacting even the newest generation of young people yet to be named—newborns and toddlers whose digital DNA will quickly allow them to communicate, collaborate, and connect, innately and intuitively, with technology and each other—in ways never dreamed of in 1917 when the first studies were conducted on the impact of mass media on children.

APPENDIX A

ASSENT FORM

Hello. My name is Melody Swang. I am a doctoral candidate in educational leadership at The University of Southern Mississippi. I would like to invite you to participate in a research study of time spent on social networking sites and other displacement activities and academic achievement. I am conducting this study as part of my dissertation requirement, under the direction of Dr. Wanda Maulding of the College of Education and Psychology. Approximately 1400 11th-grade students will be asked to participate in the study. Taking part is entirely voluntary and you may withdraw from participating in this study at any time without penalty or prejudice.

I. PURPOSE
This study is being conducted to look at the relationships between time spent on a social networking site, such as Facebook, and academic achievement.

II. PROCEDURES
You will be asked to take home an Informed Consent form concerning the study. If you and your parents agree that you can participate in the study, you will need to return the signed Informed Consent form to your teacher. You will be given a brief survey that will ask questions about your social networking use. For instance, you will be asked how much time you spend on a social networking site, what type of activities you are involved in (such as uploading videos, chatting with friends, etc.), how many friends you have on your social networking site, and what social networking site you use the most. You will also be asked demographic questions about your race/ethnicity, age, gender, socioeconomic status, college/non-college plans, personal ownership of media, and grade point average (HSGPA). For the purpose of this study, socioeconomic status is defined as free and reduced lunch, and academic achievement is defined as current grade point average (HSGPA) and ACT score. The survey will be administered during a scheduled class period and should take 5 to 10 minutes to complete. To enhance student participation, four $25 iTunes gift cards will be awarded to four participating students at each school after all surveys are collected from the participating schools.

All information collected will be kept confidential. No names will be used in reporting the results and no schools will be identified. At the conclusion of the study, all completed questionnaires will be destroyed.

III. SIGNATURE
By signing this Assent form, you and your parents agree that you may participate in this study. Please return the signed paperwork to your teacher by _____. The survey will be administered on _____.

Thank you for your time and consideration.

_____   _____
Student's Signature   Date   Student's Printed Name

APPENDIX B

INFORMED CONSENT

UNIVERSITY OF SOUTHERN MISSISSIPPI
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT

1. <u>Purpose:</u> The goal of this study is to examine the relationships between the amount of time 11th-grade students spend on social networking sites, other displacement activities, and academic achievement. For the purpose of this study, academic achievement is defined as current grade point average (HSGPA) and ACT score. This study will also examine how variables such as gender, age, race/ethnicity, socioeconomic status, and college/non-college plans affect the relationships between the amount of time 11th-grade students spend using social networking sites and their academic achievement. For the purpose of this study, socioeconomic status is defined as free and reduced lunch status. The results of this study can provide students, parents, and educators with a better understanding of the effects of social networking use on academic achievement.

2. <u>Description of Study:</u> This research will involve the use of a survey to analyze the relationships between use of social networking sites and academic achievement and will look at how variables such as gender, race/ethnicity, age, college and non-college plans, grade point average (HSGPA), and socioeconomic status moderate those relationships. Approximately 1,400 11th-grade students in the St. Tammany Parish Public School System will be asked to participate in this study. During a class period, teachers will distribute the Informed Consent form and the Assent form to 11th-grade students to bring home for their parents to read. Those students whose parents agree to permit their child to participate in the study will return the signed paperwork by a designated date. During a class period at a later date, eligible students will be given a quantitative survey (*Social Networking Site Use Questionnaire).* Participants in the study will be restricted to the 11th-grade students who return a signed Informed Consent form and Assent form. The survey should take 5 to 10 minutes to complete. The questionnaire is comprised of 36 questions associated with social networking use. Students will be asked to complete the questionnaire and return it to their teacher when finished. Teachers will be asked to place the questionnaires into the envelope provided, seal it, and return the envelopes to the office immediately following the class period. All questionnaires will be picked up from the school office at the end of the day by the principal investigator, Melody Swang. To enhance student participation, four $25 iTunes gift cards will be awarded to four students from each school after all surveys are collected from all of the participating schools.

