Summer 8-2018

Cyber-Bullying Among College Students: A Test of Social Learning Theory

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CYBER-BULLYING AMONG COLLEGE STUDENTS:

A TEST OF SOCIAL LEARNING THEORY

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Philosophy

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August 2018

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This study examined the extent of cyber-bullying among college students and how well Ronald Akers' Social Learning Theory predicted cyber-bullying perpetration. In addition, this study explored students' use of media and the characteristics associated with involvement in cyber-bullying behaviors as victims, perpetrators, and observers. Approximately 10%, 37%, and 53% of the study sample (n=296) experienced cyber-bullying perpetration, victimization, and observation respectively. Negative binomial regression analyses revealed that social learning variables were not associated with cyber-bullying perpetration or observation; however, the theory provided some support for the prediction of cyber-bullying victimization. Additionally, socioeconomic status and race were statistically related to cyber-bullying perpetration, while age and prior victimization were associated with cyber-bullying victimization. Implications for Social Learning Theory, future research, and policy are discussed.

ACKNOWLEDGMENTS

I would like to extend my sincere and heartfelt gratitude toward all those who have helped me in this endeavor. I am truly touched by the tremendous amount of support that I received from my professors, friends, and family throughout my doctoral education. Without their guidance, help, cooperation, and encouragement, I would not have made headway in this project. Thank you for believing in me.

First and foremost, I am ineffably indebted to Dr. Shannon Phaneuf for her valuable leadership throughout the entire process. Thank you for lending sound advice, countless hours, and endless support to this project. You have proven to be a remarkable mentor and I am a better scholar because of you. I hope that you are just as proud of the finished dissertation product as I am. Additionally, I extend much gratitude to each of my dissertation committee members. I am deeply appreciative of the foundation and personal insight each of you have given me throughout my education. Thank you for challenging me and preparing me for my future.

I would also like to personally thank Shavonne Arthurs, Matthew Hassett, Selye Lee, Larissa Bray, and Reneè Lamphere who each provided me with immense support throughout various phases of this project. I am proud to call each of you my friends and colleagues. I also extend much gratitude to my family, particularly my mother, who has always been there for me.

Most importantly, I would like to thank my husband Paul – my partner through it all, my best friend in this world, and my main source of motivation – and Trigger, for his unwavering loyalty and affection. Thank you for always being by my side and encouraging me to go on every adventure, especially this one. I love you more than anything.

It is my hope that this research brings awareness to an issue that tragically affects countless of lives each day and inspires readers to be kind to one another. Live and let live.

TABLE OF CONTENTS

Chapter Page

Chapter Page

Chapter Page

LIST OF TABLES

Table Page

CHAPTER I

INTRODUCTION

Modern technology provides users with accessibility to a wealth of information and allows a new means of communication for young adults to utilize for a variety of purposes. Although the Internet and modern communication devices are widely used for positive purposes, these tools can also cause harm toward others. Research reveals that for more than a decade, Internet consumers have used various forms of media websites and text messaging to bully their peers (Patchin & Hinduja, 2011), with most cyber-bullying taking place though the use of social networks, such as Facebook, Twitter, MySpace, YouTube, Google Plus, and LinkedIn, all of which are networked communication platforms (Ellison & Boyd, 2013). Considering the significant number of Internet users, along with the ever-expanding networking opportunities in online media, it is likely that many people, especially college students, given their widespread use of social media, engage in, witness, or experience cyber-bullying through online interactions with others via various means of technology including social media websites, messaging services, and blogs. Given the damaging consequences and issues found to be associated with cyber-bullying in an age of technology, it has become necessary for all stakeholders – students, faculty, staff, administration, and government bodies alike – to adopt a better understanding of this behavior and consider how it has evolved in higher education in order to alleviate and prevent cyber-bullying among college students. Fortunately, researchers have laid the groundwork for future analyses by studying the behavior over time. Prior research has revealed much about a phenomenon not previously known to social scientists. This chapter introduces the issue of cyber-bullying among college populations and offers a brief discussion of how the issue relates to Akers' (1985, 2009) social learning theory as a viable explanation of the phenomenon.

Past Empirical Research

Past empirical research reveals that cyber-bullying victimization is a relatively common experience for online media users, particularly those who are young. For example, Patchin and Hinduja (2006) found that more than a quarter (29%) of youth in their study were cyber-bullied. Additionally, 11% reported that they cyber-bullied someone else, and almost half (47%) witnessed the behavior at some point during their time in school (Patchin & Hinduja, 2006). A similar study revealed that 16% of youth engaged in cyber-bullying using the Internet or their cell phones, with 23% of respondents experiencing peer-perpetrated victimization (Dehue, Bolman, & Vollink, 2008). Overall, about one-third (32%) of all teenagers who use the Internet were targeted in a variety of ways including: receiving threatening messages, having private emails or text messages forwarded without their consent, having an embarrassing picture posted without their permission, or having rumors about them spread online (Lenhart, 2007). Given the wide availability and uses of media and technology for professional, educational, and recreational purposes, one can understand how vulnerable one can become to cyber-bullying victimization.

Researchers have learned that cyber-bullying often occurs during the time in which an individual is transitioning from primary school to secondary school (Price & Dalgleish, 2010). Online aggression begins to emerge when an individual is of elementary school age, with behaviors continuing into higher education (Hinduja & Patchin, 2009). Evidence suggests that the frequency and severity of cyber-bullying, both in and out of schools, becomes greater as students reach higher levels of education (Li, 2006). Although cyber-bullying research has focused primarily on younger populations of students, technology has a significant widespread reach over all media consumers. Therefore, it is important to reiterate that the cyber-bullying

phenomenon is not limited to only children and adolescents, as is often believed. Rather, the aggressive behaviors that characterize cyber-bullying are found among young adults as well, particularly those who are college educated, regular consumers of technology (Akbulut & Eristi, 2011; Dilmaç, 2009; Finn, 2004; Hinduja & Patchin, 2009; Kraft & Wang, 2010; Walker, Sockman, & Koehn, 2011).

Fortunately, college-aged victims of cyber-bullying have shared their experiences with researchers in an attempt to understand more about the incidence of online aggression. In one study, most undergraduate students reported experiencing cyber-bullying through Facebook (64%), on their cell phones (43%), and through instant messages (43%) (Walker et al., 2011). Research also found that victims often receive emails or instant messages from cyber-bullies that include religious or political content, or invitations to gossip or chat inappropriately, and exposure to curse/slang language and obscene messages. Many students also reported receiving unwanted online pornography and admitted to having unwanted content posted online without their consent. Not surprisingly, many victims reported not knowing the identity of the perpetrator (Akbulut & Eristi, 2011; Finn, 2004).

Kraft and Wang (2010) estimated that 10% of college students experienced either cyber-bullying or cyber-stalking. Similarly, Walker, Sockman, and Koehn (2011) reported that 11% of their study participants were victimized when they were college students. Interestingly, more than half (54%) of the students who were surveyed by the researchers knew someone who had been a victim of cyber-bullying. Interestingly, Walker, Sockman, and Koehn (2011) also found that a large majority (71%) of the victims in their study reported the cyber-bullying to their parents or to other adults. Despite high levels of reporting, many respondents (43%) did not know the perpetrator, which made the incident much more challenging. Research does, however,

indicate that half (50%) of the aggressors known to the study participants were classmates of the victims (Walker et al., 2011).

Incidence and prevalence estimates of both traditional bullying and cyber-bullying vary across studies; however, the findings depend upon the age and gender of the sampled participants, as well as the time and venue in which they were assessed (Williams & Guerra, 2007). Regardless, and despite the limited number of studies on cyber-bullying among young adults, several researchers present interesting research regarding the age of victims and perpetrators. For example, Francisco, Veiga Simão, and Ferreira (2015) found that students under the age of 25 experience more incidents of cyber-bullying than older students. The researchers also found that victimization during high school increases risk for victimization during college (Francisco et al., 2015).

The research about the gender and sexual orientation of cyber-bullying perpetrators and victims demonstrates mixed results. For example, Kowalski and Limber (2007) found that female perpetrators outnumbered their male counterparts concerning the indirect types of aggression frequently found in cyber-bullying interactions (Kowalski & Limber, 2007). In comparison, Dilmaç (2009) found that males engaged in cyber-bullying more than females, but also indicated that females experienced exposure to cyber-bullying more frequently than males. With the exception of sexual orientation, other studies reveal no significant difference in cyber-bullying using demographic variables (e.g., age, gender, race, class standing, or residence). Evidence suggests that students who identify with a sexual minority are at a greater risk of online harassment from strangers than heterosexual students (Finn, 2004). Certainly, conducting additional research allows for further understanding of what motivates individuals to cyber-bully others and to determine who is most vulnerable for victimization and perpetration.

In a recent examination of cyber-bullying perpetration, Francisco, Veiga Simão, and Ferreira (2015) investigated university students' perceptions of their involvement in online aggression by analyzing how the behaviors affected their well-being. The results of the study indicate that more than a quarter (27.94%) of the participants were victims of cyber-bullying at some point in their lives – a much larger estimate compared to earlier studies that are similar in nature. Notably, the researchers found that students reported more aggressions experienced, committed, and observed in higher education than in primary education (with an exception to the aggressors' observers, who witnessed more bullying in secondary education than in higher education). Interestingly, the analyses also revealed that women comprised the majority for both victims and aggressors and were more likely to act in groups than males. Further, findings indicated that most known aggressors were classmates with the victims (Francisco et al., 2015). Given the consequences that can result from cyber-bullying, knowledge such as this is important to consider, since the identity of the perpetrator can significantly contribute to the stress experienced by the victim during the cyber-bullying exchanges.

Cyber-Bullying as an Issue

Cyber-bullying can be even more detrimental to youth than traditional forms of bullying for various reasons. Cyber-bullying is unique because victims are accessible all times, it often is easier to be cruel to others when people are corresponding electronically due to the physical distance between them, and victims feel helpless in responding to threats because they perceive adults as ill-equipped to assist them with their problems (Hinduja & Patchin, 2015). In addition, unlike traditional bullying, cyber-bullying is often characterized by anonymity. As a result, offenders exert power and dominance over other people online because they can keep their identity unknown (Ybarra & Mitchell, 2004). Further, perpetrators have the ability to pose as

someone else online, including the victim. The anonymous nature of the Internet serves as a powerful tool for perpetrators. Researchers suggest that the anonymous nature of the Internet provides a feeling of safety for impersonators, thereby decreasing fears of identification (Erdur-Baker, 2010).

Not surprisingly, research reveals the damaging consequences of cyber-bullying behaviors, indicating that cyber-bullying leads to serious psychological, emotional, and social harm, and affects not only individual lives, but schools and communities as well. In addition, research demonstrates that both cyber-bullies and victims of online bullying more readily yield to other criminogenic influences, which can cause them to "proceed down a path of deviance offline, online, or both" (Patchin & Hinduja, 2006, p. 164). Moreover, cyber-bullies and their victims are at risk for various long-term harmful effects including violence, injury, and even death (Kowalski, Morgan, & Limber, 2012; Patchin & Hinduja, 2006). Based on these findings, it is imperative to examine the cyber-bullying phenomenon in more depth so that these behaviors can ultimately be prevented. By approaching the problem from a criminological perspective, this study aims to contribute to the current literature in order to deter young people from engaging in violent encounters online and to provide suggestions for how to address cyber-bullying on college campuses in the future.

Theoretical Framework

Currently, there is a lack of theoretical foundation in the empirical studies on cyber-bullying (Xiao & Wong, 2013). Previous studies examined traditional bullying, cyber-bullying, and deviance (Hay, Meldrum, & Mann, 2010) and whether offline bully-victimization influences cyber-bullying among youth (Jang, Song, & Kim, 2014) using Agnew's (1992, 2001) general strain theory. Other efforts incorporated variables from routine activities theory to examine

cyber-bullying (Navarro & Jasinski, 2012; Navarro & Jasinski, 2013). The current study employs a social process theoretical perspective as cause for deviant behavior.

This research examines how well social learning variables, specifically differential associations, definitions, differential reinforcement, and imitation (Akers, 1985, 2009) explain the cyber-bullying phenomenon among college students. Given the lack of theoretical studies that investigate online aggression among college students, the current study contributes to cyber-bullying literature by providing groundwork for future analyses. Social learning theory applies to this research because it seems likely that bullying, both traditional and online, lends itself to the learning process. Additionally, social learning theory is one of the most empirically validated theories utilized in criminology and it can explain different types of deviance among various populations (Bernard, Snipes, & Gerould, 2010). The current study adds to the body of empirical support for social learning theory with a unique population.

Purpose of the Study

This research describes and explains the issue of cyber-bullying among college students through the experiences of students themselves in order to create a better understanding of online aggression and to increase the awareness of the issue, given the concerning consequences. This study also adds to the limited body of research that is available on cyber-bullying among college students by exploring their experiences as victims, perpetrators, and observers – an experience rarely examined in cyber-bullying literature. Finally, this study expands upon previous cyber-bullying research by gathering frequencies of students' use of social media websites (i.e., Twitter and Facebook), messaging services, popular applications (i.e., Snapchat and Instagram) and reality gossip blogs (i.e., TheDirty.com) in order to better understand college students as consumers of technology. There is a critical need for this type of research since young people are

facing issues that previous generations did not and because literature on the causes of online aggression is sparse. Therefore, the goal of this study is to examine a theoretical underpinning, social learning theory, which has not yet been applied to cyber-bullying, and to aid in the development of future policy recommendations so that the behaviors can be alleviated and prevented. It is the intent of the researcher to examine cyber-bullying among college students to discover what motivates participation in cyber-bullying and to further explore the underlying variables and theoretical concepts that correlate with this behavior. Following data collection, regression analyses determined how well demographic and social learning variables predicted cyber-bullying behavior.

Conclusion

As modern society continues to move toward an age that is characterized by technology, mass consumption of information, and communication among media users, there is a pressing need for recognition of the risks associated with online interactions, including cyber-bullying behaviors. Attention to this matter should no longer be made to only children and adolescents; it has evolved further to affect populations in higher education as well. Because college students are mass consumers of online media, it is necessary to undertake efforts to ensure that they are protected in the online environment, as well as in the real world. A plethora of research demonstrates that cyber-bullying often results in a series of harmful effects, which can impact one's educational success and psychological well-being. By offering a theoretical explanation of cyber-bullying, researchers can further explore ways of addressing this issue at a collegiate level.

The current study discusses cyber-bullying as a unique phenomenon and presents a comprehensive examination of how the behavior manifests among college students. Specifically, Chapter 2 includes an overview of the incidence and prevalence estimates of cyber-bullying

among undergraduate students, a summary of characteristics found in individuals as victims, perpetrators, and observers of cyber-bullying, and a discussion of the psychosocial and educational consequences that students have experienced as a result of online aggression. Chapter 2 also discusses the empirical research on cyber-bullying among college students. Chapter 3 examines Akers' (1985, 2009) social learning theory and provides a historical overview of its development. Chapter 3 also discusses empirical support for social learning theory as well as the application of the theory to online aggression found among college students. Chapter 4 presents the methodology and summarizes the research questions and hypotheses that guided the current study. Chapter 4 also discusses the research design, sampling strategy, and variables that were analyzed. The chapter concludes with a discussion of the planned analyses, human subject protections, and strengths and limitations of the study. Chapter 5 presents the findings from the current research. Thirteen hypotheses are assessed using univariate, bivariate, and multivariate statistics to examine social learning theory and cyber-bullying behaviors. Finally, Chapter 6 discusses the findings of the various statistical analyses used in this study. Chapter 6 also presents policy implications, including the importance of witnesses to cyber-bullying among college populations that, according to the results of the current study, are valuable in alleviating and preventing cyber-bullying among college students.

CHAPTER II

LITERATURE REVIEW

In order to fully understand cyber-bullying behaviors, one must first examine forms of traditional bullying and consider how they have evolved throughout time. The phenomenon, which is characterized by acts of aggression toward others, is not new by any means. In fact, according to historical documents, people in various social contexts have suffered frequent and systematic harassment or attacks by others for centuries. As such, bullying cannot be looked at as a contemporary issue, as it has always been a part of life (Koo, 2007). While bullying behaviors can occur in the context of any relationship, literature has focused primarily on children and adolescents due to the amount of bullying that occurs in educational settings such as primary and secondary schools where there may be less adult supervision (Garbarino & deLara, 2002; Olweus, 1993). However, due to the evolution of technology, it is now possible for bullies to reach more people than ever through the use of cell phones and the Internet (Patchin & Hinduja, 2012). This chapter provides an overview of the literature that focuses on traditional forms of bullying and offers insight into the evolution of the behavior in the virtual world. This chapter also details empirical studies of cyber-bullying conducted using college populations.

Bullying Among American Youth

A vast array of research focuses on interpersonal aggression that occurs among youth, a phenomenon commonly known as bullying. *Bullying* concerns the intentional infliction of physical or emotional harm committed in the context of an interpersonal relationship characterized by an imbalance of power (Olweus, 1993; Olweus, Limber, & Mihalic, 1999). Though the act needs to be carried out repeatedly over time to be considered bullying, it is recognized that the behavior can transpire during individual occasions as well (Belsey, 2010).

Classifications place bullying as a subset of the larger construct of antisocial aggressive behavior (Merrell, Isava, Gueldner, & Ross, 2008). Bullying literature identifies five distinct features that distinguish bullying from other forms of aggressive behavior. Specifically, bullying occurs when 1) behaviors are aggressive and intentional; 2) it is carried out repeatedly over time; 3) there is an interpersonal relationship characterized by an imbalance of power (Olweus et al, 1999; Vandebosch & Van Cleemput, 2009); 4) the victim does not provoke the behavior using verbal or physical aggression; and 5) the bullying occurs in familiar social groups (Greene, 2000).

For classification purposes, researchers conceptualized four types of behaviors that constitute bullying when committed repeatedly against a person deemed less powerful than the perpetrator (Garrity, Baris, & Porter, 2000). The classifications include 1) acts of physical aggression, 2) verbal aggression, 3) intimidation, and 4) social alienation, which includes relational aggression such as gossiping, humiliating another person publicly, or excluding someone from groups (Crick & Grotpeter, 1995; Grotpeter & Crick, 1996). While bullying reflects a spectrum that encompasses relatively mild to severe behavior, of most concern is the repetitive nature of the behavior and the imbalance of power that distinguishes bullying from other forms of maladaptive behavior (Menard & Grotpeter, 2014).

Traditional bullying is one of the most serious problems in schools. The consequences of bullying can have a profound effect on victims (Lawrence, 2007). For example, several studies show that victims of bullying are prone to low self-esteem, depression, and anxiety as well as feelings of insecurity and emotional distress (Gower & Borowsky, 2013; Olweus et al., 1999; O'Moore & Kirkham, 2001). Research also shows that victims of bullying suffer from eating disorders, such as anorexia or bulimia nervosa, and are prone to headaches, sleep disturbances, abdominal pain, and fatigue (Sansone & Sansone, 2008). Bullying behaviors also affect victims'

educational success. Specifically, researchers found that victims of bullying have difficulty concentrating in the classroom, they may refuse to attend school, or they may drop out before graduating (Olweus, 1999; Parker & Asher, 1987). In addition, individuals who experience bullying can suffer from substance use and self-harm (Gower & Borowsky, 2013).

There is also evidence that victims can become perpetrators of violent behavior. In extreme cases, bullying victims may engage in the perpetration of violent behavior including homicide, or suicide (Ttofi, Farrington, & Lösel, 2012). In addition to the aforementioned psychosocial and educational consequences, research reveals that there is a link between bullying and instances of mass shootings in schools. A collaborative effort between the U.S. Secret Service and the U.S. Department of Education examined the thinking, planning, and other behaviors engaged in by students who carried out school attacks in the United States. According to the *Safe Schools Initiative*, many perpetrators of school shootings felt bullied, persecuted, or injured by others prior to their attacks (Vossekuil, Frein, Reddy, Borum, & Modezeleski, 2002).

Individuals who are victims of bullying are not the only ones negatively impacted by the phenomenon. Research shows that perpetrators of bullying are more likely to engage in other antisocial/delinquent behavior, such as vandalism, shoplifting, truancy, and drug use into adulthood (Gower & Borowsky, 2013; Olweus et al., 1999). Moreover, perpetrators are more likely to engage in serious violence during adolescence and adulthood than non-perpetrators (Farrington, 1995; Farrington & Ttofi, 2011; Ttofi et al., 2012). In addition, research indicates that traditional bullying affects the school climate. For example, students feel less safe in, and are less satisfied with, schools where traditional bullying occurs (Natvig, Albrektsen, & Quarnstrøm, 2001). Scholars have noted that students may regard cyber-bullying as acceptable and appropriate when officials ignore the behaviors. In turn, more bullying behavior may take place,

which can result in other, possibly more severe, problems (Olweus et al., 1999). Though scholars have focused attention on bullying as it occurs in a traditional sense, contemporary studies must shift perspectives to include cyber-bullying in criminological literature.

Defining 'Cyber-Bullying'

Cyber-bullying, a modern form of bullying carried out through technology (David-Ferdon & Hertz, 2007), occurred as a result of the expansion of information and communication tools. The relationship between traditional bullying and cyber-bullying lacks conceptual clarity (Schrock & Boyd, 2008 in Erdur-Baker, 2010). Existing conceptualizations of cyber-bullying often contain characteristics from the traditional definition of bullying, while also considering the electronic devices through which the behavior occurs (Patchin & Hinduja, 2006; Vandebosch & Van Cleemput, 2009). Accordingly, researchers suggest that the Internet allows new ground for bullying to occur (Li, 2006); however, the phenomenon, including its typology, is more complex in nature than traditional bullying (Francisco et al., 2015). Indeed, there is variability in the way cyber-bullying is defined (Ybarra, Boyd, Korchmaros, & Oppenheim, 2012). According to Patchin and Hinduja (2012), many researchers conceptualize cyber-bullying as a multitude of problems one can experience with online aggression. Others, they continue, focus only on specific types of harm (such as name-calling or insults). In addition, researchers who have examined social media and venues through which cyber-bullying takes place have excluded the use other technologies (such as webcams or online gaming networks) in their studies (Patchin & Hinduja, 2012). Subsequently, researchers approach cyber-bullying studies with caution and are skeptical in interpreting findings because the definition of the behavior and its dynamics remain poorly understood. The wide range of self-interpretation of the phenomenon ultimately allows cyber-bullying to be defined in different ways (Cesaroni, Downing, & Alvi, 2012; Vandebosch

& Van Cleemput, 2008), but despite the numerous definitions that emerged, researchers still have not developed a standard definition of cyber-bullying (Wolak, Mitchell, & Finkelhor, 2007). Complicating research on the phenomenon further, there is no equivalent to the term 'bullying' in any other language besides English. Therefore, data that is collected internationally may not be adequately representative of cyber-bullying prevalence rates in English speaking countries (Craig, Henderson, & Murphy, 2000; Smorti, Menesini, & Smith, 2003).

Types of Cyber-Bullying

According to Amado, Matos, Pessoa, and Jäger (2009), cyber-bullying is unique and complex because the behavior occurs beyond the boundaries of personal and physical space (as cited in Francisco et al., 2015). Because the parameters of technology are so vast, cyber-bullying can take many forms. Fortunately, researchers classify cyber-bullying behaviors according to seven common forms. For example, cyber-bullying occurs in the following forms: 1) flaming (posting or sending offensive messages over the Internet); 2) online harassment (repeatedly sending messages); 3) cyber-stalking (making threats of potential harm by intimidating an individual); 4) denigration (defamation by written or printed words); 5) masquerading (pretending to be someone else); 6) outing (sharing personal information about a person without their permission); and, 7) exclusion (maliciously leaving a person out of a group) (Li, 2007; Willard, 2004). According to Li (2006), cyber-bullying can take place as a direct attack, where messages can be sent directly to victims, or the cyber-bullying can take place by proxy, where third-parties assist in the victimization either with or without the cyber-bully's knowledge. Therefore, often it is not only the perpetrator and victim who become involved in incidents. Regardless, researchers contend that in order for "true" cyber-bullying to take place, the online behaviors must meet several criteria including the intention by the perpetrator to hurt, perception

that the behavior is hurtful by the victim, a repetitive pattern of negative offline or online actions, and a relationship that is characterized by a power imbalance (Vandebosch & Van Cleemput, 2008).

With cyber-bullying, the aggressor does not need to have more physical strength than victims do (Li, 2008). Cyber-bullies have the opportunity to bully victims from afar by incorporating an array of media, including sounds, altered photos, text, video, slide shows, and polls, in addition to using words to bully others (Li, 2007; Sabella, 2008). According to researchers, there are seven distinct sub-categories of cyber-bullying based on the way victims are targeted, including through 1) text messages, 2) picture and video clips, 3) phone calls, 4) emails, 5) chat rooms, 6) instant messaging, and 7) via websites (Smith, Mahdavi, Carvalho, Fisher, Russell, & Tippett, 2008). Studies reveal that the most popular means of cyber-bullying occurs through text messaging, instant messaging, and Facebook (Walker et al., 2011) - with name-calling and gossiping being the most frequently used forms of harassment (Dehue et al., 2008). Without doubt, the cyber-bullying phenomenon is complex and expected to evolve further as time passes.

Comparing Traditional Bullying With Cyber-Bullying

Traditional bullying and cyber-bullying are similar phenomenon because of the imbalance of power and negative consequences that they share. With cyber-bullying, this imbalance also includes the skills that individuals need in order to master certain forms of technology (Amado et al., 2009 in Francisco, 2015; Dooly, Pyźalski, & Cross, 2009 in Francisco, 2015). Like traditional bullying, cyber-bullying includes deliberate and repeated acts of social aggression; however, cyber-bullying involves inflicting harm by an individual or group toward victims by sending or posting harmful material using the Internet or other technologies (Belsey,

2005; Hinduja & Patchin, 2009; Willard, 2004). Compared to traditional bullying, experiences with cyber-bullying are difficult to control because the number of interactions that occur between victims and perpetrators vary, and it is difficult to determine how often messages are viewed by third-party witnesses (Dooley, Pyźalski, & Cross, 2009; Slonje & Smith, 2008) and supervised (Sticca & Perren, 2012). In essence, a victim of cyber-bullying may experience victimization multiple times once other people repeat an act that was committed by a perpetrator (Slonje, Smith, & Frisén, 2013).

Victims of cyber-bullying are at risk of experiencing more social and emotional harm than victims of traditional bullying because the Internet allows for large numbers of people to observe the behavior and because evidence of the cyber-bullying is often permanent once online (Patchin & Hinduja, 2006). For example, if a perpetrator were to cyber-bully a victim on social media using a visual image or a meme made using a picture of the victim, then countless numbers of other social media users who have access to the perpetrators page can also view the image. Moreover, others can save an image, send it to others, or post it repeatedly on the Internet. Therefore, cyber-bullying victimization warrants concern because anything written in a text, online chat, or on a social networking site can remain visible to others for lengthy periods. Moreover, any number of people can have the information forwarded to them, causing it to spread quickly amongst individuals who fail to reflect on the issue rationally or ethically (Vandebosch & Van Cleemput, 2009). Unfortunately for victims of cyber-bullying, once information is posted on the Internet, it can be difficult to remove it from the websites on which it appeared (Hay et al., 2010). Moreover, victims may not even know how many websites posted their information.

Cyber-Bullying as a Unique Phenomenon

It is important to note that although traditional bullying and cyber-bullying share common features, they differ in important ways. To avoid common misperceptions that the characteristics of victims and offenders of traditional bullying can easily be applied to cyber-bullying, and to avoid measurement errors or conceptual confusion, the features that distinguish cyber-bullying from traditional bullying warrant further discussion (Katzer, Fetchenhauer, & Belschak, 2009; Vandebosch & Van Cleemput, 2008).

Thanks to technological advancements and the ever-changing media age, cyber-bullies are in the position to remain virtually anonymous on the Internet (Patchin & Hinduja, 2006). Indeed, anonymity is a distinguishing feature of cyber-bullying (Kowalski & Limber, 2007). Cyber-bullies are also able create temporary accounts (i.e., email addresses, social media profiles) or use pseudonyms of their victims (Erdur-Baker, 2010). As a result, cyber-bullies exert power and dominance online through the ability to keep an offender's identity unknown (Ybarra & Mitchell, 2004 in Patchin & Hinduja, 2006). The anonymity of the cyber-bully coupled with the physical distance afforded by the Internet allows the behavior to occur more easily without any reservations. The perpetrators' anonymity may 'free them from normative and social constraints on their behavior' (Patchin & Hinduja, 2006, p. 155). The feeling of anonymity provides perpetrators with a feeling of safety and decreases the ability to identify them (Erdur-Baker, 2010). Additionally, because cyber-bullies do not see their victim, they have less empathy for them (David-Ferdon & Hertz, 2007).

According to Patchin and Hinduja (2006), traditional bullying victims often know their perpetrators while cyber-bullies have the ability to target victims anonymously and under a false guise. The anonymous nature of cyber-bullying makes the behavior especially concerning

because not knowing who is responsible for the attacks can be especially traumatic for those who are targeted. Research demonstrates that very few victims know who their cyber-bully is in person (Ybarra & Mitchell, 2004). As a result, victims of cyber-bullying often feel helpless in responding to the behavior. In addition, they perceive adults as being ill equipped to assist them with their victimization (Hay et al., 2010; Hinduja & Patchin, 2015). Though researchers have suggested that victims of cyber-bullying have plenty of opportunities to terminate negative interactions that occur online (Wolak et al., 2007), the anonymity that characterizes cyber-bullying limits how a victim can respond to the behavior. Additionally, cyber-bullying behaviors are difficult to supervise because victims can experience these behaviors at home, places of employment, in the community, and at school (Patchin & Hinduja, 2006). That is, while most traditional bullying occurs at school during the school day, cyber-bullying can take place at any time and at any place (Nansel et al., 2001). Indeed, cyber-bullying behaviors are complex and fully regulating the behavior is unrealistic (Hinduja & Patchin, 2009). Although most of the literature focuses on traditional forms of bullying, the harms associated with cyber-bullying indicate that consequences of the behavior may be more damaging than traditional bullying.

Consequences of Cyber-Bullying

Psychosocial Consequences

Researchers contend that cyber-bullying causes psychological and emotional damage to victims that is equal to, or greater than, traditional forms of bullying because information can be quickly posted online anytime, anywhere, and because the audience is potentially limitless (Belsey, 2005; David-Ferdon & Hertz, 2007; Dooley, et al., 2009; Gilroy, 2013; Patchin & Hinduja, 2006; Willard, 2005). As a result, victims of cyber-bullying often experience emotional and psychological distress from cyber-bullying, which can later lead to long-term problems.

Research finds that most victims of cyber-bullying experience feelings of sadness, frustration, anxiety, distress, anger, depression, hopelessness, fear, and humiliation (Beran & Li, 2005; Hinduja & Patchin, 2007; Langos, 2014; Mitchell, Ybarra, & Finkelhor, 2007; Patchin & Hinduja, 2006, 2011; Raskauskas & Stoltz, 2007; Ybarra & Mitchell, 2007). Coping strategies vary, since some students reported talking to their friends about their victimization, while others avoid friends and peers altogether (Schenk & Fremlouw, 2012). Cyber-bullying behaviors are also associated with substance use, delinquency, and interpersonal violence among youth and young adults (Aseltine, Gore, & Gordon, 2000; Broidy & Agnew, 1997; Mazerolle, Burton, Cullen, Evans, & Payne, 2000; Mazerolle & Piquero, 1998; Mitchell, Ybarra, & Finkelhor, 2007). In serious incidents, victims can become suicidal because of the distress caused by cyber-bullying (Patchin & Hinduja, 2011). The media has already highlighted several cases of suicide that resulted from online victimization (Celizic, 2009; Kay, 2010; Marchiano, 2014; Ng, 2012; Parker, 2012; Steinhauer, 2008).

Recent national attention focuses on the prevalence of cyber-bullying and the psychological harm it causes. Because of new legislation, schools in most states are now required to address cyber-bullying in their school policies (Schneider, O'Donnell, Stueve, & Coulter, 2012; White House, 2011). Because of the harmful consequences that can result from cyber-bullying, victimization warrants special attention, including its' level of seriousness and the framework in which it occurs (Hinduja & Patchin, 2010).

Educational Consequences

Because cyber-bullying behaviors are so intrusive, they can affect a young person's educational success. In addition to emotional and psychological distress, victims of cyber-bullying experience school-related problems, including lower school performance and weak

attachment to school (Schneider et al., 2012). Victims reported having difficulties concentrating and studies indicate that they exhibit behavioral problems that result in truancy, detention, and suspension from school (Beran & Li, 2005; Ybarra, Diener-West, & Leaf, 2007). Researchers also note that because victims often fail out or drop out of school (Parker & Asher, 1987), cyber-bullying may lead to decreased retention rates at institutions of higher education – if students are not attending classes, the universities will not profit and will suffer financially (Crute, Redinbaugh, & Gregory, 2012).

The reality of the consequences of cyber-bullying victimization should be of concern for individuals of all ages, but especially so for college students. Although research indicates that there are typically lower rates of cyber-bullying for older students (15-18 years old) than for younger students (12-15 years old) (Slonje & Smith, 2008), there is some evidence suggesting that the chances for victimization increase as people grow older (Kowalski & Limber, 2007; Patchin & Hinduja, 2006; Raskauskas & Stoltz, 2007). Electronic media in the form of home computers, laptops, and cell phones, three devices that are heavily used by college students, serve as a new means for cyber-bullies to target their victims anywhere, anytime they choose (Patchin & Hinduja, 2010; Walker et al., 2011). This is a legitimate concern because young people are often dependent upon their electronic devices, which means that they are more vulnerable to cyber-bullying attacks (Crute et al., 2012). More research can determine the extent of cyber-bullying victimization among college-aged adults (Wang, Iannotti, & Nansel, 2009). The inconsistencies in reporting victimization rates according to age, the expansion of media, and the proliferation of media use among young adults has created challenges for researchers, however the phenomena have been investigated enough to know that it can be just as pervasive and damaging to victims as traditional bullying (Wensley & Campbell, 2012).

Characteristics of Cyber-Bullies, Victims, and Observers

Characteristics of Victims

A growing body of research that examines cyber-bullying victimization indicates that cyber-bullies often target marginalized populations. For example, Cassidy, Jackson, and Brown (2009) provide insight into the phenomenon by surveying students in grades six through nine about their experiences with cyber-bullying, including the extent and impact of cyber-bullying incidents from the perspective of the bullies and victims. The researchers found that an overwhelming majority (95%) of their ethnically diverse sample experienced cyber-bullying. Their research showed that students were often cyber-bullied when their attributes lead them to appear vulnerable to perpetrators, such as having special needs or high academic, athletic, or artistic abilities. In addition, these researchers found that students who were unpopular, did not meet the ideals of physical appearances (most notably because of weight or size), and wore unfashionable clothing were at risk for being cyber-bullied. Their findings revealed that between 10% and 20% of students reported that they were occasionally cyber-bullied because of their race or identity. Finally, almost a quarter (24%) of participants revealed that cyber-bullies labeled them as being gay or lesbian. It is important to note that because some cyber-bullies target victims specifically because of identifying characteristics, such as their race/ethnicity or sexual orientation, others may interpret the label as offensive because they do not personally identify with the label given to them (Cassidy et al., 2009). Therefore, there needs to be cautious interpretation of the language used among young people. For example, while the word “gay” often describes a homosexual male, young people can also interpret it as a way to describe someone in a derogatory manner.

Heterosexual and non-heterosexual experiences with traditional bullying and cyber-bullying occur at the collegiate level; however, the evidence regarding whether sexual orientation influences the likelihood of being cyber-bullied is mixed. For example, Finn (2004) found that sexual minority students were more likely to experience cyber-bullying, specifically online harassment, from strangers than heterosexual students, while other researchers found that cyber-bullying trends were similar for both heterosexual and non-heterosexual young people (Wensley & Campbell, 2012).

Wensley and Campbell (2012) explored cyber-bullying among college students of different sexual orientations. The researchers argued that college students are more aware of their sexuality than children and adolescents, so it makes sense to examine the relationship between sexuality, traditional bullying, and cyber-bullying among this population. The researchers surveyed 528 college students about their sexual orientation and their experiences with traditional and cyber-bullying using a 35-item questionnaire that was adapted from previous research (Berlan, Corliss, Field, et al., 2010). This particular study plays an important role in understanding bullying behaviors since most of the research on traditional bullying and cyber-bullying do not consider an individual's identified sexuality as a risk factor for victimization (Poteat & Espelage, 2005), even though non-heterosexual students are at higher risk of victimization than heterosexual students (Rivers & Noret, 2008). Findings from the study revealed that college students who identified as non-heterosexual (e.g., young men and women who identify as lesbian, gay, and bisexual, or who are questioning or are unsure of their sexual orientation), reported higher levels of involvement in traditional bullying as both victims and perpetrators, than students who identified as heterosexual. More research on the bullying and cyber-bullying experiences of non-heterosexual college students may provide further insight

about the relationship between an individual's sexual orientation and cyber-bullying experiences in order to guide intervention and prevention efforts (Wensley & Campbell, 2012).

Characteristics of Cyber-Bullies

Public policy and academic dialogues surrounding cyber-bullying prompted researchers to develop predictors and typologies of cyber-bullying and to investigate the characteristics of bullies (Cesaroni et al., 2012). Findings about the age and gender of cyber-bullies vary. For example, demographic research suggests older youth are at higher risk of cyber-bullying their peers than younger youth (Raskauskas & Stoltz, 2007). Other studies indicate there is no significant age difference for cyber-bullies (Patchin & Hinduja, 2006). Research regarding the gender of cyber-bullies also revealed mixed results (Vandebosch & Van Cleemput, 2009). Despite inconsistent findings, additional studies have allowed researchers to examine perpetrators of cyber-bullying further than what age and gender will allow.

Ybarra and Mitchell (2004) conducted *The Youth Internet Safety Survey*, a cross-sectional, nationally representative telephone survey of young people within the U.S. who are regular users of the Internet in order to examine harassment, unwanted exposure to sexual material, and sexual solicitation on the Internet. The researchers interviewed Internet users who were between the ages of 10 and 17 years old (n=1,498). The researchers also included parents and guardians in the study so that they could rate the daily interactions between the youth and their caregivers. Of the sample, 219 people reported that they cyber-bullied another person. Two groups were divided according to their involvement in the behaviors as either 'aggressors' (n=176) or 'aggressor-victims' (n=43). Sixteen of the participants reported that they knew the person that they harassed or embarrassed. In addition, the study revealed that it is typical for cyber-bullies to display problematic behaviors such as (traditional) bullying peers, and substance

use (Duggan, 2014, Ybarra & Mitchell, 2004) and to report lower levels of parental monitoring. Finally, the researchers found that perpetrators often rate themselves as having some level of expertise in Internet usage (Ybarra & Mitchell, 2004).

More recently, Brewer and Kerslake (2015) surveyed adolescents, ages 16 through 18 (*n*=90), about their experiences with cyber-bullying using the *Revised Cyber Bullying Inventory* (Topcu & Erdur-Baker, 2010) in order to investigate the influence of self-esteem, empathy, and loneliness on cyber-bullying perpetration and victimization. The researchers found that lack of empathy was a significant predictor of cyber-bullying. Specifically, they found that when an individual's empathy level decreases, their likelihood of cyber-bullying increased. Study participants who identified as cyber-bullies noted that the acts they were most frequently involved with included making fun of comments in online forums, sharing private internet conversations without the other person's knowledge, and insulting others in online forums (Brewer & Kerslake, 2015).

Finally, Baroncelli and Ciucci (2014) explored whether different components of an individual's emotional intelligence were related to traditional bullying and cyber-bullying by surveying 529 students between sixth and eighth grades who attended school in Central Italy. Participants in the study reported their involvement in traditional bullying and cyber-bullying, including perpetration and victimization, using a questionnaire to indicate how often they participated in bullying behaviors. Findings from the study revealed that children who engaged in traditional bullying or cyber-bullying behaviors did not perceive themselves to be deficient in basic emotional intelligence. Participants reported that they were able to monitor and regulate their emotional states and were able to choose the ways they wanted to attack their victims without also acquiring sanctions for their behavior. Finally, the findings revealed that students

were often simultaneously involved in traditional bullying and cyber-bullying and could take on multiple roles (e.g., victim, offender, and/or observer) (Baroncelli & Ciucci, 2014). In light of these findings, it is difficult to classify an individual's role in cyber-bullying because they may be a victim, a perpetrator, or an observer of cyber-bullying on multiple occasions (Espelage & Swearer, 2003).

Characteristics of Observers

Research demonstrates that one quarter of cyber-bullying occurs in the presence of third-party observers (Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010). Despite this evidence, it is important to note that the number of third-party observers to cyber-bullying is unlimited (Kowalski & Limber, 2007; Wolak et al., 2007). Third-party witnesses to cyber-bullying represent any individuals who observe a perpetrator attacking a victim online. For example, if a cyber-bully were to target another person online by creating a fake Facebook page posing as the victim (masquerading), third-party witnesses would include any individuals who view what the cyber-bully posts about the victim, including text, images, and videos. Another example of a third-party witness to cyber-bullying would include any individual who receives text messages or emails that might pose harm to a victim that a cyber-bully forwards to them (denigration). Third-party witnesses are unique to the cyber-bullying phenomenon because they may be known or unknown to both the cyber-bully and the victim. In addition, the individuals who witness cyber-bullying may play either a proactive or a passive role in witnessing the behavior (Carter, 2013). Observers who are proactive may intervene and defend the individual who is being cyber-bullied. Those who do not intervene take a more passive approach during their observations of the cyber-bullying.

A paucity of research gives attention to third-party witnesses to cyber-bullying. Of the few studies that exist that consider observers to cyber-bullying, research reveals that 88% of youth (*n*=799) had witnessed online cruelty, while 69% (*n*=2,260) of adults had witnessed other people being mean or cruel online (Lenhart, Madden, Smith, Purcell, Zickuhr, & Rainie, 2011). Other studies have found that almost half (47%) of college students who were surveyed (*n*=571) about their cyber-bullying experiences reported that they witnessed cyber-bullying (Patchin & Hinduja, 2006). Researchers have already begun to take notice of the important role that third-party observers play in cyber-bullying. According to Carter (2013), individuals with cyber-bullying experiences maintain that third-party observers positively affect breaking the cycle of cyber-bullying. In addition, third-party witnesses who report cyber-bullying to online law enforcement officials and government regulatory bodies can help others legitimately respond to the behavior (Carter, 2013). Because the Internet allows for such a large audience of witnesses to cyber-bullying, this population warrants need for additional research. Witnesses play an essential role in combating cyber-bullying among young people because they are neutral to the relationship between victim and cyber-bully but are still able to experience the harmful effects of the behavior targeted at someone else.

Co-Occurrence of Traditional and Cyber-Bullying and/or Victimization

Little is known about the relationship between traditional bullying and cyber-bullying (Kowalski et al, 2012; Vandebosch & Van Cleemput, 2009) and despite existing evidence, little attention has been paid to modeling a system of relationships among the perpetration and victimization of traditional and cyber-bullying (Kowalski et al., 2012). Research indicates there is a strong correlation between the two phenomena (Wolak et al., 2007) and involvement in the two types of bullying appear to be related (Hinduja & Patchin, 2008; Patchin & Hinduja, 2010;

Skrzypiec, Slee, Murray-Harvey, & Pereira, 2011; Ybarra & Mitchell, 2004). Recently, Kowalski, Morgan, and Limber (2012) examined traditional bullying as a potential warning sign of cyber-bullying by surveying students in grades six through eight (*n*=4,531) about their involvement in such behaviors. The results indicated the risk of youth involvement in cyber-bullying was greater if students were frequently involved in traditional bullying behaviors as either bullies or victims. Other researchers have speculated that most cyber-bullies should be perpetrators of traditional bullying, since any victimization that takes place in schools is likely to continue online (Francisco et al., 2015; Raskauskas & Stoltz, 2007; Williams & Guerra, 2007). In a similar vein, evidence demonstrates that traditional bullying victims are likely to cyber-bully others as a form of retaliation toward their own aggressor (Beran & Li, 2007; Jang et al., 2014).

Because of the invisible nature of cyber-bullying, victims may not be able to prevent attacks, nor can they prevent future incidents from occurring (David-Ferdon & Hertz, 2007). Anyone can fall victim to cyber-bullying and there is still much to learn about cyber-bullying victims. Studies indicate there is a strong correlation between being the victim of cyber-bullying and being the victim of traditional bullying (Dehue et al., 2008; Erdur-Baker, 2010; Li, 2007; Patchin & Hinduja, 2006). Other research reveals that traditional bullies have a greater tendency to be cyber-bullied in comparison to non-bullies, while cyber-bullies are more likely to experience online victimization than those who do not engage in cyber-bullying (Li, 2006). In addition, traditional bullies have a greater tendency to be cyber-bullies, so victims of traditional bullying are also more likely to be victims of cyber-bullying. In fact, 65% of victims of cyber-bullying report that they have also been victims of traditional bullying (Patchin & Hinduja, 2010).

Prevalence of Technology Among Youth

Studies indicate that young people immerse themselves in a technology-enabled world where social networking, instant messaging, blogs, and text messages are the prevailing means of personal communication and interaction (Hinduja & Patchin, 2008). It is common for young people to socialize with others through technology in various forms. In a recent study conducted by the U.S. Department of Commerce, researchers found 85% of individuals between the ages of three and seventeen lived in a household with an Internet-accessible computer (U.S. Census Bureau, 2010). Further, there is evidence that 75% of adolescents own a cell phone (Lenhart, 2012). These electronic devices, particularly those with Internet access, provide opportunities for perpetrators to cyber-bully their victims by various means throughout the course of the day. The Internet allows users the capability to visit websites, access email, read messages, and send and receive images on both their computers and cellular phones. Further, technological advances now allow computer and smart phone users to receive notifications about when an interaction with another person has occurred. Computers and cellular phones are the two primary electronic devices bullies employ to victimize others from afar (Dilmaç & Aydoğan, 2010).

Text messaging continues to be a popular form of communication between young people. Studies show that texting surpasses the frequency (75%) of other forms of daily communication, including cell phone calls with others every day (39%), face-to-face socializing outside of school (35%), social network site messaging (29%), instant messaging (22%), talking on landlines (19%) and emailing (6%) (Lenhart, 2012). The Pew Research Institute (2012) recently found 33% of youth texted more than 100 messages per day, while 11% sent more than 200 texts per day. In fact, the majority of youth (63%) reported exchanging text messages with other people on a daily basis. Because evidence suggests that girls typically send and receive more text messages

than boys receive (Lenhart, 2012) per day, additional research can help to determine how these behaviors can affect victimization rates across gender.

There is also evidence that cyber-bullying mostly takes place on social networks, such as Facebook, Twitter, MySpace, YouTube, Google Plus, and LinkedIn (Ellison & Boyd, 2013). Regardless of the risks associated with online victimization, social networking remains popular among young people. Facebook is the most commonly utilized communication platform with 19% of ten-year-old, 32% of eleven-year old, and 55% of twelve-year-old children reporting having an account on Facebook (Lenhart, 2012).

Prevalence of Cyber-Bullying

Cyber-bullying can affect people at all stages of their education. Researchers investigated cyber-bullying at the primary and secondary levels of education and found that the behaviors are most prevalent among youth, especially during elementary and middle school years, and continuing into postsecondary education (Hinduja & Patchin, 2007, 2009; Price & Dalgleish, 2010). For example, Dehue, Bolman, and Vollink (2008) found that 16% of youth in elementary and middle schools engaged in bullying via the Internet and through text messages, while 23% were victims of cyber-bullying. In another study, Kowalski and Limber (2007) found 18% of middle school children experienced cyber-bullying whereas 11% reported they cyber-bullied a peer at least once. Few studies have examined cyber-bullying among children under the age of eleven; however, recent efforts have found that primary school children generally view cyber-bullying negatively and that they are aware of the negative impact it can have on the emotions of victims (Monks, Robinson, & Worlidge, 2012). Further, children who are involved in cyber-bullying (as perpetrator or victim) tend to take on the same role in the form of traditional bullying – that is, without electronic means (Cassidy et al., 2009; Juvonen & Gross, 2008;

Kowalski et al., 2012; Monks et al., 2012). Comparisons between the prevalence of traditional bullying and cyber-bullying indicate that youth experience traditional forms of bullying more than cyber-bullying (Juvonen & Gross, 2008; Li, 2007; Raskauskas & Stoltz, 2007). For example, Li (2007) found that 31.1% of seventh-grade students (*n*=177) reported being a bully, and more than half (53.7%) reported being a victim of traditional bullying, while only 14.5% bullied someone by electronic means and 24.9% reported being victimized online.

In addition, studies suggest that there is a peak in cyber-bullying during adolescence (Smith et al., 2008). Specifically, cyber-bullying has been found to peak in 8th grade, when the average child's age is fourteen years old, and decline toward 11th grade when children reach seventeen years old (Williams & Guerra, 2007). Lenhart, Madden, Smith, Purcell, Zickuhr, and Rainie (2011) examined cyber-bullying among high school students and found that 15% of teenage social media users were the target of online victimization. A large majority (88%) of respondents reported seeing someone be mean or cruel to another person on a social network site. Two-thirds of the youth who witnessed online cruelty also witnessed others joining in. Finally, 21% of the participants admitted to joining the harassment (Lenhart et al., 2011). In another study, which sampled high school students to assess bullying victimization and psychological distress, researchers found that 15.8% of participants reported cyber-bullying and 25.9% reported traditional bullying within a year. Further, a majority (59.7%) of cyber-bullying victims were also victims of traditional bullying and 36.3% of traditional bullying victims were cyber-bullying victims (Schneider et al., 2012). Though there is variation in research findings on the prevalence of cyber-bullying, the majority of studies estimate that anywhere from 6% to 30% of teens experienced some form of cyber-bullying, while the number of youth who admit to cyber-bullying others at some point in their lives ranges from about 4% to 20% (Patchin &

Hinduja, 2012). More research on cyber-bullying is needed however, since the occurrence and characteristics of the phenomenon among college students is largely unknown (Smith & Yoon, 2013; Ybarra & Mitchell, 2007). Regardless, the studies conducted on this phenomenon indicate that cyber-bullying behaviors are prevalent among youth and have created foundational support for future studies. Figure 1 displays a summary of data and major findings of previous studies on cyber-bullying among youth.

Cyber-Bullying Among College Students

There is evidence of cyber-bullying continuing from high school to college (Zalaquett & Chatters, 2014), so contemporary research on cyber-bullying must now consider college students as a target population to study in order to examine the behavior in more depth. Early studies regarding online harassment among young adults reveal that approximately 10% to 15% (1 in 10) of college students (*n*=339) receive e-mail or instant messages that are threatening or insulting in nature (Finn, 2004). Though prevalence rates vary, more recent numbers reveal that more college students experience cyber-bullying than what was once thought. For example, researchers found that between 10% (Smith & Yoon, 2013) to 28.7% (Hinduja & Patchin, 2010) of college students experience cyber-bullying, while others estimate that between 11% to 34% of college students experience cyber-bullying during their undergraduate years (Walker et al., 2011). Given the enrollment at many colleges and universities, these percentages reveal large numbers of students affected by cyber-bullying. Society can no longer treat cyber-bullying as a social problem that occurs only among children and adolescents - college students, particularly heavy users of media, are influenced as well (Akbulut & Eristi, 2011; Dilmaç, 2009; Finn, 2004; Hinduja & Patchin, 2009; Kraft & Wang, 2010; Walker et al., 2011).