3. <u>Benefits:</u> This study may benefit students, parents, and educators by increasing societal and educational awareness about teen social networking use and its relationships to academic achievement.

4. <u>Risks:</u> Participating in this study poses no risks that are not ordinarily encountered in daily school experiences. Subjects may withdraw from participating in this study at any time without penalty. Participants also may choose not to answer particular questions.

5. <u>Confidentiality:</u> Every possible effort will be made to ensure confidentiality of the data collected in this study. All information collected will be kept confidential. No names will be used in analyzing and reporting the results, and no schools will be identified. The completed questionnaires will be stored in a locked filing cabinet accessible only by the

principal investigator, Melody Swang. At the conclusion of the study, all completed questionnaires will be destroyed. If the results from this study should be published or presented, no identifiable information will be revealed.

6.   Alternative Procedures: Students not participating in the survey in whose class the questionnaires are being administered will be offered an alternative activity provided by their teacher.

7.   Participant's Assurance: Since no assurance can be made concerning results that may be obtained (since results from investigational studies cannot be predicted), the researcher will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to Melody Swang at (985) 674-3795. This project and this consent form have been reviewed by the Institutional Review Boards, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820. A copy of this form will be given to the participants.

8.   Signatures: In conformance with the federal guidelines, the signature of the participant or parent or guardian must appear on all written consent documents. The University also requires that the date and the signature of the person explaining the study to the subject appear on the consent form.

_____
Signature of the Research Participant (18 years or older)   Date

_____
Signature of the Person Explaining the Study   Date

In instances where the participant is a minor (under the age of 18 years), a signature line for the minor's assent and a signature line for the parents'/guardians' consent is required:

_____
Signature of the Minor Research Participant   Date

_____
Signature of Parent/Guardian   Date

APPENDIX C

SOCIAL NETWORKING USE QUESTIONNAIRE

Name_____   School_____

Please circle the correct responses:

1. What is your gender?
    Male   Female

2. What is your age?
    15   16   17   18   19   Other

3. What is your race/ethnicity?
    Caucasian   African American   Hispanic   Asian/Pacific Islander   Other

4. Do you participate in the Free and Reduced Lunch program?
    Yes   No   Unsure

5. How likely is it that you will attend college?
    Very Likely   Somewhat Likely   Undecided   Not Very Likely
    Not At All

6. What is your unweighted overall HSGPA?_____

7. How confident are you in the knowledge that the HSGPA you reported is accurate?
    Not Confident   Somewhat Confident   Very Confident

8. If you have taken the ACT, what was your score?_____

9. How confident are you in the knowledge that the ACT score you reported is accurate?
    Not Applicable   Not Confident   Somewhat Confident   Very Confident

10. If you have taken the SAT, what was your score?_____

11. How confident are you in the knowledge that the SAT score you reported is accurate?
    Not Applicable   Not Confident   Somewhat Confident   Very Confident

12. On average, how many hours per day do you talk (not text) on your cell phone?
    0   1   2   3   4   5 or more

13. On average, how many text messages per day do you send?
    0   1 - 10   11 - 25   26 - 50   51 - 99   100 or more

14. On average, how many hours per day do you listen to music?
    0   1   2   3   4   5 or more

15. On average, how many hours per day do you watch television?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

16. On average, how many hours per day do you work on homework?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

17. On average, how many hours per day do you read books, magazines or newspapers?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

18. On average, how many hours per day do you physically hang out with your friends?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

19. On average, how many hours per day do you spend on extracurricular activities, such as sports or clubs?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

20. On average, how many hours per day do you spend working at a part-time job?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

21. On average, how many hours per day do you use the Internet (other than for social networking)?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

22. On average, how many hours per day do you spend playing video games?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

23. On average, how many hours per day do you spend on a video sharing site such as YouTube?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

24. On average, how many hours per day do you spend on a music sharing site such as iTunes?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

25. On average, how many hours per day do you spend on a virtual environment site such as Second Life?

| 0 | 1 | 2 | 3 | 4 | 5 or more |

26. On average, how many hours per day do you spend multitasking (using more than one media at a time). For example, you may listen to music or watch television while doing homework.

| 0 | 1 | 2 | 3 | 4 | 5 or more |

27. Do you belong to a social networking site?

Yes   No

If your answer to #27 is No, you are now finished with the Social Networking Use questionnaire. Please return your survey to your teacher. Thank you for your time. If your answer to #27 is Yes, please continue with the survey.