Cell Phone Usage

Studies reveal that college students are highly dependent, if not 'addicted' to their cellphones (Dulaney, 2014; Roberts, Petnji Yaya, & Manolis, 2014). Findings from a recent study on cellphone activity among college students revealed that the average time students spent on their phones each day is alarmingly excessive. For example, evidence shows female college students spend an average of ten hours a day on their phones, while male college students spend nearly eight hours on their phones each day (Roberts et al., 2014). According to the researchers, female college students may be using their phones more in order to build relationships with others through emails and texts, while the men use cellphones more for entertainment or utilitarian reasons. The authors found that approximately 60% of college students admitted they may be addicted to their cell phone (n=164). Some respondents indicated they become agitated when their phone is not in sight. Further, some students reported that they spend the most of their time texting (at an average of 94.6 minutes a day). Other common cell phone activities included sending emails (48.5 minutes), checking Facebook (38.6 minutes), surfing the Internet (34.4 minutes) and listening to music via iPods (26.9 minutes) (Roberts et al., 2014).

Social Media Usage

Thanks to the use of advanced smart phones and the proliferation of computer-use among college students, social media use increased exponentially over the past decade and essentially transformed the ways in which people interact with each other. It is undeniable that social media is an integral part of college students' lives. Social media refers to online social networks – the term covers an ever-increasing range of interactive, user-driven platforms where users can easily produce and consume content. On social media, users can share content through text, media, image, or video. Examples of social media include Wikis, blogs, micro-blogs (i.e., Twitter,

Tumblr), video sharing (i.e., YouTube), videoconferencing, and telepresence applications (i.e., Skype, FaceTime) (Martínez-Alemán, 2014). Social networking sites are web-based services that allow individuals to construct a public or semi-public profile; articulate a list of other users with whom they share a connection; and view and traverse their list of connections and those made by others within the system (Boyd & Ellison, 2007, p. 211). Direct and indirect real-life social ties provide access to communications across the network and users know each other to one degree or another (Boyd & Ellison, 2007). The sites are interactive in nature and rely on the ecology of users (Martínez-Alemán & Wartman, 2009). Social media also enables non-linear, asynchronous collaboration between users (Martínez-Alemán, 2009). Examples of social media include Friendster, Facebook, and MySpace. Facebook, a popular social-networking website, is widely used among college students; however, use of the website is declining (McDermott, 2014). Still, studies show that university students remain active on social media. According to the *College Explorer Study* (re:fuel, 2013), upwards of 88.6% of university students reported using Facebook on a daily basis. Twitter is the second most popular social media platform among college students, with up to 80% of students logging on and tweeting. In addition, there was an increase in young adult Twitter users - from 40.1% in February 2013 to 43.7% in November 2014 (McDermott, 2014).

Applications

Young media users utilize other online social media platforms that come in the form of applications such as *Instagram* and *Snapchat*. Applications are self-contained programs used to enhance and simplify existing functionality. They are often available for download on smartphones and through official app stores from Apple, Google, and Microsoft (Cutlak, 2013). Instagram is growing in popularity among young adults and statistics reveal that over 51.5% of

college students utilize this platform. Instagram is a photo and video-sharing application that allows users to upload and share their photos using various filters to edit user pictures. A similar application, Snapchat, allows users to share media to a controlled list of followers; the visible images appear for a few seconds and then disappear from the server. Snapchat has shown the most dramatic increase of users – with 3.2% of users in February 2013 to an increase of 25.9% users in November, 2013 (McDermott, 2014). A newer application, called *Burn Book*, allows cyber-bullies to search for school communities within 10 miles of their location and then anonymously share text and photos for other users to view. The terms of service states that users refrain from bullying, harassing, threatening, or abusing anyone while using the service. This application is similar to others, including *Yik Yak* and *Whisper*. These applications have caused problems in the past when students posted inappropriate, sexually explicit, or potentially dangerous comments about peers and faculty members of universities that resulted in criminal charges (Blum, 2015).

Reality Gossip Blogs

An area rarely examined about cyber-bullying among college-aged adults is that of reality gossip blogs. Reality gossip blogs include regularly updated websites or web pages that allows users to post information about the behavior and personal lives of other people (Cutlak, 2013). These websites began to emerge on college campuses following the creation of *JuicyCampus.com*. The website, allowed users to post messages and comments without having to worry about identification and they could vote on which posts they found most provocative. In 2009, the controversial website shut down due to financial difficulties and lawsuits (Hornbeck, 2009; Young, 2008). Since the creation of Juicy Campus, several other reality gossip blogs have emerged. One particular reality gossip blog is *TheDirty.com*, a gossip blog operated by Hooman

Karamian, who uses the moniker Nik Richie (TMZ, 2015). The current ad-supported website allows users to upload their own "dirt" which may include news, gossip, photos, videos, or text. The website also allows users to comment on posts submitted by others. Users, referred to on the site as the “Dirty Army,” submit stories and photographs along with gossip about the people pictured. Richie then posts the pictures and information, often accompanied by his own comments (Ziniti, 2012). He is allowed to do so based on § 230 of the Communications Decency Act (CDA), which essentially shields “interactive” website operators, such as Richie, from being held liable for statements made by third-party users (Minora, 2010). Users have tried to challenge Nik Richie and his controversial website (i.e., Jones v. Dirty World Entertainment Recording, 2012; S.C. v. Dirty World, LLC, 2012), however Nik Richie defends his behavior, stating that his website is a business and that it holds people accountable for their actions (McGraw, 2011).

Empirical Research on Cyber-Bullying Among College Students

Because evidence shows that cyber-bullying is prevalent among college-aged adults, researchers have begun to investigate this phenomenon more as it occurs among this population, including its demographic variables and risk factors. Much of our knowledge about cyber-bullying emerges from studies conducted during the past decade, as technology continued to evolve into its present state. One of the earliest exploratory studies of cyber-bullying among college students considered the Internet a primary tool for targeting and harassing peers. Finn (2004) surveyed 339 undergraduate college students about their experiences with online harassment that occurred via email or instant messages (IM). The students completed a series of questions regarding their experiences with online harassment using the categories *never, 1 or 2 times, 3-5 times,* and *more than 5 times* to report prevalence rates. Students also completed open-

ended questions to determine if the reporting of online harassment took place and if so, to whom. Participants who did not report their victimization reported why they did not do so. Questions were also included to obtain data about participants' computer use and demographic information.

Results of Finn's (2004) study indicate that 10% to 15% of the respondents repeatedly received messages that were threatening, insulting, and harassing in nature. Victims reported that they were harassed by strangers, acquaintances, and significant others. Only 6.8% (*n*=23) of the sample reported their victimization to an authority figure. Those who reported the cyber-bullying did so to their Internet service provider, a residence hall advisor, a computer help desk, or campus police, though often, students were unsatisfied with the resolution of their problems. In addition, Finn (2004) found that e-mail harassment was more prevalent for students who identified as a sexual minority. More specifically, results of the study indicate that approximately one-third (5) of the 16 students who identified as lesbian, gay, bisexual, or transgender (LGBT) reported receiving repeated e-mails from someone they did not know, or barely knew, that threatened, insulted, or harassed them, compared to 14.6% of heterosexual students who reported receiving the same e-mails (Finn, 2004).

Noticing too that cyber-bullying trends reach beyond the scope of middle and high school, Kraft and Wang (2010) were among the first researchers to examine the phenomenon as it occurs among college students. The researchers argued that because victimization is so prevalent in middle and high schools, cyber-bullying behaviors occur in higher education as well. Kraft and Wang (2010) noted that the Internet presents the issue of techno-ethicality for college students. That is, the Internet dramatically changed the way that young people socialize with one another. Subsequently, students must make ethical considerations of which content is normal to view on the Internet, and which content is appropriate to post online. Kraft and Wang

(2010) explored the prevalence of cyber-bullying among students enrolled at a public liberal arts college. In addition to examining the types of cyber-bullying, the researchers investigated the impact that the behavior has on victims, as well as risk factors for cyber-bullying victimization, and students' reporting of incidents. A sample of 471 sophomores, juniors, seniors, and graduate students were administered an online questionnaire regarding their experiences with cyber-bullying. Results indicated that 10% of the sample were victims of cyber-bullying. Moreover, students who were younger than 25-years-old experienced more cyber-bullying than older students did. The researchers also found evidence that prior victimization in high school was a significant risk factor for being cyber-bullied in college. Most of the participants reported that they do not utilize campus resources to deal with issues ancillary to cyber-bullying; however, many students reported that if there were a centralized place (such as an email address) to report incidents, they were more likely to report their victimization (Kraft & Wang, 2010).

In a similar study, MacDonald and Roberts-Pittman (2010) administered a questionnaire to 439 undergraduate (87%), graduate (11.4%), and non-degree seeking students (0.7%) at a mid-size university regarding their experiences with traditional bullying and cyber-bullying during their time as college students. The researchers provided participants with a conceptual definition for cyber-bullying and asked them to relate their experiences to the behavior. That is, students reported if they ever cyber-bullied another person, experienced cyber-bullying victimization, or knew someone who was cyber-bullied. The researchers also asked participants to report how often they experienced cyber-bullying through specific forms of media, such as text messages. Finally, students reported their experiences with traditional bullying. The questionnaire responses were based on a 4-point Likert-scale (1 = never, 4 = very frequently). The results indicated that 21.9% of the college students who were surveyed were cyber-bullied

by someone, and 8.6% cyber-bullied someone else while in college. Additionally, over a quarter (38%) of college students reported that they knew someone who was cyber-bullied. There were not any significant differences based on gender or ethnic groups in any of the cyber-bullying behaviors under investigation. Finally, results indicate that college students experienced victimization on social media websites (25%), and through text messages (21.2%), emails (16.1%), instant messages (13.2%), chat rooms (9.9%), and other websites (6.8%) (MacDonald & Roberts-Pittman, 2010).

Walker, Sockman, and Koehn (2011) also investigated the prevalence of cyber-bullying on college campuses, including the media most commonly used. In addition, the researchers examined the role gender played in cyber-bullying. Their exploratory research examined the cyber-bullying experiences of 120 undergraduate students (70 females, 50 males) using a 27-item survey that was adapted from Li (2006) and Spitzberg and Hoobler (2002). The results indicated that 11% of participants experienced cyber-bullying victimization during their time at college. Over half (54%) of the students reported that they knew someone who was a victim of cyber-bullying. Interestingly, all of the male participants (100%) in the study reported that they knew of victims, while only a quarter (23%) of females knew someone who was cyber-bullied. Results also demonstrated that the technologies used to cyber-bully most often included Facebook (64%), cell phones (43%), and instant messages (43%). In addition, half (50%) of the students who were victimized report that their aggressors were classmates. Comparatively, 57% of students were cyber-bullied by individuals who were not associated with their university, while 43% were unaware of who was victimizing them. Finally, results showed that a majority (71%) of the participants had mentioned the cyber-bullying to their parents or to other adults (Walker et al., 2011).

Certainly, literature reveals the consequences of cyber-bullying are far-reaching, as the phenomenon affects young people around the world. Research indicates cyber-bullying is not only prevalent in the United States, but the behavior is an international social phenomenon. In fact, cyber-bullying is an international public health concern among young people (Nixon, 2014). Empirical studies conducted at universities in other countries are comparable to the ones conducted in the United States. For example, Akbulut and Eristi (2011) investigated the extent of cyber-bullying and victimization among college students in Turkey. Specifically, the researchers administered a questionnaire to 254 juniors (students in their third year) to analyze their experiences with cyber-bullying as college students. The sample consisted of 173 (68.11%) females and 73 (28.74%) males. A small percentage of students did not report their gender (3.15%). The survey instrument included 56 Likert-scaled items that measured perpetration and victimization in the form of flaming, harassment, cyber-stalking, denigration, masquerading, exclusion, outing, and trickery. The findings indicated that there was a moderate relationship between cyber-bullying and victimization; cyber-bullying victimization predicted 23% of being a perpetrator. Further, the study revealed a large majority of cyber-bullying victims (81.1%) received emails or instant messages with religious or political content (63.9%), invitations to gossip or chat inappropriately (63.5%), curse/slang language (61.8%), obscene messages (61.8%), hidden identities of the aggressor (61.7%), and unwanted content without the receiver's consent (61.4%). In addition, perpetration of cyber-bullying stems from interpersonal problems with others. Male students also report experiencing cyber-bullying (both as the victim and the cyber-bully) more than females (Akbulut & Eristi, 2011).

Ancak (2009) investigated the relationship between cyber-bullying and psychiatric symptoms. The researcher also investigated which symptoms predicted cyber-bullying as well as

which harmful consequences result from cyber-bullying using data from 695 Turkish undergraduate students (247 males, 448 females). The questionnaire consisted of three sections including one for demographic information and one for questions related to cyber-bullying experiences. In addition, the questionnaire consisted of items from the Symptom Check List-90-Revised (Derogatis, Lipman, & Covi, 1973), designed to examine psychological patterns among patients. Ancak (2009) used several categories to classify student participants. For example, 19.7% of the participants reported cyber-bullying someone at least once. In that group, 14 (2%) students who cyber-bullied others never experienced cyber-bullying behaviors themselves. The researcher referred to participants who fit this criterion as 'pure-bullies.' 'Bully-victims' included cyber-bullies (*n*=123) who reported perpetration and victimization (17.17%). Findings reveal that more than half (54.4%) of the students were cyber-bullied at least once. Students (*n*=255) who were labeled 'pure-victims' (36.7%) included individuals who were victimized but never cyber-bullied anyone else. Finally, students (*n*=303) who were never cyber-bullied and never cyber-bullied another person were referred to as 'non-bully-victims.' The findings reveal significant differences between non-bully-victims, pure-victims, pure-bullies, and bully-victims. For example, Ancak (2009) found fewer psychiatric symptoms among non-bully victims than pure-victims and bully-victims. Additionally, the researcher found that hostility and psychoticism were significant predictors of cyber-bullying. Moreover, concerning gender differences, results indicated that when compared to females, males were more likely to engage in cyber-bullying and continue the behavior in the future (Ancak, 2009).

Dilmaç (2009), another Turkish investigator, examined the relationship between psychological needs and cyber-bullying from a sample of 666 undergraduate students (231 males, 435 females). Participants were administered a questionnaire that consisted of three

sections. The first section of the survey collected demographic information from participants, including their sex, age, department, class year, and class. The second section included students' experiences with, and exposure to, cyber-bullying. Lastly, the third section of the questionnaire included items from the Adjective Check List (ACL) (Gough & Heilbrun, 1983), a tool used to identify personal traits through the analysis of an individual's social needs and motivations. Specifically, the questionnaire asked respondents to relate to a list of adjectives that described their own personalities. The results of the study indicated that 22.5% of the students (*n*=150) engaged in cyber-bullying behaviors at least one time. Of that sample, 20 students (3%) identified as pure-bullies (perpetrators of cyber-bullying who never experienced victimization). Conversely, 19.5% (*n*=130) participants were classified as bully-victims (perpetrators of cyber-bullying who experienced victimization). Over half (55.3%) of the students (*n*=368) were victimized by a cyber-bully at least once in their lifetime. In addition, 238 of the students (35.7%) who never cyber-bullied others but experienced victimization, were labeled as pure-victims. Moreover, 278 students (*n*=41.7%) reported that they never cyber-bullied anyone else nor did they experience victimization (non-bully-victims). Finally, the results indicated that males reported more cyber-bullying behaviors than females. In addition, aggression positively predicted cyber-bullying (Dilmaç, 2009).

While cyber-bullying persists as problematic in the United States, the aforementioned studies reveal that cyber-bullying manifests as an international phenomenon as well. Additional research can aid in researchers' understanding of ways to prevent and alleviate cyber-bullying on an international scale. Several researchers previously attempted to predict cyber-bullying perpetration among college students, although findings vary. For example, cyber-bullying research shows mixed results for whether males or females participate in cyber-bullying more

often or if one group is more vulnerable to victimization than the other. Specifically, Finn (2004) found no significant differences between age, gender, race, class standing, or residence concerning cyber-bullying. Conversely, Dilmaç (2009) found that men reported cyber-bullying more often than women, however women reported more victimization than men. Certainly, future studies should examine correlates of gender, while also considering students' perceptions toward cyber-bullying in order to understand the behaviors further.

Fortunately, researchers are learning more about how college students feel about cyber-bullying. Boulton, Lloyd, Down, and Marx (2012) were the first researchers to compare attitudes toward traditional bullying and cyber-bullying among undergraduate students (n=405) in the United Kingdom. In this study, the researchers hypothesized that engagement in traditional and cyber-bullying was predicted from attitudes toward bullying behaviors, bullies, and victims. Cyber-bullying behaviors (i.e., use of photo/video, text, and social networks) were referred to as multimedia uploads, text, and social networking bullying in the study. The researchers administered a questionnaire to students to examine their experiences with bullying behaviors. A questionnaire provided participants with a series of responses to express their attitudes toward bullying behaviors, perpetrators, and victims. Results indicated that college student participants held the least favorable attitudes toward traditional bullying and the perpetrators of it, while attitudes toward cyber-bullying and cyber-bullies were middle range. Findings revealed that men were more accepting of bullying behavior and perpetrators than women. In addition, men were less accepting toward bullying victims. Conversely, women were less accepting of bullying behavior and perpetrators. Women were more sympathetic toward victims than men were. Although the researchers noted that studies of traditional bullying should not be generalized to

cyber-bullying and vice versa, future research should consider why the behaviors sometimes yield similar reaction from others, while other times they do not (Boulton et al., 2012).

There is evidence that supports the notion that cyber-bullying behaviors continue from high school into higher education. For example, Gibb and Devereux (2014) explored the predictors and personality correlates of cyber-bullying in college. The researchers recruited 297 undergraduate (*n*=276) and graduate students (*n*=21) online to complete a cyber-bullying questionnaire to determine their involvement as perpetrators and victims. The survey instrument was a modified version of a previously utilized survey, *Cyberbullying Questionnaire* (Calvete, Orue, Estévez, Villardón, & Padilla, 2010), which included a 16-item scale that reflected cyber-bullying behaviors. Participants also completed a questionnaire that focused on cyber-bullying victimization. One item asked perpetrators of cyber-bullying the level of distress they intended to inflict on their victim. Conversely, the questionnaire asked participants to report the level of distress caused by their experiences with cyber-bullying. The study found support that cyber-bullying behaviors continue in college; the researchers' findings suggested that about half (51.5%) of the college students in their sample engaged in some form of cyber-bullying. Slightly more than one-third (36.1%) of cyber-bullies reported that they did not mean to intentionally cause their victims distress. Only two (1.3%) perpetrators admitted to cyber-bullying their victim in order to cause severe distress. The findings also revealed that individuals who displayed symptoms of subclinical psychopathy were more likely to report their participation in cyber-bullying behaviors. Subsequently, the evidence led Gibb and Devereux (2014) to consider acts of retaliation in future analysis, since psychopathic individuals often behave on impulse and the act of cyber-bullying may bring them instant gratification (Gibb & Devereux, 2014).

Paullet and Pinchot (2014) examined college students' perceptions, reactions, and experiences with cyber-bullying as well as their awareness of the legal consequences surrounding cyber-bullying. Their study was especially important because it focused not only on the perceptions and actions of the victims, but also on those of witnesses to cyber-bullying. After surveying 168 college students (62% male, 38% female), the researchers found that almost half (49%) of the participants believed that cyber-bullying was becoming normalized in society. Alarmingly, the majority (66%) of the sample witnessed cyber-bullying during their lifetime. In addition, the researchers found that college students were more likely to confide in their friends about the cyber-bullying than they would an adult. Finally, only 25% of participants noted that cyber-bullying programming was available to them at the collegiate level (Paullet & Pinchot, 2014). These findings must be approached cautiously however, as other research suggests that college students do not consider cyber-bullying to be a significant issue and do not know what behaviors warrant it as such (Brewer, Cave, Massey, Vurdelja, & Freeman, 2012; Crosslin & Golman, 2014).

Munawar, Inan-ul-haq, Asad, Ali, and Maqsood (2014) recently conducted a study examining how university students' social life is impacted by cyber-bullying victimization. Using a sample of 100 undergraduate students (57% female, 43% male), the researchers utilized survey data to collect information about what consequences were experienced as a result of cyber-bullying. The questionnaire was adapted from the "Olweus Bully/Victim Questionnaire" (Solberg & Olweus, 2003) and the "Cyberbullying Questionnaire (Smith et al., 2008). Data indicated that a significant proportion of the participants interacted with others using social media websites such as Facebook (77%) and Twitter (15%). Moreover, much communication took place via exchanges on cell phones (89%). When examined further, most of the interactions

on social media took place among friends (61%), family members (35%), and acquaintances (18%). Very few interactions occurred among strangers on social media (3%). The researchers determined that cyber-bullying victimization can subsequently lead to problems in learning abilities (11%), concentration (55%), and educational withdrawal (16%). Moreover, students experienced emotional imbalances such as nervousness (29%), depression (30%), anxiety (40%), and feelings of worthlessness (5%). Finally, participants reported psychological behavior problems including low self-esteem (21%), self-destructive behavior (14%), and concentration disorders (44%), and despair that becomes worse during nighttime (14%). The research conducted by Munawar, Inan-ul-haq, Asad, Ali, and Maqsood (2014) demonstrated that cyber-bullying can indeed have negative impacts on the social life of young people.

Rather than administering surveys, some studies examined cyber-bullying among college students using focus groups. For example, Crosslin and Golman (2014) conducted six focus groups with students (n=54) regarding cyber-bullying in the college environment. Half of the participants noted that cyber-bullying typically consists of perpetrators mocking other people to damage their reputation. Victims reported that they often experienced someone using social media to masquerade as somebody else. Students also reported that they cyber-bullied others because they wanted retaliation against others. In addition, according to study participants, college students often did not report their victimization because they wanted to be independent and feel autonomous from the rest of the student body population (Crosslin & Golman, 2014). Studies such as this are especially important to understanding cyber-bullying among college populations better, because they directly ask college students to share their perspectives on how the behavior affects their lives. Though research examined cyber-bullying victimization, incident

rates, and reporting mechanisms, few have addressed college students' perceptions of cyber-bullying using qualitative measures.

Francisco, Veiga Simão, and Ferreira (2015) argue that cyber-bullying perpetration and victimization occurs more often among college students than adolescents. In a recent study, the researchers investigated Portuguese college students' perceptions of cyber-bullying (as perpetrators, victims, and observers). Specifically, they considered the impact cyber-bullying had on students' well-being. Their approach is particularly important to cyber-bullying research, as it provides a way to measure college students' perceptions of cyber-bullying involvement. In doing so, the researchers considered aggression types, coping strategies, and sources of help to deal with cyber-bullying, as well as gender, in their analysis. The sample included 349 undergraduate students (77.6% female, 22.4% male). Most of the participants were 20 years old or younger (59.9%) or in their first year of college (41.6%). The researchers utilized *The Cyberbullying Inventory for College Students* (CICS), which categorizes typologies and involvement in cyber-bullying. The questionnaire included four scales and encompassed items for victims, perpetrators, observers of the victim (45.5%), and observers of the cyber-bully (20.4%). Also, the technological means used in the cyber-bullying and the coping strategies of victims and observers were of interest to the researchers.

The findings revealed that 27.94% of the students (n=145) were victims of cyber-bullying at some point in their lives. A much smaller proportion (8%) of students (n=42) were perpetrators of cyber-bullying. Women comprised the majority of both victims and aggressors (59.5%). Females were also more likely to act in groups than males. Most of the cyber-bullies (45%) attended school with their victims. Students reported using mostly computers (71.4%), cell phones (35.7%), social media websites (33.3%), and instant/text messages (52.4%) to target

victims. Cyber-bullies also noted awareness for inflicting anger (63.6%), concern (54.4%), embarrassment (45.5%), insecurity (36.4%), and fear and sadness (27.3%) on victims. Almost half (45.7%) of the respondents observed cyber-bullying incidents. According to the students, most of the witnessed acts involved females (47.4%) in comparison to males (12.1%) and mixed groups (19.4%). Only 20.4% of observers reported witnessing cyber-bullies as perpetrators. As noted by the researchers, this finding makes sense, since a large number of cyber-bullies victimize others anonymously. Observers also reported witnessing more cyber-bullying in secondary education than in higher education. Accordingly, college students may be able to hide their identities as cyber-bullies better as young adults, rather than as adolescents (Francisco et al., 2015).

Educating the college student population about cyber-bullying is important and necessary. Brewer, Cave, Massey, Vurdelja, and Freeman's (2012) exploratory study found that college students are familiar with the term cyber-bullying, but they may be unable to clearly define it or recognize examples of the behavior. Their research also demonstrated that college students may be unaware of resources for victims (Brewer et al., 2012). Other focus groups revealed similar findings. For example, in a study of 54 college students divided into six focus groups, Crosslin and Golman (2014) found that young adults thought the term "cyber-bullying" was dated. Participants disclosed that "harassment" was a better word to use to describe behaviors that constitute cyber-bullying. The study also revealed that college students did not realize they were previously cyber-bullied until someone else explained the terminology to them more clearly. Some participants (26.4%) maintained that cyber-bullying behaviors were more prevalent at "party schools" than academic universities. Others (20%) upheld that cyber-bullying among college students was a rite of passage. Findings indicated that college students might rely

more on their own sources for resolution to a cyber-bullying problem than seek outside help. In addition, although college students thought cyber-bullying behaviors are embarrassing, taboo, and childish, they agreed that the behavior deserves more attention. Participants voiced that cyber-bullying would be taken seriously if more severe consequences were in place and if students were educated about the behavior on a continued basis rather than at one point in time, such as at university orientation (Crosslin & Golman, 2014). Future research can examine cyber-bullying in higher education in order to create a safe culture that is conducive to learning and to provide an environment that is supportive of students who experience cyber-bullying.