28. Which social networking site do you use most often?

Facebook   MySpace   LinkedIn   Friendster   Twitter
Other_____

29. How do you access your social networking site?
    Computer   Cell Phone   Both

30. On average, how often do your parents monitor your social networking site?
    Never   Rarely   Frequently   Always

31. On average, how much time do you spend *each day* on a social networking site on a typical *weekday?*
    Less than 1 Hour   1 – 2 Hours   2 – 3 Hours   4 – 5 Hours   6 + Hours

32. On average, how much time do you spend *each day* on a social networking site on a typical *weekend?*
    Less than 1 Hour   1 – 2 Hours   2 – 3 Hours   4 – 5 Hours   6 + Hours

33. On average, how often do you participate in the following activities on a social networking site?
a. Update my profile:
    Hourly   Daily   Weekly   Monthly   Rarely   Never
b. Download/upload videos and music:
    Hourly   Daily   Weekly   Monthly   Rarely   Never
c. Read and post messages on my Wall:
    Hourly   Daily   Weekly   Monthly   Rarely   Never
d. Read and post messages on my friends' Walls:
    Hourly   Daily   Weekly   Monthly   Rarely   Never
e. Live chat with friends:
    Hourly   Daily   Weekly   Monthly   Rarely   Never
f. Get help/help others with homework:
    Hourly   Daily   Weekly   Monthly   Rarely   Never
g. Play online games such as Farmville:
    Hourly   Daily   Weekly   Monthly   Rarely   Never
h. Other (please describe)_____
    Hourly   Daily   Weekly   Monthly   Rarely   Never

34. How many people are friends with you on your social networking site?
    0   1 – 99   100 -399   400-799   800 +

35. How many friends do you communicate with at least *once a week* on your social networking site?
    0   1 – 10   11-20   21-30   More than 31

36. Does the amount of time you spend on a social networking site affect your grade point average (HSGPA)?
a. It helps my HSGPA.
b. It hurts my HSGPA.
c. It neither helps nor hurts my HSGPA.
d. Not sure.

Thank you for completing the Social Networking Use questionnaire. Please return it to your teacher.

APPENDIX D

INSTITUTIONAL REVIEW BOARD APPROVAL

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **11032902**
PROJECT TITLE: **From Facebook to Gradebook: An Examination of Relationships Between Teen Uses of Social Networking Sites and Academic Achievement**
PROPOSED PROJECT DATES: **03/29/2011 to 03/31/2012**
PROJECT TYPE: **Dissertation**
PRINCIPAL INVESTIGATORS: **Melody D. Swang**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Educational Leadership & School Counseling**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Exempt Approval**
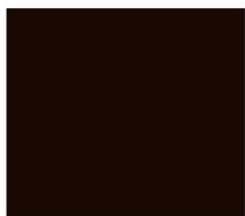PERIOD OF APPROVAL: **03/31/2011 to 03/30/2012**

Lawrence A. Hosman   4-1-2011
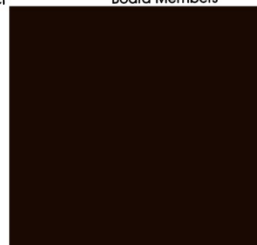Lawrence A. Hosman, Ph.D.   Date
HSPRC Chair

APPENDIX E

PERMISSION LETTER

Superintendent

District | Board Members
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February 2, 2011

Institutional Review Board
University of Southern Mississippi
118 College Drive #5147
Hattiesburg, MS 39406-0001

Human Subjects Protection Review Committee:

Melody Swang has permission to conduct research in the ▮▮▮▮▮▮▮▮ Public School System regarding social networking use and academic achievement. She has permission to administer a survey entitled *Social Networking Use Questionnaire* to eleventh grade students in the high schools in the school district.

Sincerely,
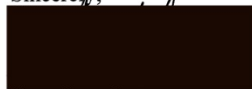
Superintendent

APPENDIX F

TEACHER LETTER #1

Hello. My name is Melody Swang. I am a doctoral candidate in educational leadership at the University of Southern Mississippi. I am conducting a study as part of my dissertation requirement under the direction of Dr. Wanda Maulding of the College of Education and Psychology. Your 11th-grade students are being asked to participate in a study of time spent on social networking sites and its relationship to academic achievement. Taking part is entirely voluntary and your students may withdraw from participating in this study at any time without penalty.

Please distribute the enclosed information packets consisting of an Assent form and an Informed Consent form to your students. Please instruct them to bring the information home and share it with their parents. Students who return a signed Informed Consent form and a signed Assent form to you by _____ will be eligible to participate in a brief survey. Please place all signed forms in the envelope provided, seal it, and return it to the office by the end of the school day on _____. You will be asked to administer a brief survey to eligible students on _____. You will be given further instructions on the day of survey.

Thank you for your time and assistance.

Sincerely,

Melody Swang

APPENDIX G

PARENT LETTER

Hello. My name is Melody Swang. I am a doctoral candidate in educational leadership at the University of Southern Mississippi. I am conducting a study as part of my dissertation requirement under the direction of Dr. Wanda Maulding of the College of Education and Psychology. I am requesting your permission to allow your son or daughter to participate in a study of time spent on social networking sites and its relationship to academic achievement. Taking part is entirely voluntary, and students may withdraw from participating in this study at any time without penalty or prejudice.

If you choose to allow your child to take part in this study, he/she will be asked to complete a brief survey that will ask questions about their social networking use. For instance, students will be asked how much time they spend on a social networking site, what type of activities they are involved in (such as uploading videos, chatting with friends, etc.), how many friends they have on their social networking site, and what social networking site they use the most. Students also will be asked demographic questions about their race/ethnicity, age, socioeconomic status, college/non-college plans, grade point average (HSGPA), and ACT score. For the purpose of this study, socioeconomic status is defined as free and reduced lunch, and academic achievement is defined as current HSGPA and ACT score. The survey will be administered during a scheduled Homeroom period and should take 5 to 10 minutes to complete. To enhance student participation, one $25 iTunes gift card will be awarded to each of four participating students after all surveys are collected from the participating schools.

All information collected will be kept confidential. No names will be used in reporting the results, and no schools will be identified. At the conclusion of the study, all completed questionnaires will be destroyed.

Please read the detailed information about the study on the following pages. Feel free to contact me at (985) 674-3795 if you have any questions. If you agree to allow your child to participate in the study, you and your child will need to sign and date the last page of the document. Please give the signed paperwork to your son or daughter to return to school by _____. The survey will be administered on _____.

Thank you for your time and consideration.

Sincerely,

Melody Swang

APPENDIX H

TEACHER LETTER #2

You are being asked to administer a brief survey to your 11th-grade students who have agreed to take part in a study on the use of social networking sites and its relationship to academic achievement. Students who signed and returned both the Informed Consent form and the Assent form are eligible to take part in the survey. Taking part is entirely voluntary, and your students may withdraw from participating in this study at any time without penalty.

Attached is the list of students in your classroom who are eligible to participate in the study. Please distribute to those students on the list the enclosed brief questionnaire. It should take 5 to 10 minutes to complete. Students should complete the questionnaire and return it to you immediately after completion. Check off the names on the roster of each student who returns the completed questionnaire. Please make sure that all students return the questionnaire, whether completed or not. Please place all questionnaires in the included envelope, seal it, and return it to the office at the end of the homeroom period.

Your assistance with this study is greatly appreciated.

Sincerely,

Melody Swang

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