Though the cyber-bullying literature revealed a plethora of information, limitations remain. Most notable, findings from the aforementioned empirical studies are not generalizable to other populations (Crosslin & Golman, 2014; Finn, 2004; Kraft & Wang, 2010; Paullet & Pinchot, 2014; Walker et al., 2011). Several issues also exist with regard to sample selection in cyber-bullying research. For example, samples lacked diversity (Walker et al., 2011) or consisted of mostly female participants (Kraft & Wang, 2010). Researchers recognized that their studies included small sample sizes and homogeneous populations (Akbulut & Eristi, 2011; Dilmaç, 2009). Other studies included unequal participants in groups of students (Ancak, 2009). Another serious limitation to cyber-bullying research lies in the lack of conceptual clarity and differences in behavioral definitions, although this may lead to the creation of reliable measurement tools (Finn, 2004). Researchers noted the importance of exploring how young people define cyber-bullying in order to clarify the term further (Kraft & Wang, 2010). Future research can apply additional qualitative components to scrutinize the phenomenon more in-depth (Akbulut & Eristi, 2011). This is especially true since researchers exploring cyber-bullying among college students expressed that survey instruments and issues with self-reporting of information can limit

survey research (Akbulut & Eristi, 2011; Boulton et al., 2012; Gibb & Devereux, 2014; Kraft & Wang, 2010). Figure 2 summarizes the data and major findings of previous studies on cyber-bullying among college populations.

Conclusion

Although previous research revealed the incidence and prevalence of cyber-bullying, not much is known about the characteristics of college-aged populations who are involved in this type of behavior (Smith & Yoon, 2013; Ybarra & Mitchell, 2007). Indeed, it is difficult to pinpoint exactly why college students engage in cyber-bullying behaviors, however cyber-bullying does not just stop with high school graduation. The college environment is unique. Colleges and universities generally draw a larger, more diverse student population than most primary and secondary schools. In addition, students in college have exposure to more people, which can lead them to want to 'fit in' with a group of their peers. Students also warrant more freedom in the college environment and maintain more responsibility to balance their academic work with their personal lives. Certainly, a lot of individual development occurs during one's college career.

Fortunately, awareness of cyber-bullying among college students is gaining national attention (White House, 2011). Tragic incidents resulting from cyber-bullying, as well as the growth of technology use on college campuses, have garnered attention from institutions that are interested in learning more about online student conduct (El-Ghobashy, 2010; Schwartz, 2010). Still, some researchers argue that cyber-bullying prevention programs are not impactful because they concentrate on adult perceptions rather than on student perceptions (DeLara, 2012 in Francisco et al., 2015). Regardless of criticism, researchers point to several recommendations for prevention, including education programs and strengthening social bonds (Francisco et al.,

2015). In addition, researchers advocate for gender-specific intervention (Bastiaensens et al., 2014). Indeed, there is a need for more educational programs directed toward college students about the meaning and consequences of cyber-bullying. Since technology and social outlets create opportunities for cyber-bullying, colleges and universities should implement more resources for victims of cyber bullying (Brewer et al., 2012; Gilroy, 2013; Mishna et al., 2010).

Because few studies on cyber-bullying in higher education exist to date, there is a need for further efforts to examine the phenomenon, including how it affects college students' social and learning environments. Research already demonstrates that cyber-bullying is harmful; the phenomenon warrants further exploration to determine how these behaviors are learned. The current study attempts to fill a gap in this literature by examining cyber-bullying among college students from a social learning perspective (Akers, 1985, 2009). The next chapter provides a critical overview of social learning theory and includes a discussion of each of the theoretical variables included in the regression models for this research.

CHAPTER III

THEORETICAL FRAMEWORK

Scholars argue that learning takes place when an individual develops knowledge and habits as the result of their experiences entering in, and adjusting to, the environment (Bolles, 1979; Bower & Hilgard, 1981; Hill, 1977; Hulse, Egeth, & Deese, 1980). In general, learning theories focus on the content an individual learns, and the process by which the learning takes place. Additionally, learning theories assume that individuals learn criminal behaviors from others in a process that is similar to the learning of other behaviors (Vold, Bernard, & Snipes, 1998, 2004, 2010). Ultimately, learning theories are classified as social process theories because they assume that individuals learn either conforming or deviant behaviors through associations with others during the process of human development (Lilly, Cullen, & Ball, 2011; Siegel, Brown, & Hoffman, 2013). Theorists often utilize principles of learning to explain a variety of criminal and deviant behaviors, however, no study to date has examined cyber-bullying in relation to social learning.

Using a social learning theoretical perspective, this research seeks to understand cyber-bullying victimization, perpetration, and observation among college students through various forms of social media, including text messages, social media websites, applications, and reality gossip websites. This chapter begins with a discussion of the evolution of Akers' Social Learning Theory, beginning with the groundwork laid by Edwin Sutherland's Differential Association Theory. Additionally, this chapter includes a summary of the key components of social learning theory – definitions, differential reinforcement, differential association, and imitation – and provides an in-depth discussion of empirical support for the theory. The chapter concludes with a

discussion of the application of social learning theory to cyber-bullying among college students, which is the focus of this study.

Edwin Sutherland's Differential Association Theory

Differential association theory, which was first developed by Edwin Sutherland in 1939 and later revised in 1947, maintains that criminal behavior is learned through interaction and communication with intimate others, just as any other behaviors are learned (Sutherland, 1947; Sutherland & Cressey, 1978). Sutherland, who opposed biological and psychological perspectives, stated that the internal theories only account for some criminal behaviors and minds. Therefore, his differential association theory is social-psychological in nature, as it intends to explain crime through learning, interaction, and communication with others.

Historical interpretations of Sutherland's theorizing of interpersonal behavior reveal that he focused on three principle assumptions. For one, Sutherland believed that human behavior is flexible and that it changes according to one's situation. Additionally, Sutherland argued, learning primarily occurs in small, informal groups. Finally, collective experiences and specific situations contribute to the learning of behaviors (Mutchnick, Martin, & Austin, 2009). Essentially, differential association theory suggests that an individual learns criminality through a process of differential associations with others who communicate criminal values and advocate the commission of crimes (Schmalleger, 2015). Sutherland (1939) used the term *differential association* to refer to the contents of the patterns experienced between individuals while they interact or associate with one another. It is also important to note however, that Sutherland stated explicitly that it is not only the techniques of behavior that individuals learn, but, more importantly, the evaluations of behavior and definitions of situations (i.e., their meaning)

(Mutchnick et al., 2009). Ultimately, the content communicated between individuals can lead to criminality, not a mere association with criminal individuals (Williams & McShane, 2010).

The final version of differential association theory (Sutherland, 1947) contained nine propositions that concerned criminal behavior. According to these propositions, individuals learn criminal behavior through a process of communication with intimate personal groups (Matsueda, 1982, 1988). When someone learns criminal behavior from others, the learning often includes the techniques used in committing the crime, which can range from being very complicated to very simple (Akers & Jennings, 2009; Matsueda, 1982, 1988). Moreover, individuals learn the specific direction of motives, drives, rationalizations, and attitudes of legal codes that help them to determine if behaviors are favorable (which can increase the probability that someone will behave a certain way), or unfavorable (Akers & Jennings, 2009). According to differential association theory, a person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of the law (Sutherland & Cressey, 1966).

In addition, Sutherland noted that the process of learning criminal behavior by association with criminal and anti-criminal patterns involves all of the mechanisms that are involved in any other learning (Sutherland & Cressey, 1966). Moreover, differential association theory asserts that even though criminal behavior is an expression of general needs and values, non-criminal behavior is an expression of the same needs and values. For example, someone can either get a job or rob a convenience store if they need money. In these instances, the need (i.e., money) is the same for both conforming and criminal behaviors. Finally, the theory assumes that differential associations vary in frequency, duration, priority, and intensity. As Sutherland noted,

the most frequent, longest-running, earliest, and closest influences are most efficacious or determinant of learned behavior (Sutherland, 1947).

Of all the propositions in differential association theory, Sutherland (1947) contended that the sixth proposition held the most importance (Akers, 1998, 2009; Akers & Jennings, 2009). That is, a person becomes delinquent because they adopt an excess of definitions favorable to violation of the law over definitions unfavorable to violation of the law (Akers & Jennings, 2009; Williams & McShane, 2010). In other words, differential association contends that criminality relies on the ratio of anti-criminal views and pro-criminal views; crime occurs when one is abundant enough to cause an individual to act one way or another (Mutchnick, et al., 2009). In examining components to differential association theory, critics argue that one's "excess of definitions" should not be quantified by number. Instead, the quality of the interactions between individuals, as well as the frequency in which they occur, warrant consideration (Williams & McShane, 2010).

Despite its popularity, social scientists criticized differential association theory. In discussing the major criticism of differential association theory, Donald Cressey (1964) indicated that there are behavioral exceptions to the theory. For example, differential association theory does not apply to rural offenders (Clinard, 1944), white-collar criminals (Clinard, 1957), accidental criminals (Clinard, 1956), situational offenders (Elliot, 1956), or persons who commit crimes of passion (Jeffery, 1956), among other behaviors (see Clinard, 1942, 1949; Cressey, 1953; Lemert, 1953). Moreover, Cressey (1964) argued that it would be difficult to determine the ratios of learned behavioral patterns used to explain criminality in specific cases accurately. He also acknowledged that the abstract concepts, such as 'systematic' and 'excess' that are included in differential association theory are difficult to test (Cressey, 1964).

Other critics agree that differential association theory presents challenges. For example, Kubrin, Stucky, and Krohn (2009) argued that differential association theory does not adequately incorporate personality factors and does not discuss the process of learning in much detail. In addition, other critics have reasoned that the theory oversimplifies the process of learning criminal behavior and that it is tautological in nature (Williams & McShane, 2010). Sheldon Glueck (1956), a vocal opponent of differential association theory, argued that differential association theory did not contribute anything to criminology, other than introducing confusing concepts with which social scientists were already familiar. For example, Sutherland (1942) developed differential association to account for both the distribution of crime *and* individual crime rates (Cressey, 1960). That is, differential association operates at both the group (society) and individual levels (Cressey, 1996; Matsueda, 1982, 1988). Therefore, is difficult to operationalize the theory's concepts (Matsueda, 1988). In addition, since Sutherland (1947) failed to provide full definitions for parts of differential association theory, researchers struggled to determine appropriate ways to measure the frequency, duration, and priority of exposure to different attitudes (Mutchnick et al., 2009). Certainly, historical research indicates that the most damaging criticism of differential association theory is that it is difficult to quantify and test (Mutchnick et al., 2009). According to Matsueda (1982), these limitations subsequently led to more innovative attempts of devising methods for operationalizing measures of the theoretical concepts, generating hypotheses, and conducting empirical tests (Matsueda, 1982).

Despite its shortcomings, differential association theory remains one of the best-known interpersonal theories studied in criminology (Mutchnick et al., 2009). Furthermore, criminological literature reveals that many researchers attempted to revise the theory in order to overcome its limitations (Cloward & Ohlin, 1960; Cohen, 1965; Cressey, 1954; DeFleur &

Quinney, 1966; Glaser, 1956, 1960, 1978; Jeffery, 1965). Robert Burgess and Ronald Akers (1966) were among those who offered revisions to Sutherland's (1949) differential association theory, calling their learning theory *differential association-reinforcement theory.*

Burgess and Akers' Differential Association-Reinforcement Theory

Burgess and Akers (1966) argued that a more detailed version of differential association theory and its propositions were needed (Williams & McShane, 2010). Agreeing with Sutherland's basic premise that individuals learn social behavior through one's interaction with the environment, they expanded upon differential association theory by placing more emphasis on the learning process. Thus, they incorporated differential association with the reinforcement process that is inherent in operant conditioning. Subsequently, the researchers offered a revised version of the theory, named *differential association-reinforcement theory*, to illustrate how learning takes place (Akers & Jennings, 2009).

In developing differential association-reinforcement theory, Burgess and Akers (1966) specified the mechanisms by which the learning process takes place by borrowing aspects of behavioral learning from Skinner (1938) and Bandura (1977). According to Akers, the process of learning takes place primarily through operant conditioning or differential reinforcement (Akers, 1973, 1977, 1985, 1998, 2009; Burgess & Akers, 1966). That is, the rewards and punishments that result from the behavior affect voluntary actions taken by an individual (operant behaviors). According to the theory, differentially reinforced deviant/criminal behaviors (those that are rewarded more and/or punished less) likely lead to crime rather than conforming behaviors. Thus, the reinforcements (rewards) or punishments associated with that behavior influence an individual's decision whether or not to participate in criminal or conforming behavior (Akers & Jennings, 2009). In addition, the theory places strong emphasis on the element of social

interactionism. From this perspective, individuals interact with each other through the individual exchange of meanings and symbols (Akers & Sellers, 2013).

Burgess and Akers' (1966) theory of differential association-reinforcement received significant attention from other researchers but faded over time (Lilly et al., 2011). Critics argue that the theory is untestable. Specifically, because differential association-reinforcement theory lacks a clear statement of how behaviors weigh against others, making predictions are impossible (Halbasch, 1979). Despite the criticisms, Akers (1973, 1985, 2009), on his own, explored the theory extensively throughout the years and focused on the mechanisms through which criminal learning occurs. His theoretical perspective on criminal and deviant behavior, known more commonly as *social learning theory*, provides a framework for the current study.

Ronald Akers' Social Learning Theory

Social learning theory, a perspective that offers a general explanation of crime, is the only sociologically derived learning theory of crime and delinquency that explains why people engage (or do not engage) in criminal, delinquent, or deviant behavior (Akers, 1985, 2009; Akers & Sellers, 2013). Essentially, social learning theory maintains that individuals who associate with deviant peers will become deviant themselves once they develop definitions, or attitudes, that are favorable to law violation. Further, other aspects, such as characteristics of both the offenders and victims, and the positive or negative consequences that subsequently follow the offenders' behavior, can determine whether people learn deviant acts (Akers, 1998, 2009). In developing social learning theory, Ronald Akers attempted to specify how individuals acquire antisocial definitions and examined the mechanisms and processes through which criminal learning transpires (Lilly et al., 2011). Akers (1998) argued that the same learning process in a context of social structure, interaction, and situation, produces behavior that is both conforming and

deviant. This learning process involves differential association, definitions, differential reinforcement, and imitation (Akers, 2009).

Social learning theory suggests that individuals who associate with others who engage in and approve of crime more than they associate with those who disapprove of crime will learn an excess of definitions favorable to crime, which will subsequently increase their involvement in crime. Differential association with deviant/criminal others leads to criminal role models, differential reinforcement of criminal behavior over conforming behavior, and the shaping of pro-crime attitudes. Akers (1973, 1977, 1985) contends that it is in the social environment where individuals learn delinquent and criminal behavior. The main variables of social learning theory include definitions (that are favorable or unfavorable to law violation), differential association, differential reinforcement, and imitation (Akers, 1985, 1998; Akers et al., 1979).

Differential Association

Differential association is an important component to social learning theory (Akers & Sellers, 2013; Sutherland, 1947). For Akers (1985) differential association refers to the people or groups with whom one interacts most. The individuals with whom one associates provide a social context in which mechanisms of social learning operate (Akers & Jennings, 2009; Akers & Sellers, 2013). Further, individuals make rational decisions about whether or not to interact with peers who engage in deviant acts (Akers, 1985, 1998; Akers et al., 1979). Through these associations, individuals gain exposure to norms, values, and attitudes that encourage particular behaviors. Thus, criminal behavior is most likely to occur when a person differentially associates with deviant others.

According to Akers (1998), individuals gain exposure to conforming or non-conforming behaviors as well as favorable and unfavorable definitions; primarily from intimate others

including their families and friends. However, primary associations may vary over the life course. For instance, learning through differential association during the early childhood years occurs through interactions with others during school, leisure and recreational activities, and in peer groups. Whereas once an individual has reached adulthood, the social context for learning comes from associations with spouses, work groups, and friendship groups (Akers & Jennings, 2009).

While Akers (2002) notes that differential associations are important for shaping the definitions that can prompt criminal or delinquent behavior, he argues that the process of learning criminal behavior is not simply a matter of associating with criminals or non-criminals. Instead, the process varies according to the modalities of association. That is, an individual is more likely to engage in crime if he/she has early exposure (priority), frequent occurrences (duration), and greater intensity (importance) toward definitions favorable toward law violation that occur through their differential associations (Akers, 1985, 1998; Akers & Sellers, 2013).

Definitions

Definitions, or rationalizations and attitudes, are the moral components of social interaction that determine whether or not something is right or wrong and are learned just as any other behaviors are learned (Akers, 1985; Williams & McShane, 2010). Definitions of an individual's behavior are a central component to Akers' (1985) social learning theory, as individuals learn in a process of differential association (Sutherland, 1949; Kubrin et al., 2009). Akers expanded upon Sutherland's (1947) concept of definitions by arguing that through modeling and reinforcement, an individual's definitions can translate into delinquent behavior (Akers, 1998; Kubrin et al., 2009). Unlike differential association, which reflects peer and group orientations, definitions are one's own attitudes toward a behavior. Several factors can affect

how one views a behavior. For example, justifications, excuses, and attitudes can influence whether someone perceives an act to be right or wrong (Akers & Jennings, 2009).

According to Akers (1998), definitions can be negative, positive, or neutralizing. Definitions that are oppositional to criminal behavior are negative, while those that view crime as desirable are positive. When someone has neutral definitions, they may view crime as being permissible, but not necessarily desirable (Pratt et al., 2010). The theory asserts that individuals who associate with deviant others learn definitions that are favorable to law violations, which result in one's propensity to engage in unlawful behaviors (Akers, 1998; Akers, 2009; Akers & Sellers, 2013). Thus, through direct interactions with others, individuals have the opportunity to rationalize their behavior according to a balance between definitions that are favorable to law violation against those that are unfavorable to law violation (Akers & Sellers, 2013).

Social learning theory also asserts that definitions can be either general or specific (Akers & Jennings, 2009). Broad personal beliefs approving or disapproving of crime based on morality, values, and religion are considered general definitions. Conversely, those that are explicit to a criminal or deviant act or behavior are considered specific definitions (Akers, 1998; 2001). That is, specific definitions are those that aid in the orientation of particular acts or series of acts (Akers & Sellers, 2011).

Sutherland (1947) provided little guidance on how to operationalize 'definitions' in his original theory of differential association (Kubrin et al., 2009). The challenge of measuring definitions lies in the fact that Sutherland (1947) predicted crime to occur when an individual has an excess or definitions favorable to crime. Therefore, one would have to determine the ratio of definitions favorable versus definitions unfavorable in order to test the theory (Kubrin et al., 2009). In reality, this is a difficult, if not impossible goal to achieve (Matsueda, 1988). Akers

addressed this criticism by arguing that individuals learn criminal and deviant behavior through the process of differential reinforcement. That is, he maintained that people respond to the definitions for which they are rewarded (Akers, 1998; Kubrin et al., 2009).

Differential Reinforcement

Differential reinforcement refers to the balance of actual or anticipated rewards and punishments that are consequential of an individual's behavior (Akers, 1998, 2001). Rewards serve to strengthen a given behavior while punishments weaken that behavior. According to social learning theory, an imbalance in differential reinforcement increases the likelihood of a behavior by operating through four key modes, which include positive reinforcement, negative reinforcement, positive punishment, and negative punishment (Akers & Jennings, 2009). An individual's behavior can be increased or decreased in several ways depending on the presentation or removal of positive or negative stimuli (Akers & Sellers, 2013). For example, a behavior can be increased with the presentation of a positive stimulus (such as thrill or excitement from crime) (e.g., positive reinforcement) or the removal of a negative stimulus (such as when financial stress is relieved by stealing money) (e.g., negative reinforcement). Conversely, a behavior can be reduced with the introduction of a negative stimulus like the imposition of a criminal sanction (e.g., positive punishment), or the removal of a positive one such as the loss of a driver's license for driving under the influence (e.g., negative punishment) (Akers, 1998; Kubrin et al., 2009). Once a behavior is learned, the definition for that behavior stimulates an expected consequence that follows the act (Akers, 1985). For example, individuals will participate in a behavior if they believe that it is desirable or permissible and they receive a reward (an example of positive reinforcement). Others may justify their behavior in order to avoid the punishment that will result from the act (an example of negative punishment).

Behaviors reinforced by a reward or the avoidance of discomfort are more likely to be repeated than those that elicit punishment (Pratt et al., 2010).

Akers contends that the most important reinforcements are social in nature rather than physical (Akers, 2001). That is, the approval of people around them, particularly their close friends and family can largely influence an individual's behavior. Therefore, criminal behavior is more likely to occur with the reinforcement of misconduct and differential associations with pro-criminal definitions and behaviors that are readily available (Pratt et al., 2001, p. 769). Lastly, Akers (1998) maintains that reinforcements and punishments vary in their amount, frequency, and probability. For example, rewards that hold importance to an individual and are more frequent and probable will likely reinforce an individual's behavior. Conversely, punishments that are larger, more frequent, and probable will likely reduce or prevent a behavior. Moreover, social learning theory asserts that people who have the most control of rewards will be the most influential on an individual's behavior.

Imitation

Akers (1998) argues that people are likely to exhibit behaviors similar to those of family members and close friends because they serve as important models in one's life. This behavior, known as *imitation*, or modeling, refers to engaging in a behavior after observing others engaging in the behavior (Akers, 2001; Akers & Sellers, 2013). For example, an older sibling who cyber-bullies a peer online in front of their younger brother or sister may be demonstrating a behavior that can be modeled or imitated by the younger sibling. The characteristics of the model, the observed behavior, and the observed consequences of the behavior affect whether the behavior will be imitated (Akers, 1998). First time, or exploratory behavior, involves more pronounced imitation than continued behavior (Reed & Rountree, 1997). Although research

shows that imitation is a relatively weak variable (Akers et al., 1979), studies should develop measures that can capture imitation independently from other influences (Kubrin et al., 2009).

Policy Implications

Social learning theory also provides suggestions for social policy, as implementation of social learning components lead to effective prevention and intervention programs (Sellers & Winfree, 2010). For example, both experimental and quasi-experimental studies that support social learning theory indicate that differential associations, or criminal associations with others (i.e., family or peers), are significant in rehabilitating offenders. Moreover, treatment interventions that incorporate social learning variables are among the most effective in changing antisocial attitudes and associations, which can reduce criminal behavior (Andrews & Bonta, 2006; Cressey, 1995; Cullen et al., 2003; Lipsey, Chapman, & Landenberger, 2001; MacKenzie, 2006). Certainly, given the extensive application of social learning theory and supportive evidence that exists, examining this perspective as a way to predict cyber-bullying behaviors is not only important for theoretical advancements, but for practical policy implications as well.

Despite its accolades, social learning theory is often misstated, misinterpreted, and misapplied (Akers, 1998). Certainly, several conceptual and measurement issues exist. According to Brauer (2012), much debate on social learning theory surrounds the interpretation of underlying empirical relationships between definitions and participating in deviant behavior. The complex nature of social learning theory results in confusion when explaining its variables or experimental conclusions. Akers addressed the criticisms by arguing that differential reinforcement is a central component to criminal explanation, since differential association, definitions, and imitation ultimately affect one's probability of committing deviance in relation to a process of differential reinforcement. That is, differential associations reveal the amount of

exposure one has to criminal behavior, definitions can be utilized to measure rationalizations as being socially desirable or undesirable, and assessment of differential reinforcement can reveal anticipated consequences, punishments, and rewards that may result from a behavior (Brauer, 2012). Therefore, in order to show empirical validity and reliability for social learning theory, the current study considers all of the variables and theoretical assumptions.

Regardless of criticisms, social learning theory remains a core criminological perspective (Pratt et al., 2010) and it continues to evolve. More recently, criminologists have examined social learning theory variables in combination with other theoretical components. For example, social learning theory has been combined with social disorganization theory (Lowenkamp, Cullen, & Pratt, 2003; Sampson & Groves, 1989) and rational choice theory of crime (Paternoster & Piquero, 1995; Pratt et al., 2006; Stafford & Warr, 1993) as well as neuropsychological theories (Beaver, Wright, & DeLisi, 2008; McGloin, Pratt, & Maahs, 2004), and life-course explanations of criminal behavior (Wiesner, Capaldi, & Patterson, 2003). Integrated theories that reflect social learning variables have led to an even larger body of empirical support for the theoretical perspective.

To summarize, social learning theory suggests that crime is more likely to occur when 1) a person differentially associates with criminal others; 2) definitions and associations favor crime and differentially reinforce criminal over conforming behaviors; 3) a person is exposed to and observes more criminal than conforming models; and 4) a person's own learned definitions are favorable of criminal behavior. The following discussion provides an analytical overview of empirical evidence that support these basic suppositions of social learning theory, which has allowed the theory to maintain popularity for decades.

Empirical Support for Social Learning Theory

Social learning theory has been well-received since its inception, and has been deemed one of the most important, influential, and tested theories in the field of criminology (Ellis & Walsh, 1999; Stitt & Giacopassi, 1992; Wolfgang et al., 1978). The theory, which is a leading explanation of delinquency, has become one of the most widely recognized theories of crime and deviance and remains one of the core criminological paradigms in the past several decades (Agnew, 2001; Akers, 1998; Cao, 2004; Kubrin et al., 2009; Pratt et al., 2010; Warr, 2002). In fact, social learning theory is the second most frequently tested theory in criminology (Stitt & Giacopassi, 1992). Moreover, few studies contradict social learning theory (Akers & Jenson, 2006).

Another reason why social learning theory is popular among theorists is that it is logically capable of explaining a wide span of deviant behaviors across various populations (Pratt et al., 2010; Sellers & Winfree, 2010). In other words, social learning theory has a relatively broad scope. For example, social learning theory was previously applied to adolescents in order to understand more about their involvement in identity theft (Marcum, Higgins, Ricketts, & Wolfe, 2015), cocaine use (Shaefer, Vito, Marcum, Higgins, & Ricketts, 2015), self-reported theft (Brauer, 2009), marijuana use (Akers & Cochran, 1985), steroid use (Vito & Higgins, 2013), sexually abusive males (Burton & Meezan, 2004), childhood and adolescent fire setting (Singer & Hensley, 2004), smoking (Akers & Lee, 1996), and drug use (Hwang & Akers, 2005; Lee, Akers, & Borg, 2004). Researchers also applied social learning theory to studies on elderly populations (Akers & La Greca, 1991; Akers, La Greca, Cochran, & Sellers, 1989). In addition, and more along the lines of the current study, researchers also used social learning theory to examine a wide variety of behaviors among college students. For example, social learning theory

provided a theoretical framework for studies focusing on alcohol use (DeMartino, Rice, & Saltz, 2015; Durkin, Wolfe, & Clark, 2005), and nonmedical prescription drug use among college students (Peralta & Steele, 2010), as well as intimate partner violence (Cochran, Maskaly, Jones, & Sellers, 2015). Social learning theory maintains consistent empirical support when tested alone, however the theory is also useful when it is integrated with other criminological theories as well (Akers & Jenson, 2006; Sellers & Winfree, 2010; Williams & McShane, 2010). For example, researchers combined social learning theory with social control theory (Benda & Whiteside, 1995; Conger, 1976) and/or strain theory (Edwards, 1992; Menard, 1992). In addition, some studies included labeling theory to complement social learning theory (Edwards, 1992; Hayes, 1997).

The following section provides an overview of empirical studies that examined social learning theory using various populations. Because social learning theory relies upon interactions that take place among individuals, it is necessary to examine relationships further in order to explain deviant behavior and crime. Therefore, the following research provides a critical overview of tests of social learning theory since a great amount of learning takes place among intimate groups, such as families, peers, and more in line with the current study, college populations.

Social Learning Theory and Peer Groups

Social learning theory showed promise ever since its inception. The first empirical study of social learning theory that included full testing of the major concepts was published in the late 1970s when Akers, Krohn, Lanza-Kaduce, and Radosevich (1979) introduced social learning theory, a perspective that connected a general learning theory (e.g., a theory based on principles of reinforcement), with a sociological explanation for specific forms of deviant behavior. Akers,

Krohn, Lanza-Kaduce, and Radosevich (1979) hypothesized that social learning variables (differential association, differential reinforcement, definitions, and imitation) would explain marijuana and alcohol consumption among adolescents. To test social learning theory, the researchers utilized survey data that measured adolescents' drug and alcohol behaviors. The researchers employed a two-stage sample design to obtain the final sample of 3,065 male and female students. First, selection was made of schools that the researchers thought were representative of other schools in the district in terms of size and location. Then, depending on how many students attended the schools, two or three classrooms per grade level were included in the sample. This process resulted in a random sample of adolescents who attended grades seven through 12. The researchers measured the dependent variable, abstinence of alcohol and marijuana, using a six-point Likert-scale with responses that ranged from 'nearly every day' to 'never.' The researchers also created a four-point scale with questions that asked about respondents' experiences with alcohol and marijuana related problems. Using a set of items that measured different aspects of the concepts, the researchers operationalized the independent variables, which consisted of 15 variables in the abstinence-use analysis and 16 variables in the abuse analysis. Using multiple regression techniques, this study found strong support for social learning theory and indicated that differential association, differential reinforcement, definitions, and imitation accounted for 68% of the variance in adolescents' marijuana use and 55% of the variance in adolescents' alcohol use. These findings, which indicated support for social learning theory, also revealed that survey methodology and multiple regression were each valuable research techniques to employ when investigating social phenomena (Akers et al., 1979).

After Akers published his initial empirical work, other theorists followed suit to investigate social learning theory. In one notable study, Warr and Stafford (1991) researched the

influence that peers have on adolescents. Specifically, they hypothesized that peer behavior influences delinquency, regardless of the individual's attitude. In addition, they hypothesized that peer delinquency and attitude eventually lead to delinquency in others. In other words, the researches argued that youth become more delinquent if they have delinquent friends, even if the youth believes that delinquency is wrong. Warr and Stafford (1991) conducted a secondary analysis of Wave III of the National Youth Survey (1978), with adolescents between the ages of 11 and 17 (n=1,726). The researchers utilized regression techniques to analyze the friends' attitudes and behaviors effect on delinquency. The outcome variable, self-reported delinquency, was measured by asking respondents to report about marijuana use, theft of an item that is less than $5.00, and if they ever cheated on a test. Warr and Stafford (1991) measured the first predictor variable, respondent attitude, by asking respondents to report about how wrong it is to commit delinquent acts. The researchers used the other predictor variable, peer attitude, to indicate whether friends approve or disapprove of an act. In addition, peer attitude included any delinquency committed by a friend in the past year. The findings of the study indicated that behaviors of peers were more important on delinquency than attitudes (Warr & Stafford, 1991). Despite these findings, the study is not without limitations. For example, because this study utilized secondary data analysis, the researchers were not able to control the data or the survey questions asked of them.

In another prominent study that utilized social learning theory, Mears, Ploeger, and Warr (1998) argued that differential associations and male and female socialization might have an effect on crime commission differences between the genders. The researchers hypothesized an interaction between one's sex, their delinquent friends, and delinquency. Moreover, the researchers hypothesized that both males and females experience different exposure to

delinquent peers and that they experience different effects from that exposure. Using secondary data analysis of Wave III of the National Youth Survey (1978), the researchers utilized self-reported information from adolescents ages 13 through 19 (*n*=1,626). In addition, the researchers measured self-reported delinquency by asking the respondents the number of times they committed an offense in the past year. The first predictor variable, the number of delinquent friends, was measured by asking about the number of friends who committed acts in the past year. In addition, they measured moral evaluation of acts by determining how right or wrong an act was for an adolescent that was the same age as the participant. The findings revealed that males were more violent than females, they maintained more delinquent friends than females, and they experienced more influences from their peers than females. In addition, the researchers found that females exhibited less delinquency when they felt that the act was wrong, regardless of the influence from their friends (Mears et al., 1998). This study certainly added to the moderate findings of peer influence and brought more attention to differential association as a predictor variable.

In another notable study, Haynie (2002) acknowledged that additional research needed to address the role that actual friendship networks play in delinquency. Haynie (2002) utilized data from the National Longitudinal Study of Adolescent Health (1995-1996) to allow for further conceptualization and measurement of peer delinquency based on networks of adolescent friendships. According to Haynie (2002), adolescents experience exposure to pro-delinquent definitions when they have delinquent friends. This also includes the modeling of delinquent behavior. Haynie (2002) argued that it is important to consider the homogeneity of friends' delinquent behavior because it reveals more information about an individual's exposure to delinquent behavior. Moreover, friendship networks that contain both delinquent and non-

delinquent friends can be less effective in maintaining behavioral guidelines, cohesive norms, and consistent values for behavioral expectations (Haynie, 2002). Ultimately, Haynie (2002) sought to investigate peer network groups because of previous evidence that indicated that peer groups are more heterogeneous, with both delinquent and non-delinquent members (Elliot, Huizinga, & Menard, 1998). This was a significant observation because, as originally conceptualized, differential association suggested that an individual's peer networks lead to exposure to both delinquent and non-delinquent peers and definitions, which ultimately shape peer influence (Sutherland, 1947).

This study added to prior delinquency research by utilizing an innovative design to sample population-level data on the structure of friendship patterns within a school, for many different schools. That is, Haynie (2002) conducted a more comprehensive examination of the causes of adolescent health and health behavior, which included delinquency. Using a multi-stage cluster sampling design that utilized the Quality Education Database for the sampling frame, Haynie (2002) stratified schools according to region, metropolitan locale, school type, ethnic composition, and population size. Moreover, the researcher used two sources of data: a survey administered both at school and at home followed by a survey administered at home. The in-school survey consisted of demographic measures and the in-home survey consisted of more in-depth questions that concerned involvement with delinquent behaviors. Twelve schools were selected for inclusion in the sample, all of which had various locations (i.e., rural versus urban), designations (i.e., public versus private school), and ethnically heterogeneous populations, resulting in a sample of 3,702 students.

A multivariate regression analysis yielded several interesting points. First, Haynie (2002) found that most adolescents belonged to friendship networks that were comprised of both

delinquent and non-delinquent peers. Moreover, the proportion of delinquent friends had more influence on an individual's delinquency than the level of delinquency committed by their friends. Haynie (2002) concluded that more work was needed to connect adolescents to non-delinquent influences, such as interventions that foster associations with pro-social others.

Warr (2002) also contributed to delinquency research by providing an overview and analysis of the role, nature, and effect of peer influence in criminal and delinquent behavior, which has rarely received attention. In doing so, Warr (2002) acknowledged that criminal conduct is predominantly a social behavior where individuals imbed themselves in a network of friends who may also engage in criminality. Indeed, many criminologists refer to the number of delinquent friends that an individual has as the single strongest predictor of criminal behavior (Archwamety & Katsiyannis, 1998; Hoge, Andrews, & Leschied, 1996; Jung & Rawana, 1999; Katsiyannis & Archwamety, 1997; Myner, Santman, Cappelletty, & Perlmutter, 1998; Niarhos & Routh, 1992; Towberman, 1994). Warr (2002) noted that the social nature of criminal behavior provides more understanding of the etiology of crime and is related to the age distribution of criminal behavior. In investigating these claims, Warr (2002) reviewed literature on peers in the life course, as well as group characteristics of crime and delinquency, and delinquent peer conduct. Additionally, Warr (2002) reviewed variations in delinquency by age and gender, as well as by family and peer groups, and public policy decisions. The central thesis of this study argued that criminal conduct was primarily a social behavior and that most offenders associated with a network of friends and accomplices (Warr, 2002). Moreover, Warr (2002) maintained that as children age, they become more attached to peers, however as people age, they stop associating with delinquent peers. Ultimately, the researcher concluded that the single strongest

predictor of criminal behavior included the number of delinquent friends with which one associates (Warr, 2002).

According to Akers and Jenson (2006), peer groups, both those of same-sex and opposite-sex relationships provide the most influential exposure to associations, reinforcement, models, and definitions for a young person. Learning that takes place in the context of a friendship either counteracts what was learned from family members or may reinforce any delinquent tendencies that were learned within the family unit (Simons, Wu, Conger, & Lorenz, 1994). Further, other general criminological theories do not place as much emphasis on peer factors, or do not receive much support by evidence of peer variables, as social learning theory (Akers & Jenson, 2006). Studies that support social learning theory have revealed that the differential associations that an individual maintains with peers, who either conform or violate the law, predict the onset, continuance, and desistence from crime (Huizinga, Finn-Aage, & Weither, 1991; Loeber & Dishion, 1987; Loeber & Stouthamer-Loeber, 1986; Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991; Warr, 2002). According to Akers and Jenson (2006), conforming behaviors are more likely to take place when an individual maintains close, frequent relations with peers over extended periods. Deviant behavior, however, results when an individual maintains relationships with peers who commit and approve of law violating behaviors. Therefore, relationships with deviant peers predict an individual's own deviant behaviors (Akers & Jenson, 2006).

Virtual peer groups. In order to keep empirical evidence of social learning theory progressive, contemporary studies must also consider what influence technology and, ultimately, virtual peers, have on people too. In his work on delinquent peer groups, Warr (2002) acknowledged virtual peer groups, noting that advancements in technology provide additional

opportunities to communicate and identify socially and psychologically with others. That is, virtual peer groups allow increased opportunities to assimilate similar interests, such as dress, speech, and sexuality. Further, Warr (2002) contended that virtual peer groups are different from traditional peer groups because they are available at all times, rather than just sporadically. In essence, virtual peer groups often serve as criminal influences toward other people. Therefore, social learning theories of behavior allow more understanding about the process of learning. Though Warr (2002) did not empirically test virtual peer groups, he did introduce the notion that technology helps peers maintain relationships with others and provides an avenue for modeling of others' behavior (Warr, 2002).

Other researchers agree that virtual peers influence individual behavior, especially in regard to deviant online behaviors such as hacking (Bachmann, 2010; Holt, 2009; Jordan & Taylor, 1998; Taylor, 1999), piracy (Cooper & Harrison, 2001; Holt & Copes, 2010), and sexual-related offenses (Holt, Blevins, & Burkert, 2010; Holt, Blevins, & Kuhns, 2008; Mitchell et al., 2007; Sharpe & Earle, 2003). Although these studies consider virtual peer groups as important contributors to crime and delinquency, very few focused primarily on virtual peer groups in the analyses. Regardless, researchers indicate that individuals with which one associates off- and online are vital to the learning process. For example, Holt (2007) examined the overlap between off- and online experiences of hackers using a subcultural approach. Acknowledging that criminal subcultures exist in cyberspace, Holt (2007) argued that the Internet allows individuals opportunities to communicate and facilitates the transmission of subcultural knowledge without being physically near one another.

Holt (2007) ultimately examined the hacker subculture using a combination of data from resources found both off- and online. Specifically, Holt (2007) used three qualitative data sets

from web threads, interviews, and observations from *Defcon* (an annual hacker convention) to examine the hacking subculture in both off- and online settings. The researcher measured subcultural values and norms using the concept of normative order, which refers to a set of generalized rules and common practices oriented around a common value (Herbert, 1998). In other words, behavior stems from individual decisions as well as adherence to subcultural values (Holt, 2007). This concept was referenced because it allowed Holt (2007) an opportunity to identify rules and conflicts that existed among subcultures. Using a triangulation method, Holt (2007) determined that the social world of computer hackers was shaped by technology, knowledge, commitment, categorization, and law. He assessed that the normative orders helped individuals justify behaviors and affected their attitudes toward hacking and status within the subculture.

Based on his findings, Holt (2007) argued that the five normative orders of computer hacker culture reinforced relationships between hackers in both off- and online social situations. That is, hackers utilized their off- and online social networks to learn more about hacking behaviors and computing. Additionally, when individuals demonstrated advanced hacking skills among their peers, they received praise, creating a higher-ranked status among their peer groups and reinforcing the behavior more. Overall, Holt (2007) found value in exploring the influence of off- and online relationships in regard to the development of subcultural norms, values, and beliefs. Indeed, an overlap of an individual's experiences can occur in the real world and cyberspace; therefore, it is vital that researchers begin to examine both areas in order to identify the normative structure of deviant and criminal groups. Doing so can improve understanding of online communication and the development of deviant subcultures (Holt, 2007).

Miller and Morris (2014) also support the notion that virtual peer groups affect individual behavior. Noting that very few studies acknowledge the presence of virtual relationships, the researchers investigated whether both cyber and traditional forms of deviance were learned from virtual peers using social learning theory as a framework. In this study, Miller and Morris (2014) obtained data from 454 undergraduate students through self-administered surveys. A moderate correlation indicated a positive relationship between reinforcement from online peers, and differential association. To measure digital piracy, the researchers asked respondents to specify the number of times they engaged in digital piracy during the past year. In addition, Miller and Morris (2014) measured traditional deviance by asking respondents to report the number of times they engaged in numerous deviant behaviors (i.e., buying, selling, or holding stolen goods; assaulting another individual; or using checks or credit cards to pay for something illegally) over a twelve-month period.

Miller and Morris (2014) measured social learning variables using a set of questions concerning their peers' behaviors over the year. Specifically, a nine-item Likert-scale indicated whether respondents felt as if behaviors such as assault and theft were wrong, with responses ranging from 1 (not wrong at all) to 5 (very wrong). A four-item Likert-scale also indicated students' level of imitation of family members, friends, Internet searches, and Internet message boards, with responses ranging from 1 (nothing) to 10 (everything). In addition, Miller and Morris (2014) measured differential reinforcement with a six-item Likert-scale that assessed respondents' views of virtual and traditional peer approval of computer-related and traditional deviant behaviors. Finally, the researchers assessed differential association with traditional and virtual peers by asking students to report about the behaviors of their peers, which resulted in a ten-item scale with responses ranging from 1 (none) to 5 (all friends).

Miller and Morris (2014) utilized structural equation modeling techniques to examine peer influence. The study's findings suggest that virtual peer associations were important in explaining deviant behavior. That is, virtual peers influenced the social learning process regarding college students' participation in digital piracy. These results suggest that the influence of virtual peers needs further investigation, particularly with respect to digital deviance (Miller & Morris, 2014). Certainly, these findings are significant to the college population, as college students are likely to engage in online deviance, given their wide use of technology, which increases their exposure to online deviant opportunities. In fact, Miller and Morris (2014) recommend that future studies consider virtual peer influence on other types of digital (and traditional) crimes to determine the extent to which they affect learning among college students.

Hinduja and Ingram (2009) recently examined the differential role of online and offline peer influences by examining social learning theory (Akers, 1998, 2009) and music piracy. More specifically, the researchers identified the differential impact of peer influence, both off- and online, on an individual's participation in music piracy. Hinduja and Ingram (2009) acknowledged that individuals who actively engage in the illegal downloading of music often turn to their family and friends to help rationalize and reinforce their behavior. Since music piracy, and various other computer related crimes, require the accumulation of technical skills, it is important to consider the source of this knowledge. Accordingly, peer groups contribute significantly to the learning process, during associations that occur both off- and online. Music piracy, an individualistic behavior, is typically perpetuated by one person; however, the illegal downloading of music often involves various people who are found online and who guide an individual's participation in the behavior.

Hinduja and Ingram (2009) hypothesized that real-life peers affect an individuals' piracy the most. Despite this claim, online peers were still expected to influence an individual's behavior. The researchers utilized purposive sampling of a large group of undergraduate students in order to obtain a heterogeneous group representative of various college majors at the university. Students' participation in music piracy served as the dependent variable and was measured using 13 survey items to gauge participants' involvement in the illegal downloading of music. Specifically, a series of questions inquired about students' behaviors online, focusing on the downloading of items. For example, students were asked to report the number of MP3 files personally downloaded since the beginning of 2003 and 2002. Students were also asked about the number of music albums that were obtained online. Response categories for each of the items ranged from one to five. Offline peer influences were conceptualized as real-life peers and forms of popular media that provided an individual with instruction about music piracy. Likewise, online peer influences included sources of online interactions, as well as social artifacts that were available on the internet, such as blog posts or news stories. Each of the four items included responses on a 5-point Likert-scale that ranged from one (strongly disagree) to five (strongly agree), with higher values indicating greater emphasis on specific peer sources.

Eight control variables based on previous research on piracy (Higgins & Makin, 2004; Hinduja, 2001, 2003; Hinduja & Ingram, 2008; Morris & Higgins, 2009) were also included in the study, including gender, race, age, employment status, student major, and internet proficiency, variety, and speed. The majority of the respondents were white (78%) females (57%) who were 19 years old or younger (57%). Many respondents (49%) were unemployed. Moreover, the demographic statistics revealed that most of the participants associated more with peers off-line than with online peers, however popular media and online media were both

important in terms of influencing use of MP3s. Bivariate correlations revealed that all of the variables (with the exception of popular media, age, and unemployment) were significantly associated with music piracy, with real life peers showing the strongest association, followed by online peers and online media sources. Bivariate correlations also indicated that being male and having strong Internet-related skills was also positively associated with music piracy. In regard to peer relationships, Hinduja and Ingram (2009) found that individuals who associated with others off-line who supported the illegal downloading of music were less likely to be influenced by popular media. Additionally, the researchers found that individuals who reported being influenced by offline peers were not as influenced by other peer sources, whether off- or online. Moreover, respondents influenced by online peers were also influenced by media found both off- and online.

Hinduja and Ingram (2009) utilized OLS regression to examine the relationship between offline and online peers and music piracy. Analyses indicated that real life peers held the most influence on individuals, however online peers and online popular media significantly predicted students' participation in the illegal downloading of music. Higher music piracy scores were found among those who learned techniques online through virtual peers or media sources. Considering the analysis in its entirety, the researchers noted that although their findings about students' association with real life peers were also indicated in previous research on digital theft (Higgins, Fell, & Wilson, 2006; Higgins & Makin, 2004; Higgins & Wilson, 2006; Skinner & Fream, 1997), evidence of other online learning sources were also important to consider. That is, Hinduja and Ingram (2009) found that online peers and online media sources, such as chat rooms and blogs, also significantly predicted music piracy, which proves useful in identifying target areas to combat illegal online activity.

To expand upon Hinduja and Ingram's (2009) study on music piracy, which was the only one that included virtual peer groups, Higgins, Marcum, Freiburger, and Ricketts (2012) examined the role of peer influence on this behavior but included self-control as an additional component of their analysis. The main aim of this research was to contribute to the empirical literature by explaining piracy using self-control theory (Gottfredson & Hirschi, 1990) and social learning theory (Akers, 1998). Moreover, the researchers aimed to enhance understanding of the role virtual peers play in relation to deviant and criminal behaviors. Data were collected from undergraduate students (*n*=287) enrolled in criminal justice/criminology classes at four large universities in various regions of the United States. Most of the sample consisted of seniors (40.1%) and juniors (30.7%). About half (50.5%) of the sample were males (*n*=142) and the average age of participants was 22 (*M*=22.5). Moreover, the sample consisted primarily of white students (*n*=227), however African American students (*n*=30) and students who identified with another race/ethnicity (*n*=23) also participated.

The dependent variable for the study, music piracy, paralleled previous studies (Hinduja & Ingram, 2009) and asked participants to indicate the number of times they had illegally downloaded music in the last six months. Response categories for the item used a three-point Likert-scale that ranged from 0 times to 3 or more times. Higgins, Marcum, Freiburger, and Ricketts (2012) utilized self-control, parental closeness, school commitment, online and offline friends, and demographic information as independent measures. The self-control variable was based on previous research (Schreck, 1999) that utilized eight measures. More specifically, respondents were asked whether they acted in the spur of the moment, what activities they found to be pleasurable, if they engaged in risk-taking behavior, and if excitement was more important than security, among others. Response categories for measures of self-control used a five-point

Likert-scale that ranged from ‘strongly disagree’ to ‘strongly agree’, with higher scores representing lower levels of self-control.

Parental closeness, also based on previous research (Higgins, Wolfe, & Marcum, 2008), captured social bonding felt between participants and their parents. Survey questions asked participants if they could talk with their parents about anything, if they felt that they had their parents’ trust, and if they received praise when they performed well. Response categories for parental closeness used a five-point Likert-scale that ranged from none of the time to all of the time, with higher scores indicating more parental closeness. Additionally, three items were utilized to measure school commitment. Specifically, participants used a five-point Likert-scale to respond to the following statements: “I try hard in school,” “Education is important to me,” and “I complete my assignments on time” (strongly disagree to strongly agree). Higher scores on the scale represented more school commitment. Higgins, Marcum, Freiburger, and Ricketts (2012) measured peer association based on previous research conducted by Hinduja and Ingram (2009). Specifically, the researchers utilized a measure of online associations with peers who illegally downloaded music, as well as offline associations. Accordingly, respondents were asked to indicate how many of their peers, who they met offline, had illegally downloaded music in the past six months and how many online friends illegally downloaded music in the past six months. Item responses used a five-point Likert-scale that ranged from ‘none of the time’ to ‘all of the time,’ with higher scores indicating illegal downloading by peers. Finally, demographic information was measured by gathering respondent’s information about their sex, age, race, and grades.

Using a series of regression analyses, Higgins, Marcum, Freiburger, and Ricketts (2012) determined that there is a relationship between low self-control and digital piracy. Specifically,

individuals who did not anticipate consequences and were unlikely to resist temptation were more likely to illegally download items. Moreover, the results indicated that learning took place during time spent with peers, including virtual peers (Hinduja & Ingram, 2009; Krohn, 1999). It is important to note however, that this study does present limitations. For example, the researchers acknowledged that it was difficult to determine whether offline peers also had a presence online. More research on virtual peer groups is needed in order to determine the level of association and crossover of relationships online and in real life.

When taken together, the aforementioned studies of in-person and virtual peers have made significant contributions to the discipline in furthering our understanding of social learning theory. More generally, previous research contributed to the discipline by expanding our knowledge of the role, nature, and effect of peer influence on criminal and delinquent behavior. Additionally, previous research demonstrated the importance of socialization, as well as associations, reinforcement, definitions, and modeling. Contemporary studies acknowledge the role that virtual peers play in learning delinquent and criminal behaviors, noting that technology helps individuals maintain relationships with others and creates opportunities to communicate. Though much of the empirical testing of social learning theory focused on the influence of peers, a great amount of learning took place throughout various relationships, including the family unit, which ultimately served as a primary means of socialization in an individual's life. Therefore, it is necessary to examine these social forces further since they can influence or hinder the learning of a behavior.

Social Learning Theory and the Family

A large body of research examining the influence of family reveals that one or more social learning variables accounts for individual differences in delinquent and criminal behavior (Akers & Jenson, 2006). Family variables used as measures of social control by Travis Hirschi (1969), and Gottfredson and Hirschi (1990) are important to social learning theory because the family unit plays a significant part in the socialization process and the development of an individual's self-control. For Akers, socialization involves learning, and the family is the primary unit in which an individual is differentially associated. Moreover, the family unit initially exposes individuals to normative behaviors; therefore, this is where individuals first experience differential reinforcement. Because of this, measures of social learning theory should include parental sanctions for conforming and nonconforming behaviors (Akers & Jenson, 2006).

Informal social control in the family becomes a part of the learning process as individuals express either conforming or deviant behaviors because rewards and punishments are central to social control (Akers, 1973, 1985). The family unit usually provides an individual with role models, reinforcement through parental discipline, and anti-criminal definitions. In addition, the family promotes the development of conformity as well as self-control (Akers & Jenson, 2006). While many people grow up in supportive, loving homes, many others experience socialization in more challenging environments. Therefore, it is also important to recognize that deviant and delinquent behavior has family origins as well (Fagan & Wexler, 1987) and may result from interactions that occur within the family unit (McCord, 1991).

Research indicates that patterns of deviant and delinquent behavior may occur for a variety of reasons. For example, studies have shown that deviant parental role models, a lack of supervision and discipline, erratic parenting styles, and the endorsement of deviant attitudes and

values influence an individual's behavior (Akers & Jenson, 2006). Other research supports the claim that social learning mechanisms play a vital role in child-parent relations and predict whether an individual will conform or behave defiantly (Patterson, Reid, Jones, & Conger, 1975; Patterson & Dishion, 1985; Snyder & Patterson, 1995; Wiesner et al., 2003).

One of the earliest studies on social learning within the family was conducted by Patterson and Dishion (1985). The researchers examined parental and peer influence on individual behavior and hypothesized that failure and continued disruptions in parental monitoring practices increase the likelihood that an individual will associate with deviant peer groups. Patterson and Dishion (1985) hypothesized that in addition to poor parental monitoring, associations with deviant peers and academic failure during adolescence contribute to an individual's delinquency. In order to test these hypotheses, the researchers utilized data from a sample of 136 male adolescents and their families, specifically seventh and tenth grade students, who attended twenty-one schools throughout a metropolitan area. Structural modeling consisting of five constructs was adopted. Parental monitoring, social skills, and academic skills served as independent variables whereas deviant peers and delinquent behavior served as dependent variables.

Research by Patterson and Dishion (1985) was based upon social learning principles and emphasized the socialization process. That is, the importance of parental reinforcement and punishment was acknowledged and the researchers emphasized the role in which parents encouraged prosocial behaviors of children and disciplined antisocial behaviors. The researchers also focused on parental control, noting that a lack thereof subsequently lead one to associate with delinquent peers. Monitoring and discipline, which were reflective in previous studies of parent-child relations (Glueck & Glueck, 1950; Loeber & Dishion, 1983; McCord, 1979;

Patterson & Stouthamer-Loeber, 1984; West & Farrington, 1973), were included in the final analyses. Other important parental practices such as the reinforcement of academic, work, and relationship skills, as well as the ability to solve family problems, were also considered. Additional peer variables such as involvement in deviant peer groups and drug and alcohol abuse by adolescents were included as well. Patterson and Dishion (1985) found that three constructs, including monitoring, academic skills, and deviant peers, accounted for 54.3% of the variance in the dependent variable ($R^2 = .543$, $p < .001$). Additionally, as hypothesized, parental monitoring contributed both directly and indirectly to delinquent behavior.

Foshee, Bauman, and Linder (1999) examined the relationship between family violence (violence between parents and parental violence against children) and the perpetration of adolescent dating violence using both social learning and control perspectives. According to the researchers, social learning theory (Bandura, 1977) relates to aggression that occurs within the family because when children observe their parents using violence, they model the behavior. Moreover, in addition to observing violent behavior, children also observe emotional triggers for violence, circumstances for violence, and consequences of violence. Finally, the researchers argued that children who observe family violence may view consequences of the behavior positively since violence is used as a means of coercion. Indeed, several studies show that adults who utilize violent behavior as way to resolve conflicts typically lack more constructive strategies for conflict resolution, such as negotiation, verbal reasoning, self- calming strategies, and listening (Gottman, 1979; Lloyd, 1987; Margolin, Burman, & John, 1989).

Foshee, Bauman, and Linder (1999) pointed out that children who are socialized by violent parents may not have opportunities to model appropriate behaviors. The researchers made several hypotheses about adolescents exposed to family violence including: they will have

more positive expectations about the outcomes of using dating violence, they will have fewer negative expectations about the outcomes of using dating violence, they will accept the use of dating violence under more circumstances, they will respond more aggressively to conflict, and they will have fewer constructive resolutions to conflict. The researchers further hypothesized that outcome expectations, acceptance of dating violence, aggressive responses, and conflict resolution skills are associated with the perpetration of dating violence. Moreover, it was hypothesized that there would be a relationship between exposure to family violence and perpetration of dating violence by adolescents. Additional hypotheses focused on control variables, such as social bonding, parental attachment, belief in the conventional rules of society, and commitment to conventional activities.

Using data from self-administered questionnaires of eighth- and ninth-grade students (*n*=1,965), Foshee, Bauman, and Linder (1999) tested their hypotheses using participants who reported being on a date (*n*=1,405; 710 females and 704 males). Of that proportion of students, 96% reported living with at least their mothers, while 85% reported that they lived with at least their father. Of the dating males, 15% reported that they perpetrated dating violence at least once in the past. Additionally, 28% of the dating females reported involvement in dating violence. Perpetration of dating violence was measured by asking participants to report the number of times that they scratched, slapped, kicked, burned, hit with a fist, beat up, or assaulted an individual during a date, not including incidents of self-defense. Respondents were given options that ranged from 0 (never) to 3 (10 or more times). Items for 18 different forms of behavior were summed and recorded, with a score of 0 indicating no violent perpetration, 1 indicating one to three times, and 2 indicating perpetration more than three times. Family violence was measured using four items including the frequency with which an adolescent witnessed a parent hitting

another parent (1=never to 4=10 or more times), the number of times they were spanked or hit by their mother (0=never to 3=very often), the number of times they were spanked or hit by their father (0=never to 4=10 or more), and whether they were purposely hit by an adult (0=never to 4=10 or more times).

Social learning mediators were measured by asking respondents to report how strongly they agreed or disagreed with given statements about violence. For example, respondents could strongly disagree (0) or strongly agree (3) to the statement "If I hit a dating partner, my friends would think I was cool." The statements were tailored to express negative outcome expectations as well as positive outcome expectations and prescribed norms. The items were then summed accordingly to create composite variables. In order to measure aggressive responses to conflict, respondents were asked to report how they responded to being angry with another person. For example, students could respond how often they yelled and screamed at the person with whom they were angry. Seven items were then totaled to create a composite variable. Conflict-resolution skills were measured by asking participants to report the number of times that they had a disagreement with someone that warranted specific responses. For example, students could indicate if they had tried to calm the person down; items were then summed to create a composite variable. Control theory mediators were included in the study to assess maternal attachment, commitment to conventional activities, and beliefs in conventional rules. These items were measured similarly to the social learning variables, with respondents reporting the level of importance or agreeance to given statements concerning each of the variables.

In order to determine the relationships between the dependent variables and theoretical framework, Foshee, Bauman, and Linder (1999) utilized linear regression. Results of the study indicated that witnessing family violence between two parents was positively associated with the

perpetration of dating violence. Multivariate analyses revealed that females who witnessed a parent hitting another parent maintained a more aggressive response to conflict than those who were not exposed to family violence. Moreover, females who were hit by an adult, particularly their mothers, were also more prone to perpetrating violence themselves. The findings also revealed greater acceptance for dating violence for those females who witnessed parental violence or who were hit by their mother. Males who witnessed violence between parents or were hit by an adult also responded to conflict with aggressive responses and accepted dating violence. The findings indicated that social learning theory variables were associated with the perpetration of dating violence and mediated relationships between exposure to family violence and perpetration of dating violence, however only certain social learning variables explained the relationship for each gender. Additionally, the control theory variables were associated with family violence and the perpetration of dating violence; they also mediated the relationship between exposure to family violence and the perpetration of dating violence. Overall, the researchers noted that mediators may differ for males and females because they experience family violence differently. Indeed, males and females are socialized differently (Chodorow, 1978; Gilligan, 1982). To summarize, social learning theory variables alone accounted for more variation than the control theory variables in relation to the perpetration of dating violence. They also explained more variation than control theory variables in relation to other problematic behaviors that occur often among adolescents (Benda & DiBlasio, 1991; Krohn, Lanza-Kaduce, & Akers, 1984).

Mihalic and Elliot (1997) also considered family violence from a social learning perspective in their study on severe marital violence offending and victimization. The research was guided by social learning as it implies that violence is learned, through role models provided

by the family, either directly or indirectly, and is reinforced through childhood and continued into adulthood (Bandura, 1973). The researchers noted that children and adolescents observe how their parents behave in intimate relationships; this method of learning allows them to determine which behavior is appropriate. In families where violence occurs, children and adolescents may accept the behavior as normative, and begin to display similar actions toward others. As Gelles (1972) pointed out, the family unit not only exposes children and adolescents to violent behaviors and techniques of violence, but the family also teaches individuals approval for such behavior. Mihalic and Elliot (1997) also examined the effects of childhood violence on female perpetrators and male victims, which added to the literature on marital violence, as much of the existing research focused on male perpetrators and female victims.

Additionally, Mihalic and Elliot (1997) utilized a predictive model of martial violence offending and victimization across both genders using social learning theory as a foundation. Social learning variables previously used in martial violence research, including the witnessing of parental violence, child abuse, and adolescent victimization, were included in the analyses. Longitudinal data was obtained from the National Youth Survey (n=1,725) and consisted of males and females who were between the ages of 11 and 17. Several waves were taken into consideration, with face-to-face interviews occurring from 1976 through 1980 (waves 1-5) and again from 1983 through 1992 (waves 6-9). Marital violence was measured using eight scale items which were previously developed on the Conflict Tactics Scale (CTS), which measures physical violence. Specifically, respondents were questioned about the means by which they resolved conflicts with their spouses. In other words, the items were intended to measure violent acts, not fights or conflicts. The response categories for marital violence were organized as either minor or severe, depending on the level of severity for violence. Acts that were classified as

minor included throwing something, pushing, grabbing, shoving, or slapping. Severe violence included kicking, biting, hitting, hitting someone with an object, assaulting someone, threatening to use a gun or knife, or using a gun or knife on another person. Mihalic and Elliot (1997) also included ethnicity (white, black, Hispanic, American Indian, and Asian), class (parental income), and witness to parental violence as exogenous variables.

Scales were created to measure child abuse, prior victimization, minor assaults, felony assaults, and problems with alcohol. Problems with alcohol utilized a five-item scale, with response categories that included the number of times respondents were in trouble with their partner, friends, and family, as well as the number of times they had gotten into physical fights, gotten into trouble with police or been arrested, and had accidents while driving (0=never, 1=1 or more times). Sex-role attitudes were measured with a nine-item scale with a variety of response categories that included items such as the perception that the father in the family should have greater authority, men's responsibility is to earn money, men are more reliable, women are able to do most jobs, and forceful women are unfeminine, among others (strongly disagree through strongly agree). Martial satisfaction was measured with a scale that consisted of nine items that indicated respondents' satisfaction with their partner. Example response categories included items about sharing the same interests with partners, warmth and acceptance received from partners, and loyalty for one another, among others. For marital satisfaction, higher scores were indicative of greater satisfaction with one's partner. Finally, the variable for stress utilized a five-item scale. Respondents were asked to indicate the level of stress that they had experienced for a series of items including stress/pressure in relationships with friends, from being in school/college, and in their sex life, among others. Response categories ranged from "very little" to "a great deal" of stress, with higher scores indicating higher levels of stress.

Mihalic and Elliot (1997) hypothesized that the observation of violence within the home leads to higher rates of adolescent violence, victimization, and problems associated with alcohol use. Moreover, they hypothesized that the learning theory variables used in the model, child abuse, prior victimization, minor and felony assault, and problems associated with alcohol use, would be mediated by marital satisfaction and stress. After utilizing a path analysis of the data, the researchers found that social learning theory supported their explanation of adult violence, with different experiences with violence occurring among males and females. For females, witnessing violence in the family was associated with higher rates of child abuse, adolescent victimization, and minor assaults as an adolescent, which led to greater amounts of stress and less marital satisfaction as an adult. For males, prior victimization led to marital violence, both offending and victimization. Moreover, ethnicity served as an important predictor of male offending. Specifically, non-white respondents exhibited higher rates of marital violence. Several of the male models also revealed that marital satisfaction and stress correlated with martial violence. Interestingly, child abuse did not have any impact on marital violence offending or victimization for either males or females.

The results of Mihalic and Elliot's (1997) study suggest that the social learning of violence in childhood and adolescence has a stronger effect on females than males. The strongest predictors of later violence among females were the witnessing of parental violence and prior victimization, mediated by marital satisfaction. The researchers noted that earlier life experiences impact other domains of life and contribute to violence and victimization during adolescence, greater stress, and less marital satisfaction during adulthood. Males were more influenced by circumstances that occurred concurrently with marital violence, such as high levels of stress, and lower levels of martial satisfaction. Based on their findings, Mihalic and Elliot (1997)

determined that marital violence can be explained by social learning theory, however each gender should be examined separately from one another, since males and females interpret exposure to violence differently.

While many studies of family violence focused on child physical abuse, intimate partner violence, and elder abuse, Button and Gealt (2010) approached family violence differently by examining violence between siblings, which is documented as the most common form of intra-familial abuse (Hoffman & Edwards, 2004; Kiselica & Morrill-Richards, 2007; Lewit & Baker, 1996). Specifically, the researchers contributed to literature on family violence in their study that explored sibling violence and high-risk behaviors using social learning and feminist theories as theoretical foundations. The researchers were guided by previous studies (Hoffman & Edwards, 2004; Hoffman, Kiecolt, & Edwards, 2005) that suggested family violence should be examined from these perspectives, since very few empirical studies have used social learning theory and feminist theory to explain violence among siblings (Brody, 1998; Hoffman & Edwards, 2004).

In order to test the theories in relation to sibling violence, Button and Gealt (2010) utilized data from the Delaware School Survey (2007), which was conducted annually among eighth (*n*=6,788) and eleventh (*n*=5,623) grade students. The final sample consisted of 8,122 students who indicated having a sibling (*n*=4,548 eighth-grade students; *n*=3,574 eleventh-grade students). Substance abuse was measured using three scaled items that collected information about students' use of cigarettes, alcohol, and marijuana. Response categories for these items ranged from 0 (none) to 6 (31 or more times). Once the items were scaled, the dependent variable (substance use) was dichotomized to indicate the use of the three substances. Delinquency was measured using six scaled items utilized in previous studies (Warr, 1993). Specifically, respondents were asked to report how frequently they had stolen something from a

store without paying for it; broke into a car, house, or other building; cheated on a test; taken money from an adult's wallet or purse; damaged or destroyed someone else's property; and skipped or missed classes without permission. The scale for delinquency ranged from 0 to 30 and was dichotomized to indicate engagement in delinquency (0=no to all items, 1=yes to one or more items). Aggression, a dichotomous measure, asked respondents to report if they hit someone with the intention of hurting them within the past month.

Sibling violence entails "a repeated pattern of aggression that is directed toward a sibling with the intent to inflict harm and motivated by an internal emotional need for power and control" (Cafarro & Conn-Cafarro, 2005, p. 609). A scale of five items was utilized to create a measure of sibling aggression. For this measure, respondents were asked to indicate if a singling committed specific behaviors within a 30-day period. Dichotomous response categories referenced verbal abuse, threats, shoving, pushing, or slapping, fights (punching or kicking), and/or fights with the threat of weapon use. The five items where then entered into logistic regression models in order to separate the effects of psychological sibling aggression and physical sibling violence. The measurement of sibling aggression in this study was unique because it inquired about personal experiences of the respondents, whereas previous research relied on parental perceptions of abuse that took place between siblings. Therefore, Button and Gealt (2010) were able to gather more accurate information about the prevalence of sibling violence. The researchers also collected information about the respondents' demographic information. Specifically, variables that measured age, gender, and race were included in the analyses.

Five items were utilized to measure child maltreatment. That is, respondents were questioned about whether their parents committed a series of acts during the past 30 days: verbal

abuse, threats, shoving, pushing or slapping, fights (punching or kicking), and/or fights with the threat of weapon use. The researchers measured witnessing domestic violence by questioning respondents about how frequently they saw or heard violence between adults in the home, with response categories ranging from 0 (never) to 7 (almost every day). Descriptive statistics indicated that almost half (42%) of the students experienced some form of sibling violence. Respondents reported that shoving, pushing, and/or slapping were the most common forms of violence experienced between siblings. Some of the students reported that they experienced some form of violence at the hands of their parents (22.2%). Moreover, one-third (38.3%) of the respondents indicated previous use of tobacco, alcohol, or marijuana. Most (83.7%) of the respondents reported engaging in delinquent behaviors, while fewer (18.1%) indicated that they acted aggressively.

According to this study, almost half (42%) of the respondents experienced sibling violence, with shoving, pushing, and slapping as the most common forms. Sibling violence was also related to substance abuse, delinquency, and aggression. The results suggest that social learning theory may help to explain the relationship between aggression and sibling abuse, since individuals may be fighting back to maintain power. Moreover, social learning theory provides an explanation for the reinforcement of violent behavior and escalation of conflict. Button and Gealt (2010) noted that sibling violence impacted the odds of individuals engaging in aggression. Therefore, the researchers determined that social learning theory helps to explain sibling violence since respondents who reported witnessing violence in the home or experiencing abuse at the hands of their parents were more likely to report victimization from their sibling than respondents who did not.

Family studies contribute to the discipline by furthering our understanding of social learning. For example, prior research indicated that social learning variables predicted whether an individual conforms or behaves defiantly. Family studies also indicated that parents and siblings were influential toward an individual's development. Individuals with parental role models who maintained deviant behaviors, attitudes, and values were vulnerable to exhibiting similar behaviors. Family studies also determined that poor parenting styles, such as a lack of supervision and discipline, lead individuals to associate with deviant peers.

Empirical studies laid the groundwork for research on delinquency and criminal behavior; since Ronald Akers (1998) first presented his social learning theory, much more development has occurred. Evidence indicates that a great deal of social learning takes place within the family unit, whether it be among parents or siblings, as well as peer groups. While the family and peers serve as primary units of socialization for individuals, behavioral learning does not stop there. For young adults who continue their education beyond high school, they are introduced to new ways of thinking among a more diverse population. Learning in college takes various forms. Students take classes to enhance their skills and to contribute to their overall knowledge of a discipline in which they want to pursue a career. Many modern universities offer classes online or using online media, so the learning environment has expanded beyond the traditional brick and mortar setting. As college students socialize with their peers, these relationships too are nurtured in person, and online.

Social Learning Theory and College Populations

Recent data from the Pew Internet Project (2010) indicates that college students are more likely than the general population to go online. College student use of technology includes not only utilization of the Internet, but also social networking websites, and gadgets, such as cell phones, desktop or laptop computers, iPods or mp3 players, game consoles, e-book readers, and tablets. Moreover, the wide use of cell phones with Internet connectivity contributes significantly to college students' use of technology. Indeed, college students, and young adults in general, are much more likely than the overall cell phone owner population to use the Internet on their mobile phones (Pew Research Center, 2010). Since college students are among the heaviest users of media and technology, they are likely to learn from other users about what is and is not acceptable behavior. Therefore, social learning theory is applicable to this population since students model the behaviors of others and they are reinforced by their own actions using online media. Early studies of social learning theory did not consider technology, however they indicated that a good deal of social learning takes place among college populations, which can include the learning of criminal and delinquent behaviors.

Theoretical literature indicates that many tests of social learning theory examined social behaviors among individuals, including substance use, a behavior that peers often influence (Varela & Pritchard, 2011). Ford and Ong (2014) recently hypothesized that students who associate with peers who consume non-medical use of prescription stimulants not only believe that their peers accept the substance abuse, but that they perceive less risk associated with the use of stimulants. In order to test these hypotheses, the researchers utilized survey data from a sample of undergraduate students (n=549) at a public university. Specifically, Ford and Ong (2014) surveyed students from 13 undergraduate courses. Due to missing data, the final sample

consisted of 521 undergraduate students enrolled in courses in five different academic colleges within the university.

The dependent variable in this study was the non-medical use of prescription stimulants. To measure this item, the questionnaire asked respondents to report if they took prescription stimulants in the past year without a prescription for academic reasons, with responses coded 0 for 'no' and 1 for 'yes.' Ford and Ong (2014) utilized three concepts from social learning theory: differential association, definitions, and differential reinforcement (Akers, 1985, 2009). To measure differential association, the researchers asked students how many of their friends misused prescription stimulants for academic purposes, with Likert-scale response categories that ranged from 1 (none of them) through 4 (all of them). Additionally, to measure definitions, students reported their perceptions of how acceptable it was for college students to misuse prescription stimulants for academic purposes, with response categories ranging from 1 (strongly disagree) through 5 (strongly agree). The researchers also utilized a four-point Likert-scale that asked students how they perceived the risk of harm that college students cause for themselves, physically or in other ways, if they regularly misuse prescription stimulants. The Likert-scale responses ranged from 1 (no risk) to 4 (great risk). Finally, the questionnaire asked students whether prescription stimulants were an effective study aid, with Likert-scale responses that ranged from 1 (strongly disagree) through 4 (great risk).

Ford and Ong (2014) utilized logistic regression models to test their hypotheses. The study results indicated support for social learning theory. That is, the three elements of the theory related significantly to non-medical use of prescription stimulants among college students. The researchers noted that college students with friends who used non-medically prescribed stimulants were more likely to use as well, since they considered the behavior acceptable or

normative among their peers. Students also reported that the non-medically prescribed stimulants also served as an effective study aid. Ford and Ong's (2014) study suggests that differential reinforcement facilitated the learning process. Moreover, students believed that the stimulants aided in their academic process. In addition, the findings indicated that students with friends who used non-medically prescribed stimulants learned about the positive outcomes associated with the drugs. Therefore, college students were more likely to engage in substance abuse if they perceived non-medically prescribed stimulants more rewarding than harmful, especially if they associated with peers who maintained similar beliefs (Ford & Ong, 2014).

In a similar study on substance abuse among college populations, DeMartino, Rice, and Saltz (2015) examined college students' alcohol consumption to determine if social learning theory explained the deviant behavior, focusing specifically on individuals' social influences and reinforcements (those that are positive and negative). The researchers utilized social learning theory variables because the theory applies to a wide variety of behaviors and because previous research indicated that differential association, imitation, and differential reinforcement influenced alcohol use (Matsueda, 1988). In a similar fashion, DeMartino, Rice, and Saltz (2015) hypothesized that differential association and differential reinforcement mediate the associations of demographics on general alcohol use. Additionally, the researchers hypothesized that differential association that is supportive of alcohol use is associated with increased positive reinforcements and increased negative drinking experiences. Finally, the researchers argued that positive differential reinforcements (the benefits minus the costs) are associated with general alcohol consumption, underage drinking, and binge drinking.

To test these hypotheses, the researchers utilized cross-sectional survey data from undergraduate students enrolled at a university involved with the SAFER California Universities

Project, an organization that aims to examine alcohol-related public health. The final sample consisted of 347 undergraduate students. To measure differential association, DeMartino, Rice, and Saltz (2015) utilized three constructs, including social norms, living location, and sources of imitation. Specifically, the 434-item questionnaire included measures of social norms questions, estimations of other individuals' drinking, frequencies of consumption, and the number of drinks to estimate social norms.

Because the location in which an individual resides may affect their attitudes and behaviors, the researchers included a measure of living location with differential association because students lived either off- or on-campus. Specifically, the researchers measured living location by using GPS coordinates that were associated with respondents' residence. Additionally, sources of imitation were measured by asking students to report the number of intoxicated, or sober, friends that they encountered. The scores were then summed and multiplied by the number of times the individual reported encountering these experiences at six venues, including a 1) fraternity/sorority, 2) party in a residence hall, 3) on-campus sporting event, 4) party at a house or apartment off-campus, 5) pub/bar/restaurant, or 6) an outside setting (such as a park). The researchers then subtracted the number of intoxicated associates from sober associates and created a final score of sources of imitation. Negative numbers represented more associations with intoxicated associates, whereas positive numbers represented more sober associates (DeMartino et al., 2015).

DeMartino, Rice, and Saltz (2015) measured differential reinforcement with 42 questions that focused on a variety of rewards and punishments, as well as positive and negative alcohol expectances. A confirmatory factor analysis supported two factors of negative experiences associated with alcohol and social pressure to use alcohol. The researchers then created a score

for differential association by summing the factor scores for positive experiences and social pressure (positive reinforcement score). Additionally, factor scores for negative experiences were summed (negative reinforcement/deterrent score). The researchers subtracted the negative reinforcement score from the total of the positive reinforcement score to create a score for differential reinforcement, with lower values representing costs and higher values representing benefits (DeMartino et al., 2015). Finally, the researchers measured the dependent variable, alcohol use, by asking students the number of drinks they consumed each day in month. Binge use was determined using ordinal-level measures that ranged from 'never engaging in binge use' to 'binge drinking 10 times or more in the past two weeks.'

Findings from this study suggested that general alcohol use was correlated with both sex and ethnicity, with males drinking more than females, and students of European descent drinking more than their counterparts. Moreover, scores for social imitation and negative experiences were significantly lower mediators of alcohol use, while women expressed more positive and negative expectancies than men did. Overall, DeMartino, Rice, and Saltz (2015) found support for social learning components in each of their hypotheses. The researchers recommended that future studies utilize a full model of social learning theory and that interventions focus on binge drinking behaviors since social learning components appear to mediate the behavior in the form of differential associations.

Khey, Miller, and Griffin (2008) conducted the first study examining salvia divinorum use and social learning theory among young adults. Salvia divinorum is a psychoactive, hallucinogenic plant that gained recent notoriety, and prevalent use among young people, thanks to its widespread popularity on the Internet. Ultimately, the researchers tested competing theories (social learning, strain, and control theories) to determine which provided a more meaningful

explanation of salvia experimentation. They also maintained that social learning theory was relevant to drug use because it is often used recreationally among peers, similar to other substances such as marijuana and alcohol (Khey et al., 2008; Lange, Reed, Croff, & Clapp, 2008; Miller, Griffin, Gibson, & Khey, 2009). Thus, the researchers argued, drug use occurs in social settings that lends support to differential association (Miller et al., 2011; Warr, 2002).

The study included a sample of 544 undergraduate students enrolled at a university in the southeast United States who were recruited using departmental participant pools during the 2009-2010 academic year. A questionnaire was used to inquire about students' life stress, academic honesty, deviance, substance use, and peer associations. Of the final sample, 534 students relayed information about salvia use, which were included in the drug analyses. Salvia divinorum use was measured with a single dichotomous question that asked respondents if they ever used the drug. In addition, social learning variables were measured in a similar fashion to previous research (Lee et al., 2004). Specifically, a dichotomous item measured differential peer association with a question that asked respondents if they had any close friends who used salvia. Three survey items measured definitions by asking responds about their level of approval for using marijuana, other illicit drugs, or misusing drugs, with responses coded on a five-point Likert scale that ranged from 'strongly disapprove' to 'strongly approve,' with higher scores indicating definitions in favor of substance use. Differential reinforcement was measured using three items that assessed participant perceptions of the balance between rewards and costs of substance use, with responses that ranged from 'almost completely positive' to 'almost completely negative.' Higher scores indicated a positive perception of substance use whereas lower scores indicated perceptions of negative consequences of substance use. Imitation was not

included in the analyses because it was difficult to isolate from the other social learning variables (Miller et al., 2011).

Logistic regression was used to explore the factors that affected an individual's experimentation with salvia. The findings from the study indicated that respondents reporting definitions more favorable to drug use were more likely to report experimenting with salvia. Additionally, close friendships with peers who used salvia also contributed to an individual's use of the drug. When compared to strain and self-control models, the findings indicated that differential association was the most significant and robust explanation of salvia use among the sample (Miller et al., 2011). Ultimately, the results of their study lent support for social learning theory in explaining college students' experimentation with salvia. Certainly, future research should continue to examine salvia use, not only among peers, but individual users as well.

It is suggested that in order to expand the literature on social learning theory and obtain a more demanding test of its theoretical components, researchers should consider testing the theory with phenomena carried out by individuals in isolation (Sellers, Cochran, & Winfree, 2007). Indeed, social learning theory typically was tested and applied to group-related deviance. Therefore, it rarely explained individual behaviors (Sellers et al., 2007). Fortunately, several researchers have answered this call. Fox, Nobles, and Akers (2011) attempted to fill this gap in the literature by examining stalking behaviors, which are typically perpetrated by an individual offender rather than a group. In their study, which was the first empirical study to examine stalking behaviors among college students using a test of social learning theory (Akers, 1973; Bandura, 1977; Sutherland, 1939), the researchers hypothesized that stalking behaviors were a learned phenomenon. The specific test contributed to literature on social learning theory because it expanded the range of deviant behaviors that the theory examined. This resulted in additional

evidence that supports social learning theory as a general theory of crime (Fox et al., 2011). Using survey data obtained from a large sample of college students (*n*=2,766), the researchers examined the extent to which social learning variables predicted stalking victimization and perpetration. Logistic regression techniques then estimated the relationship between social learning theory and stalking perpetration and victimization.

Fox, Nobles, and Akers (2011) measured stalking perpetration using a series of 11 questions about stalking (i.e., harassing, intrusive, frightening, threatening, unwanted behavior that occurred more than one time). A series of similar questions measured stalking victimization in a similar fashion. Specifically, the response items included: 1) followed, watched, or spied on, 2) presence outside the home, school, or place of employment, 3) showed up to a place uninvited, 4) vandalized or destroyed property, 5) sent unwanted written correspondence, 6) made unwanted phone calls, 7) left unwanted messages, 8) left unwanted items, 9) tried to communicate in other ways, 10) sent unwanted electronic messages, and 11) posted unwanted messages/pictures on the Internet (Fox et al., 2011).

Social learning variables were measured with a series of nine variables. Specifically, definitions were measured separately for stalking perpetration and victimization; however, each response utilized a 4-point scale. For example, when asked to report how the participants would react to friends who engaged in stalking, the categories ranged from very positive to very negative. Likewise, the questionnaire asked participants to report how they would react to friends who were victims of stalking, with response categories ranging from very sympathetic to very unsympathetic. Two survey items measured differential social reinforcement to gain information about both stalking perpetration and victimization. That is, participants were asked about students' reactions to either perpetration ("If you were to stalk someone, how would your friends

react?") and victimization ("If you were being stalking by someone, how would your friends react to you?"). Responses for perpetration ranged from very positive to very negative, and responses for victimization ranged from very sympathetic to very unsympathetic.

Fox, Nobles, and Akers (2011) also examined definitions with four-point Likert-scales. For example, the questionnaire asked participants to "consider any potentially positive and negative factors" in weighing the risks and benefits of perpetration and victimization both of which ranged from very likely to very unlikely. Finally, the researchers measured differential association concerning stalking victimization by asking participants to report if their friends engaged in stalking behaviors or if their friends were victims of stalking. Both items were measured with a four-point Likert-scale that ranged from none to mostly all. Based on their analysis, the researchers determined that social learning theory concepts predicted stalking. The results indicated that stalking victimization and perpetration included responses, attitudes, and behaviors that were likely learned, modified, or reinforced through their interactions with others. In order to expand social learning literature, the researchers recommended that future studies continue to consider both perpetration and victimization (Fox et al., 2011).

As previous research demonstrated, studies conducted with college populations have been helpful. For one, there is greater understanding of peer acceptance and perceptions of risk that young adults associate with certain behaviors. Additionally, prior studies indicated that social learning explains a variety of behaviors, including those that are conducted among peer groups and individuals, as well as those that garner both positive and negative social reinforcements and influences. Indeed, this knowledge base is vital to understanding the full context of the complex relationship between social learning and cyber-bullying among college populations.

Summary

Although social learning exchanged between individuals, peers, and family members has been examined for decades, additional consideration of this well-established framework allows for a more comprehensive understanding of the learning of deviant and criminal acts. That is, future research enables further analysis of the important components to social learning, including associations, reinforcement, definitions, and imitation. Because of the relative dearth of information on cyber-bullying among college students, there is an incomplete understanding of these behaviors from a social learning perspective.

Social learning theory (Akers, 1998, 2009) not only gained empirical support through individual studies but was also verified through criminological meta-analyses. For example, Pratt, Cullen, Sellers, Winfree, Madensen, Daigle, Fearn, and Gau (2010) found support for social learning theory in their study. Specifically, the researchers found that differential association and delinquent definitions, two primary concepts of social learning theory, were among the strongest predictors of criminal involvement and behavior (Andrews & Bonta, 2006; Gendreau, Goggin, & Law, 1997; Gendreau, Little, & Goggin, 1996; Lipsey & Derzon, 1998; Pratt & Cullen, 2000). In fact, social learning variables revealed stronger net effects on criminal and deviant behavior than variables taken from other social psychological theories. Moreover, social learning variables can control for various socio-demographic and structural variables (Akers & Jenson, 2006), making it an ideal theoretical framework for the current study on cyber-bullying among college populations.

Social Learning Theory as an Explanation of Bullying

Because of advances in technology, there are more opportunities to carry out bullying than there have been in the past. Indeed, a great amount cyber-bullying victimization occurs on social networking websites found on the Internet (Ellison & Boyd, 2013). Moreover, media users are increasingly exposed to antisocial media content, which has been found to be significantly associated with cyber-bullying behaviors (den Hamer, Konijn, & Keijer, 2014). Cyber-bullying by nature is a social behavior because it involves interpersonal associations between the victim and perpetrator. In other words, cyber-bullying involves relations and communications between people. Similar to prior studies discussed, the current study hypothesizes that peers and families influence cyber-bullying behaviors. Additionally, the study hypothesizes that levels of victimization, offending, and observation will differ by gender, age/class standing, race/ethnicity, sexual orientation, and socioeconomic status.

Given that cyber-bullying behaviors often produce unpleasant and potentially dangerous consequences for victims and perpetrators, it is important to examine why people cyber-bully others and why they target their victims. This study provides an empirical examination of cyber-bullying, including perpetration, victimization, and observation, by testing propositions from social learning theory (Akers, 2009), including differential associations, reinforcement, definitions, and imitation in order to understand what factors contribute to cyber-bullying. Considering the empirical support for social learning theory to explain a wide range of deviant and criminal behaviors, the current study contributes to theoretical research by determining whether social learning theory applies to cyber-bullying among college populations.

Though previous research has not yet applied a social learning framework to cyber-bullying behaviors, it has explained traditional bullying. Espelage, Bosworth, and Simon (2000)

used Albert Bandura's (1973, 1986) social learning perspective, in combination with research on risk and protective factors for substance abuse in youth (Hawkins, Catalano, & Miller, 1992), to examine the social context within which bullying occurs among adolescents. After surveying 558 middle school students about their experiences with traditional bullying, the authors found that only 19.5% of the participants reported that that did not experience bullying behavior in the past month. They also found a strong association between bullying behaviors and perceptions of peer involvement in negative behaviors. In addition, the study indicated that parental physical discipline, time spent without adult supervision, negative peer influences, and neighborhood safety concerns were each positively associated with bullying behavior. Conversely, positive adult role models were associated with less bullying behavior (Espelage et al., 2000). The findings from this study suggested that social learning that took place through family and peers influenced an individual's decision of whether or not to bully another person. Certainly, positive role models help to prevent bullying among young people by encouraging appropriate behavior.

In order to add to the literature on bullying, researchers must also focus on the ways in which technology influences bullying behaviors. The broad scope of social learning theory makes it ideal for exploring cyber-bullying. Therefore, the current study examines social learning theory as a possible explanation of cyber-bullying behaviors among college students.

Application to the Current Study

Despite a burgeoning literature highlighting social learning theory, research indicates there is a paucity of theoretical foundation in the empirical studies conducted on cyber-bullying (Xiao & Wong, 2013). The dearth of tests of theories to examine cyber-bullying perpetration, victimization, and observation resulted in an incomplete understanding of these complex behaviors. Therefore, additional theoretical tests are necessary to understand more about what

factors lead to online aggression. The current study incorporates theoretical variables from Akers' (1985, 2009) social learning theory, including differential association, definitions, differential reinforcement, and imitation, in an attempt to predict cyber-bullying perpetration among college students. Social learning theory was chosen for this study because it seems logical that bullying, both traditional and cyber, lends itself to the learning process. Moreover, because social learning theory perceives crime as a social phenomenon where criminal and/or delinquent behaviors are learned within intimate groups (i.e., family, peers), the perspective and its assumptions directly relate to online interactions that young people have with others, including the learning of techniques and rationalizations regarding crime (Fox et al., 2011). Although cyber-bullying is not criminal in nature, given the dramatic consequences that can result, it is worthy of investigation. Indeed, criminologists should examine acts that resemble criminal behavior, in addition to those acts with legal definitions (Mutchnick et al., 2009).

Although Akers (1998, 2009) argues that social learning theory is empirically valid as a general theory of crime and deviance and maintains that it is applicable to all types of crime and deviant behavior, social learning theory has not yet been applied to cyber-bullying among college students. In the current study, it is hypothesized that there is a relationship between cyber-bullying and social learning theory. As previously discussed, literature on social learning theory indicates that the learning of crime and deviance takes place in the context of intimate relationships where behaviors are approved of and reinforced. Likewise, cyber-bullying is a social behavior that occurs within the context of relationships where there exists an imbalance of power and where perpetrators target their victims without fear of reprisal or punishment, which can reinforce the behavior further. Social learning theory applies to a wide range of social behaviors; it only makes logical sense that it would apply to cyber-bullying as well. By asking

college students firsthand about what reinforces the perpetration of these behaviors, one can surmise that cyber-bullies have learned various approaches by modeling others or by experiencing positive reinforcement from those who are also approving of online victimization. Therefore, this study contributes to the existing body of literature by testing social learning theory as a possible explanation of cyber-bullying among college students by asking how well social learning variables predict perpetration of the behavior. In addition, this research aimed to create a better understanding of cyber-bullying experiences among college populations in order to increase awareness of the issue. The test of social learning theory establishes whether cyber-bullying is learned through interactions with close others where behaviors are positively reinforced and accepted.

Conclusion

Since its inception, Ronald Akers' (1985, 2009) social learning theory has proven to contribute significantly to the study of criminology, and it remains relevant in the field today as a viable explanation of deviant behavior with its emphasis on reinforcement and discriminative stimuli (Williams & McShane, 2010). In order to remain progressive, the theory took several directions, including an approach that integrates concepts of social learning with other variables, such as social control (Benda & Whiteside, 1995; Conger, 1976), labeling (Edwards, 1992; Hayes, 1997), and strain (Edwards, 1992; Menard, 1992). Additionally, social learning theory provides a solid theoretical foundation for the exploration of a variety of contemporary issues that relate to technology and media use (Higgins et al., 2012; Hinduja & Ingram, 2009; Holt, 2007; Miller & Morris, 2014). Subsequently, social learning theory helped shape and inform policies to consider the learning process in relation to effective prevention and intervention among various issues and populations.

When considering the support that social learning theory receives from empirical studies, the theory is certainly deemed worthy of further exploration of more modern phenomenon, such as cyber-bullying. Arguably, social learning theory applies to the current study because the techniques and rationalizations of bullying behaviors that take place in virtual settings can be learned and reinforced by others, particularly among family and peer groups. The following chapter discusses the research methods used in the present study, including details regarding study variables, data collection, and statistical analyses.

CHAPTER IV

METHODOLOGY

The purpose of this study was to examine cyber-bullying among college students and to determine how well variables from Akers' (1998, 2009) social learning theory, including differential association, definitions, reinforcement, and imitation, predict cyber-bullying behaviors. Additionally, this study provides a comprehensive overview of cyber-bullying behaviors using quantitative research methods to examine and describe the characteristics of victims, perpetrators, and observers of cyber-bullying and to determine if there are differences in the behaviors by gender, age/class standing, race/ethnicity, sexual orientation, and socioeconomic status. Moreover, this study includes an overview of which technology the behaviors persist most often among college students (i.e., text messages, social media websites, applications, or reality gossip blogs). Lastly, this research identifies harmful consequences that result from cyber-bullying so that policy considerations can counteract negative effects or prevent future victimization.

This chapter details the research methods used in this study, including the research questions and hypotheses that guided the study. This chapter also discusses the sampling strategy, the survey design/administration, and the key variables and measures in the dataset. Moreover, it includes demographic characteristics of the sample, scale construction and reliability, and descriptive statistics on variables of interest for this study. Finally, this chapter details the analysis plan used to test the hypotheses and assess the ability of social learning theory in predicting cyber-bullying behaviors and concludes with a discussion of the protection of human subjects.

Research Questions and Hypotheses

The purpose of this study was to examine and describe cyber-bullying among college students and to provide a theoretical explanation for the behavior among young adults. Although previous studies measured incidence and prevalence rates (Akbulut & Eristi, 2011; Ancak, 2009; Boulton et al., 2012; Brewer et al., 2012; Crosslin & Golman, 2014; Dilmaç, 2009; Finn, 2004; Francisco et al., 2015; Gibb & Devereux; Kraft & Wang, 2010; MacDonald & Roberts-Pittman, 2010; Paullet & Pinchot, 2014; Walker at el., 2011), no study, to date, has tested social learning theory (Akers, 1985; 2009) as an explanation for cyber-bullying. It was hypothesized that there would be a significant positive relationship between cyber-bullying perpetration and each of the social learning variables. Thus, this study contributes to the existing body of literature by testing social learning theory as a possible explanation of cyber-bullying among college students by asking:

1. *How well do social learning variables predict perpetration of cyber-bullying?*

Additionally, this study adds to the literature on cyber-bullying by exploring the following research questions to gather more information on victims, perpetrators, and witnesses of cyber-bullying:

2. *Do college students recognize/understand the term 'cyber-bullying'?*
3. *What is the extent of cyber-bullying among college students as victims?*
4. *What is the extent of cyber-bullying among college students as perpetrators?*
5. *What is the extent of cyber-bullying among college students as observers?*
6. *What course of action, if any, did the observers take?*
7. *What knowledge do college students have about cyber-bullying victimization?*
8. *What harmful consequences do victims, perpetrators, and observers experience?*

The study also examines the characteristics of victims, perpetrators, and observers of cyber-bullying by asking:

9. Do levels of victimization, offending, and observation differ by gender?

10. Do levels of victimization, offending, and observation differ by age/class standing?

11. Do levels of victimization, offending, and observation differ by race/ethnicity?

12. Do levels of victimization, offending, and observation differ by sexual orientation?

13. Do levels of victimization, offending, and observation differ by socioeconomic status?

In order to test hypotheses and carry out inferences about population parameters using data from the sample of college students, null and alternative hypotheses were formulated and a test statistic was determined by examining the distribution of data. The following hypotheses are alternative hypotheses (H_a), which indicate a relationship between the variables in question. Conversely, the null hypotheses (H_o) state that no relationship exists. The current study utilizes *p*-values for the four variables that make up social learning theory as a way to examine the extent to which social learning theory variables explain cyber-bully offending.

H_a(1) There will be a significant positive relationship between differential association and cyber-bullying perpetration.

Ha(2) There will be a significant positive relationship between imitation and cyber-bullying perpetration.

H_a(3) There will be a significant positive relationship between differential reinforcement and cyber-bullying perpetration.

H_a(4) There will be a significant positive relationship between definitions and cyber-bullying perpetration.

Although the primary hypotheses were mostly concerned with the perpetration of cyber-bullying behaviors, alternative hypotheses were also tested to describe demographic information of participants in relation to cyber-bully victimization and offending, as well as perpetration:

H_a(5) Levels of victimization will differ by gender.

H_a(6) Levels of offending will differ by gender.

H_a(7) Levels of observation will differ by gender.

H_a(8) Levels of victimization will differ by age/class standing.

H_a(9) Levels of offending will differ by age/class standing.

H_a(10) Levels of observation will differ by age/class standing.

H_a(11) Levels of victimization will differ by race/ethnicity.

H_a(12) Levels of offending will differ by race/ethnicity.

H_a(13) Levels of observation will differ by race/ethnicity.

H_a(14) Levels of victimization will differ by sexual orientation.

H_a(15) Levels of offending will differ by sexual orientation.

H_a(16) Levels of observation will differ by sexual orientation.

H_a(17) Levels of victimization will differ by socioeconomic status.

H_a(18) Levels of offending will differ by socioeconomic status.

H_a(19) Levels of observation will differ by socioeconomic status.

Research Design

Cross-Sectional Analysis

This study used quantitative cross-sectional data to examine the phenomenon of cyber-bullying among college students. Cross-sectional designs involve examining perceptions and attitudes at one moment in time among populations of interest. Thus, this approach offered a quick glimpse of the phenomena being studied (Carmines & Zeller, 1979). A cross-sectional design was an appropriate method to use because it is descriptive and explanatory in nature. A longitudinal design would not have been appropriate to use because longitudinal studies examine

patterns over time, whereas this study examines college students' perceptions and experiences with cyber-bullying at one particular time (Menard, 2002). In addition, longitudinal designs are difficult methods to use when observing large numbers of people (Maxfield & Babbie, 2010) so it may have been a challenging method to execute.

Survey Methodology

In order to test the hypotheses, this study utilized a 61-item questionnaire to collect data from college students regarding their experiences with cyber-bullying. Survey research was an ideal method of data collection for several reasons including versatility, and efficiency. In addition, survey research represents the attitudes and perceptions of a large population (Bachman & Schutt, 2007). Though the findings from this study are not generalizable to other populations, the survey instrument allowed the collection of information from a large sample of students regarding their experiences with cyber-bullying in college. The survey also revealed more about participants' demographic information, their use of technology, and the extent of their cyber-bullying behaviors. Each student completed the survey on an individual basis. The questionnaire asked students to reflect upon their experiences retrospectively, so they recalled events that occurred while they were college students at the university. After obtaining informed consent from each of the participants (Appendix B), each student was administered the same questionnaire, no matter their class standing at the university. This approach allowed data collection to be consistent throughout the course of the study.

The questionnaire (Appendix C) contained six separate sections which included: Section A: Demographic Information; Section B: Technology Use in Everyday Life; Section C: Awareness of Cyber-Bullying; Section D: Observation of Cyber-Bullying; Section E: Cyber-Bullying Behaviors; and Section F: Comments. Each question on the survey instrument was

developed through a review of past literature on cyber-bullying (Smith et al., 2008; Solberg & Olweus, 2003; Willard, 2004) and social learning theory (Akers et al., 1979; Akers et al., 1989; Chappell & Piquero, 2004; Krohn, Skinner, Massey, & Akers, 1985; Matsueda, 1982). In particular, Smith, Mahdavi, Carvalho, Fisher, Russell, and Tippett (2008), who examined the nature and impact of cyber-bullying among secondary school students (ages 11-16), provided a foundation for several of the survey items that pertain to cyber-bullying. For example, the current study utilized the researchers' conceptual definition of *cyber-bullying,* which was included on the questionnaire to provide the respondents with clarity regarding the behavior. Multiple response questions regarding cyber-bullying behaviors were also adapted from the researchers' study, including use of media, consequences of cyber-bullying, perpetrator identification, duration of cyber-bullying behaviors, and observation of cyber-bullying. In addition, the survey questions and responses were tailored to the needs of the college student population, as suggested by Dillman (2009). That is, the questions and responses included wording that related to the situations and experiences of college students in order to enhance participation and establish trust between the researcher and participants (Dillman, 2009).

Sampling and Procedure

This study took place at a mid-sized state university in the Northeast region of the United States. According to statistics provided by the university, during the fall semester of the 2015-2016 academic year, the population consisted of approximately 13,775 students (11,537 undergraduate students and 2,238 graduate students). Over half (56%) of the students enrolled at the university were female, while 44% of the students were male. The student population was diverse at this institution. For example, during the academic year in which data collection occurred, 20% (2,776) of students were minorities, while 7% were international students who

represent over 56 countries. Likewise, students at the university originated from 45 different states in the nation. The university attracts students from rural, urban, and suburban areas, which allowed for a diverse sample that encompassed various income levels. Moreover, students at this university were highly engaged in technology and were heavy consumers of the Internet. For example, the university offered a variety of online courses, and instructors who taught traditional courses used online learning platforms such as D2L and Moodle. Also, the university had an active social media account on Facebook, YouTube, Twitter, LinkedIn, and Instagram. In addition, the university offered a mobile app to students and faculty to stay informed about events on campus and search for people. For these reasons, the university was an ideal location for examining cyber-bullying among college students.

Sample Selection and Exclusion

The population of interest for this study included all undergraduate students enrolled at the university during the Fall 2016 semester. The majority of students who participated in the study fell between the ages of 18 and 25 years old at the time of data collection. Students who were older than 25 years old were included in the study; however, students who did not yet reach the age of 18 during survey administration were not eligible to participate, due to parental consent issues. The sample included various educational levels and majors, however freshmen students were purposely excluded from the final sample because they had only been in college for a few weeks at the time the survey was administered. Therefore, the freshmen students may not have had opportunities to experience cyber-bullying as perpetrators, victims, or observers since being in college. Male, female, and transgender students were also included in the current study. Additionally, students of all racial and ethnic backgrounds, socioeconomic statuses, and sexual orientations were included as well. To ensure that there was no repetition in the final

sample, students who may have completed the questionnaire in previous classes were also excluded.

Proper sample selection was ensured by keeping in mind that the most important aspect of sampling methods is determining whether the sample is truly representative of the population from which it was selected (Bachman & Schutt, 2014). The sampling frame for this study included undergraduate-level courses offered at the university during the Fall 2016 semester. Stratified cluster sampling was utilized to obtain the final sample of students. First, a list of all undergraduate courses, including their sections and enrollment size, was obtained from the university's scheduling center. For purposes of this study, any courses from the sampling frame that took place online, or at a satellite campus were omitted. Additionally, specialized lab courses and studios were excluded from the list. The courses and respective sections for the undergraduate course, which were placed in a table and numbered 1 through 2,096 (the total number of course sections available for undergraduate students to enroll during the Fall 2016 semester), made up the sampling frame. From this list, based on the number of students enrolled in each section, random selection stratified by class level (i.e., 200, 300, etc.) continued until enough undergraduate courses produced a desired sample size. Since several lower level courses that were selected had freshmen enrolled in them, the students who identified as being freshmen were later omitted from the final sample. The decision was also made to exclude 100-level classes from the sampling frame because most of the students in them would not have been in college for very long, since data collection took place early in the fall semester.

Survey Administration

Facilitators administered the questionnaire to undergraduate students in a classroom setting during the Fall semester of the 2016-2017 academic year. The classroom approach was ideal for data collection because it enhanced participation from students whereas an online survey may have yielded less participation (Dillman, 2009). In-person administration also allowed survey facilitators to relay information to students in person if they had questions or did not understand something. Moreover, this approach was of low cost (Bachman & Schutt, 2007). Prior to administration, the facilitator informed students that their participation in the study was voluntary, confidential, and anonymous. Moreover, completing the questionnaire did not have any impact on the students' roles in the class (Dillman, 2009). The survey took students approximately 15 minutes to complete.

To determine the number of participants needed in this study, a 20:1 participant-to-independent variable ratio was utilized, as suggested by Hair, Anderson, Tatham, and Black (1998). Based on the number of independent variables in the current study (11), the researchers suggested that a target sample size of at least 250 participants be obtained to control for absenteeism and to ensure the collection of enough data to yield sufficient statistical power for significance tests. Survey administration was conducted in 16 undergraduate courses to ensure that the targeted range of students were included in the sample (Table 1). In turn, this helped reduce the number of standard errors and large confidence intervals during data analyses (Meyers, Gamst, & Guarino, 2005). The primary investigator then contacted the instructor for each class section via university email to ask permission for participation in the study. The email correspondence used in the current study can be found in Appendix A.

Table 1

Undergraduate Courses (Fall 2016)

Course #	Title	Frequency	%
CDFR 218	Child Development	26	7.90
CHEM 351	Biochemistry	21	6.38
COSC 314	Cyber Wellness	27	8.21
CRIM 225	Law, Social Control, and Society	29	8.81
CRIM 344	Terrorism	22	6.69
ECON 334	Managerial Economics	22	6.69
ENGL 202	English Composition II	22	6.69
INDS 319	Kitchen and Bath Design	11	3.34
JRNL 337	Editing	10	3.04
MATH 217	Probability and Statistics	24	7.29
MGMT 331	Human Behavior in Management	33	10.03
MUSC 215	Music Theory II	15	4.56
NURS 214	Health Assessment	33	10.03
PHIL 270	Ethics and the Environment	5	1.52
PLSC 405	Sexuality and Law	5	1.52
SOC 320	Sociological Theory	24	7.29
Total		329	100

Measures

Dependent Variables

In this study, *cyber-bullying* was conceptualized as a form of bullying which involves the use of e-mail, instant messaging, chat rooms, websites, mobile phones or other forms of information technology to deliberately harass, threaten, or intimidate someone. Cyber-bullying includes such acts as making threats, sending personal, racial or ethnic insults or repeatedly victimizing someone through electronic devices (Smith et al., 2008). There were three primary dependent variables in this study including *participation* in cyber-bullying, cyber-bullying *victimization*, and *observation* of cyber-bullying. To ensure consistent measurement of the dependent variables, the participants were provided with a definition of cyber-bullying.

Participants then reported their experiences through a series of questions developed to measure the extent and prevalence of cyber-bullying behaviors on their college campus.

Although cyber-bullying perpetration served as the primary dependent variable examined by the study, observation and victimization were included in the regression analyses for exploratory purposes. This approach was taken because literature suggests that the experiences of victims and offenders overlap (Berg & Felson, 2016; Cuevas, Finkelhor, Turner, & Ormrod, 2007; Jennings, 2016; Jennings, Piquero, & Reingle, 2012; Lauritsen & Laub, 2007; Moore, 2013; Schreck & Stewart, 2011; Singer, 1981; Widom, 1989). That is, victims become bullies and both victimization and bullying happen in the same small social circles. For example, studies have demonstrated that the cycle of violence often characterizes child abuse (Child Welfare Information Gateway, 2013), sexual assault (Canning, 2008; Noll, Horowitz, Bonanno, Trickett, & Putnam, 2003; Trickett, Everett, & Putnam, 1995), and domestic violence (Curtis, 1963; Kantour & Jasinski, 1998; Smith, Ireland, Park, Elwyn, & Thornberry, 2011; Straus, Gelles, & Steinmetz, 1980). Considering the similarities between cyber-bullying and child abuse, sexual assault, and domestic violence (e.g., social in nature, characterized by an imbalance of power, etc.), victimization and observation of cyber-bullying were included in regression analyses to determine if a cycle of violence exists for it as well.

Cyber-bullying victimization. Participants' own experiences with cyber-bullying victimization were measured in two ways in order to understand more about the details of the participants' victimization, including the prevalence and extent of recent cyber-bullying incidents. The first measure, represented by a single survey item, was a continuous variable intended to capture the number of times participants were cyber-bullied by another person since being in college. The second measure of victimization incorporated a survey item that asked

students to report the number of times that they experienced a series of specific types of cyber-bullying behaviors (i.e., flaming, outing, exclusion, etc.) as a victim during their time in college. The sum of scores for all items determined a respondent's level of victimization. That is, higher numbers indicated higher levels of cyber-bullying victimization. Table 2 displays measures of cyber-bullying victimization.

Table 2

Cyber-Bullying Victimization Measures

Measure	Operationalization		Data Type
CB Victimization (#1)	How many times have you been cyber-bullied since being in college?		Continuous
CB Victimization (#2)	How many times have you experienced each of the following since being in college:		Continuous
	Flaming	Posting or sending offensive messages over the Internet	
	Online Harassment	Repeatedly sending messages	
	Denigration	Defamation by written or printed words	
	Masquerading	Pretending to be someone else	
	Outing	Sharing personal information about a person without their permission	
	Cyber-stalking	Making threats of potential harm	
	Exclusion	Maliciously leaving a person out of a group	

Note. The second measure of victimization was later dichotomized.

Cyber-bullying perpetration. Cyber-bullying perpetration was measured similarly to victimization. First, a continuous measure was used to determine the number of times students cyber-bullied someone else since they had been in college. Second, cyber-bullying was measured using a summative item to indicate the number of times the respondent perpetrated specific types of cyber-bullying (response categories emulated those used in previous survey questions) during their time in college. Higher numbers indicated higher levels of cyber-bullying others. Table 3 displays measures of cyber-bullying perpetration.

Table 3

Cyber-Bullying Perpetration Measures

Measure	Operationalization		Data Type
CB Perpetration (#1)	How many times have you cyber-bullied someone since you have been in college?		Continuous
CB Perpetration (#2)	How many times have you done any of the following to someone else since you have been in college?		Continuous
	Flaming	Posting or sending offensive messages over the Internet	
	Online Harassment	Repeatedly sending messages	
	Denigration	Defamation by written or printed words	
	Masquerading	Pretending to be someone else	
	Outing	Sharing personal information about a person without their permission	
	Cyber-stalking	Making threats of potential harm	
	Exclusion	Maliciously leaving a person out of a group	

Note. The second measure of perpetration was later dichotomized.

Cyber-bullying observation. Similar to the previous dependent measures, two items measured cyber-bullying observation. Specifically, a continuous variable was first used to determine the number of times students observed someone cyber-bullying someone else during their time in college. Cyber-bullying observation was also measured by participant reports of the number of times they witnessed specific types of cyber-bullying since being in college. For example, students were asked how many times they witnessed someone repeatedly sending someone else nasty, mean, and insulting messages (an example of online harassment), as well as someone pretending to be someone else online and posting material to get them in trouble (an example of masquerading). Responses were then totaled, with the sum of the scores indicating levels of observation. Higher scores were indicative of more observations of cyber-bullying, while low scores revealed fewer observations. Table 4 displays the measures for cyber-bullying observation.

It is important to note that the second measures of each of the three dependent variables was later determined to be a more reliable measures for cyber-bullying victimization, perpetration, and observation than the first measures for each dependent variable due to an overabundance of missing data within the first measure. Therefore, the decision was made to utilize the typology-specific summative items as a reference point for the experiences of the participants in relation to cyber-bullying rather than the question that asked participants to report the number of times that they had experienced victimization, perpetration, or observation. The second measures were eventually dichotomized in order to determine whether the participants had or had not experienced cyber-bullying victimization, perpetration, or observation. Ultimately, participants who reported at least one instance of each of these typology-specific measures – victimization, perpetration, or observation – were coded as 1, whereas those who did

not report any instances were coded as 0. This strategy was useful for later regression analyses, since logistic regression can be utilized if a study contains a dichotomous dependent variable. This finding, however, did change the analytic strategy that was originally projected for this study. The overall analytic strategy is discussed in more detail below.

Table 4

Cyber-Bullying Observation Measures

Measure	Operationalization		Data Type
CB Observation (#1)	How many times have you witnessed cyber-bullying since you have been in college?		Continuous
CB Observation (#2)	Since you have been in college, how many times have you witnessed any of the following behaviors?		Continuous
	Flaming	Posting or sending offensive messages over the Internet	
	Online Harassment	Repeatedly sending messages	
	Denigration	Defamation by written or printed words	
	Masquerading	Pretending to be someone else	
	Outing	Sharing personal information about a person without their permission	
	Cyber-stalking	Making threats of potential harm	
	Exclusion	Maliciously leaving a person out of a group	

Note. The second measure of observation was later dichotomized.

Independent Variables

The models for this study assessed four predictor variables based on social learning theory, including differential association, imitation, differential reinforcement, and definitions (Akers, 1998, 2009), along with six demographic variables (age, gender, race/ethnicity, socioeconomic status, class rank, and sexual orientation), and a control variable (prior victimization).

Social learning variables. Social learning variables were measured using survey questions in Section E of the survey instrument (Cyber-Bullying Behaviors). Table 5 includes a summary of conceptualizations for social learning variables, including differential association, differential reinforcement, definitions, and imitation (Akers, 1998, 2009).

Table 5

Conceptualization of Social Learning Variables

Variable	Conceptualization
Differential association	The direct or indirect interactions one has with others in addition to their exposure of norms and values.
Imitation	An individual's engagement in a behavior after the observation of similar behavior in others.
Differential reinforcement	Rewards or punishments that are anticipated as the result of a behavior.
Definitions	Participants' attitudes or meanings that are attached to a given behavior.

Construction of Social Learning Scales

This study utilized various summative scales to reveal more about the level of the underlying theoretical variables. According to DeVellis (2012), summative scale scores are constructed as the sum or mean of a set of items; aggregating items that relate to the target construct will produce a variable that maintains a linear relationship with the construct – in this

case, the four variables that define Akers' (1998, 2009). social learning theory. In other words, it is assumed that the items contained within a scale are unidimensional, thereby tapping into the same construct. Therefore, alpha coefficients were calculated for each of the sets of items to determine that they were reliable measures (DeVellis, 2012).

Reliability assumptions were considered in the development of the scales for each of the social learning variables. That is, consideration was given to the extent to which a test could yield the same results on repeated trials (Carmines & Zeller, 1979). In order to establish reliability of the scales, the current study also utilized Cronbach's alpha (Cronbach, 1951), as a measure of internal consistency for each of the social learning variable scales (Akers, 1998, 2009). Cronbach's alpha is concerned with the homogeneity of scaled items and assessing the association between the items that were included on a Likert-scale, where higher values reflect higher scale reliability (Bachman & Schutt, 2014). Cronbach's alpha reliability coefficients normally range from 0 and 1.0, with 1.0 reflecting greater internal consistency of the items in the scale (Gliem & Gliem, 2004). This information was useful for determining the level to which the individual scale items reflected the underlying construct being measured (Carmines & Zeller, 1979; DeVellis, 2012). The current study utilized 0.7 as a reference point for an acceptable reliability coefficient, which is deemed appropriate in the social sciences (Nunnally, 1978).

SPSS statistical software was utilized to conduct reliability analyses and calculate the internal consistency for each of the four scaled survey items that comprise social learning theory, including differential association, differential reinforcement, imitation, and definitions. The range for the Cronbach alpha values fell between .573 (definitions) and .788 (differential reinforcement). Item-total correlations were also calculated for each of the social learning scales to further ensure reliability (DeVellis, 2012). Briggs and Cheek (1986) recommend that the item-

total correlation for a scale is reliable if the correlation coefficient falls within the range of 0.2 and 0.4. Other researchers have interpreted the values differently. For example, Robinson, Shaver, and Wrightsman (1991) suggest that any inter-item correlation coefficient that exceeds .30 is very good indicator of internal consistency. Others, such as Clark and Watson (1995) argue that inter-item correlations should fall between .15 and .50. Clark and Watson (1995) also maintain that a narrowly defined construct should produce a correlation coefficient that falls within the range of .40 and .50 in order for it to be considered internally consistent. The range for the item-total correlations for the scales in the current study fell between .267 (definitions) and .751 (differential reinforcement).

Differential association. *Differential association* was conceptualized as the direct or indirect interactions one has with others in addition to their exposure of norms and values (Akers & Sellers, 2013). The study utilized three Likert-items that were adapted from Akers, La Greca, Cochran, and Sellers (1989) to measure differential association. This particular research proved to be a suitable model for the measure of differential association variables because the scaled items in the study were reliable and supportive of social learning theory (Akers et al., 1989). To meet the needs of the college student population, the current study included family and close friends in the construction of the differential association measure, whereas Akers, La Greca, Cochran, and Sellers (1989) focused on family, close friends, and spouses. More specifically, differential association was measured with a three-item scale that inquired about the general attitudes of participants' family members and close friends concerning cyber-bullying, as well as the behaviors of participants' close friends. The response categories assigned to the items that measured family members' and close friends' attitudes toward cyber-bullying ranged from strongly disapprove (coded 1) to strongly approve (coded 4). In addition, the response categories

assigned to the items that measured close friends' cyber-bullying behaviors ranged from never (coded 1) to all the time (coded 4). The sum of the scaled items indicated levels of differential association experienced by students who reported cyber-bullying perpetration. The overall scale scores were determined by using the mean of the individual item scores, with high values indicating higher levels of differential associations with cyber-bullies, and low numbers indicating low levels of differential associations with cyber-bullies.

Originally, an item on the differential association scale was included that measured the behaviors of family members, and although the measure was found to be moderately internally consistent (a=.641) measure, the variable was skewed with high kurtosis, and inter-item correlations indicated that the differential association scale would be more reliable if the item were removed. Therefore, the item measuring family behaviors was excluded from the differential association scale. The final three-item scale yielded a Cronbach's alpha value of .681, though just slightly below the recommended range of .70, indicated a reliable measure of differential association (Nunnally, 1978).

In addition, each of the three items that make up the scale for differential association yielded an item-total correlation that fell either within, or close to, the recommended range defined by Briggs and Cheek (1986). In comparison to previous research, Akers, La Greca, Cochran, and Sellers' (1989) work yielded slightly lower correlation coefficients for measures of differential association. This may however, be due to the number of items that were included on each of the scales (DeVellis, 2012). For example, while the current study included items that measured information about family, close friends, and peers on one scale, the researchers used two separate scales to measure drinking behaviors of family (a=.75) and friends (a=.95). Table 6

displays the survey items, item-total correlations, and Cronbach's alpha scores for the differential association scale.

Table 6

Differential Association Scale Survey Items, Item-Total Correlations, and Cronbach's Alpha

Measure	Item	Item-Total Correlation
Differential association	What is the general attitude of your family members toward cyber-bullying?	.418
	What is the general attitude of your close friends toward cyber-bullying?	.659
	How often do your close friends usually cyber-bully others?	.439
Cronbach's alpha = .681 N = 296		

Note. Items that inquired about the general attitudes of family members and close friends toward cyber-bullying included the following responses: strongly disapprove (1), disapprove (2), approve (3), and strongly agree (4). The item that inquired about how often close friends cyber-bully others included the following responses: never (1), rarely (2), sometimes (3), and all the time (4).

Imitation. *Imitation* was conceptualized as an individual's engagement in a behavior after the observation of similar behavior in others (Akers & Sellers, 2013). In order to operationalize the concept, this study incorporated measures of parental and peer modeling, and media depictions to test social learning theory, which have been included in previous literature (Akers & Jenson, 2006). The current study utilized a single item which included a series of six response categories intended to gather information about respondents' perceptions of how much they learned about cyber-bullying from family, close friends, other students, books or magazines, television and movies, and websites. The various response categories assigned to the items that measured imitation indicated how much respondents learned about cyber-bullying from each of the sources, with responses ranging from nothing (coded 1) to everything (coded 4). The sum of

the scaled items determined where most learning took place. The scale for imitation yielded a Cronbach's alpha value of .774. Additionally, the item-total correlations for the measure fell either within, or slightly above, the recommended range of coefficients as outlined by Briggs and Cheek (1986). Table 7 displays the survey items, item-total correlations, and Cronbach's alpha for the imitation scale.

Table 7

Imitation Scale Survey Items, Item-Total Correlations, and Cronbach's Alpha

Measure	Item	Item-Total Correlation
Imitation	How much have you learned about cyber-bullying from your family?	.406
	How much have you learned about cyber-bullying from your friends?	.562
	How much have you learned about cyber-bullying from other students?	.478
	How much have you learned about cyber-bullying from books/magazines?	.563
	How much have you learned about cyber-bullying from television and movies?	.576
	How much have you learned about cyber-bullying from websites?	.535
Cronbach's alpha = .774 N = 296		

Note. Items that measured imitation including the following responses: Learned nothing (1), learned a few things (2), learned a lot (3), and learned everything (4)

Differential reinforcement. *Differential reinforcement* was conceptualized as the anticipated rewards or punishments that are consequences of a behavior (Akers & Sellers, 2013). That is, differential reinforcement served to encourage or inhibit the likelihood of an individual engaging in deviant behavior (Akers, 1998). Three survey items adapted from previous literature (Akers et al., 1989) were used to measure differential reinforcement. Once again, this research

proved to be a suitable model for the measure of differential reinforcement variables because the scaled items in the study were reliable and supportive of social learning theory (Akers et al., 1989).

The items that measured differential reinforcement in the current study determined participants' perceptions of how their family members, close friends, and peers respond to their cyber-bullying. The various response categories assigned to the items for differential reinforcement ranged from disapprove of and discourage cyber-bullying (coded 1) to approve of cyber-bullying and courage (coded 5). Cronbach's alpha obtained for differential reinforcement was .649, which, though slightly below the .70 threshold, indicated acceptable internal consistency (Nunnally, 1978). Additionally, the item-total correlations for the measure fell within, or slightly above, the recommended range of coefficients as outlined by Briggs and Cheek (1986). Table 8 displays the survey items, item-total correlations, and Cronbach's alpha for the differential reinforcement scale.

Table 8

Differential Reinforcement Scale Survey Items, Item-Total Correlations, and Cronbach's Alpha

Measure	Item	Item-Total Correlation
Differential reinforcement	What is the most likely reaction of your parents to your cyber-bullying?	.498
	What is the most likely reaction of your closest friend to your cyber-bullying?	.601
	What is the most likely reaction of others your own age to your cyber-bullying?	.398
Cronbach's alpha = .649 N = 296		

Note. Items that measured differential reinforcement included the following responses: disapprove and discourage cyber-bullying (1), disapprove but do nothing about it (2), no reaction (3), approve but do nothing to encourage it (4), and approve and encourage cyber-bullying (5).

Definitions. Finally, *definitions* were conceptualized as participants' attitudes or meanings that one attaches to given behavior (Akers & Sellers, 2013). Just like the other social learning variables included in the analyses, the current study measured definitions in a similar fashion to previous research (Matsueda, 1982). More specifically, a five-item scale paired with a series of statements about cyber-bullying behaviors was used to measure definitions. Response categories for each statement indicated the level to which respondents agreed, ranging from strongly disagree (coded 1) to strongly agree (coded 5). In order to construct the scale for definitions, the scores for the variables were totaled, with higher scores indicating greater levels of definitions and lower scores representing fewer definitions.

Originally, an item was included on the definitions scale that measured respondents' attitudes toward a statement that read "People who experience cyber-bullying deserve to be victimized," however the variable was skewed with high kurtosis. Moreover, inter-item correlations indicated that the definitions scale would be more reliable if the item were removed. Therefore, the item measuring the statement was excluded from the definitions scale. The final four-item scale yielded a Cronbach's alpha value of .573, which was below the recommended range of .70 (Nunnally, 1978). However, the item-total correlations for the measure fell within the recommended range of coefficients as outlined by Briggs and Cheek (1986), which influenced the decision to retain the measure for subsequent analyses. Table 9 displays the survey items, item-total correlations, and Cronbach's alpha for the definitions scale.

Table 9

Definitions Scale Survey Items, Item-Total Correlations, and Cronbach's Alpha

Measure	Item	Item-Total Correlations
Definitions	Cyber-bullying does not hurt anyone.	.495
	It is alright to cyber-bully someone if you can get away with it.	.455
	I have a lot of respect for someone who cyber-bullies another person.	.387
	Cyber-bullying is morally wrong.	.261
Cronbach's alpha = .573 N = 296		

Note. These items included the following response categories: strongly disagree (1), disagree (2), not sure (3), agree (4), strongly agree (5).

Descriptive Variables

To understand college students who, experience, participate in, and witness cyber-bullying, additional survey items were incorporated into the survey to learn more about typical behaviors. For example, to determine if college students understand and recognize cyber-bullying behaviors, their familiarity with the term was measured using a dichotomous variable (0=no, 1=yes). Students also provided a definition of the term if they reported having knowledge about it.

Additional items were included on the questionnaire in order to gain a complete understanding of the context of the cyber-bullying situations that were reported by participants. For example, a dichotomous measure was used to determine if participants were aware of their peers being cyber-bullied since being at college. Additionally, measures were included that pertained to the forms of media that were used to cyber-bully others. Measures regarding specific incidents were also included in order to gain an

understanding of the experiences of individuals who were cyber-bullied previous to college. Other measures were included to capture information about the relationship between the victim and offender. Specifically, participants who indicated they were victimized reported if they knew the perpetrator(s) in any of the incidents. Respondents who knew the identities of the cyber-bullies then defined their relationship with that individual and indicated whether they were affiliated with the university. These survey items helped to determine whether a student was cyber-bullied by a stranger or someone familiar to them.

The current study also included measures for the psychosocial and educational consequences experienced by respondents as a result of cyber-bullying victimization. Emotional consequences were measured using a series of Likert-scale response categories that ranged from 1 (not affected) to 4 (severely affected) to indicate the level to which they experienced a range of emotions that are linked to cyber-bullying victimization, such as anxiety, fear, anger, self-consciousness, frustration, depression/sadness, and/or stress. Educational consequences of victimization were measured using a series of questions that asked participants to determine whether or not their education was negatively affected in terms of grades, concentration, attendance, and relationships with peers (0=no, 1=yes) as a result of being cyber-bullied. Information was also gathered from respondents in regard to the reporting of their victimization. Specifically, students were asked to indicate to whom the information was relayed. Moreover, survey items inquired about how the incident was resolved, if at all, allowing respondents an opportunity to provide an open-ended response about their satisfaction.

Finally, the current study included items to measure participants' use of technology in order to assess students' means of communication and use of cell phones and computers. Specifically, survey questions collected information regarding students' regular use of cell phones (including those with internet access), as well how much time was spent talking and/or texting on their cell phone per day. Students were also surveyed about the number of text messages that they send and receive per day. Survey questions also measured students' use of computers, including how many hours they spent online, as well as which activities, such as visiting social media websites, were conducted the most using the Internet. Participants were also asked which social media websites they visited most often.

Demographic/control variables. Demographic information obtained from participants was quantified in order to examine the characteristics of perpetrators, victims, and observers. The questionnaire collected information about the respondents' age, gender, race/ethnicity, socioeconomic status, sexual orientation, and class rank using seven single-item questions. *Age* was measured as a continuous variable. The variable measuring *gender* originally included three response categories for participants to determine if they identified as female (coded 0), male (coded 1), or transgender (coded 2). Eventually, gender was collapsed into a dichotomous variable to reflect male and female responses since there were very few students who identified as transgender. Therefore, because of the few number of cases, the variable was dropped from subsequent analyses. *Race/ethnicity* was measured as a nominal variable, with responses coded accordingly to represent black (coded 0), white (coded 1), and Hispanic individuals (coded 2), as well as those who identify with other races (coded 3). The frequency counts for race/ethnicity measuring Black, Hispanic, and Other had very low counts, therefore the variable was collapsed

into two categories to reflect white (coded as 1) and non-white (coded as 0) participants. Similarly, response categories for *sexual orientation* were measured as nominal variables and coded 0 for 'bisexual,' 1 for 'heterosexual,' 2 for 'homosexual,' and 3 for 'other.' It is important to note however that since there were so few observations for the non-heterosexual category, the variable measuring sexual orientation was unable to be included with the other independent variables in the regression models.

Students were also surveyed about their annual household income and perceived class standing in order to measure participants' socioeconomic status. Originally, participants indicated to what social class standing they belong and their family's annual household income using open-ended responses. Household income was later excluded from additional analyses in favor of class standing, which appeared a more reliable measure of socioeconomic status. Each response was then dummy coded into three separate variables to represent lower (coded 1), middle (coded 2), and upper (coded 3) classes. It is important to note, however, that only the lower-class variable was included in the final regression models due to the fact that including the middle and upper-class variables resulted in the models failing to converge.

The final demographic variable, *class rank*, was measured as an ordinal-level variable with responses tailored to undergraduate students (excluding freshmen). Each of the response categories were coded in ascending order to represent sophomores (coded 1), juniors (coded 2), and seniors (coded). Participants were also asked to indicate the number of course credits they had earned at the time the survey was administered in order to create a more precise picture of class standing at the university. Class rank was later excluded from the final regression models because the variable measuring age was a better descriptor of participants in the sample.

In addition to demographic variables, a measure for prior victimization was included in the analysis as a control variable. According to Frankfort-Nachmias and Leon-Guerrero (2011), a control variable allows for additional assessment of the relationship between two other variables. That is, a control variable represents an alternative explanation for a bivariate relationship (Frankfort-Nachmias & Leon-Guerrero, 2011, pg. 310). To measure prior victimization, a dichotomous measure was utilized that asked students to report if they had experienced cyber-bullying victimization before they had come to college (0=no, 1=yes). Since prior studies demonstrated that past victimization is correlated with subsequent victimization (Yubero, Navarro, Elche, Larrañaga, & Ovejero, 2017), the control variable in the current study was useful to include in the analyses in order to control for spurious relationships.

Analytic Strategy

This study utilized a combination of descriptive statistics, bivariate analyses, and multi-variate techniques to assess the experiences of college students about cyber-bullying behaviors. Specifically, using SPSS software, frequencies and descriptive statistics were included to provide a summary of the data and to describe the characteristics of the sample, and the frequency and distribution of social learning constructs and the dependent variables. Bivariate correlation analyses were also conducted to determine significant relationships between social learning variables and the dependent variables as well as the strength and direction of these relationships.

Various tests for each outcome variable were also conducted in order to ensure that the data met assumptions associated with regression analyses. That is, variables of interest were inspected for outliers and multi-collinearity and to ensure that they were normally distributed (Berry, 1993; Pallant, 2013). Each of these techniques revealed a more in-depth look at cyber-bullying among college students, as well as the learning of these behaviors.

As previously mentioned, there were an overabundance of zeros reported for the first measure of the dependent variables, so the continuous measure did not seem to be an accurate enough representation to be included in the regression analyses. Therefore, the second measure of cyber-bullying that indicated participants' experiences with different cyber-bullying typologies was dichotomized for each of the dependent variables measuring victimization, perpetration, and observation. The coding of these variables dictated that logistic regression be used as the primary means of analysis rather than OLS regression, which requires continuous dependent variables (Pallant, 2013).

Human Subject Protections

A number of protections were established to eliminate or mitigate the risks involved with participation and to ensure the mental, physical, and emotional well-being of the participants in this study (Bachman & Schutt, 2007; Dillman, 2009; Maxfield & Babbie, 2010). Although this study involved behavior of college-aged students, all subjects were required to be at least 18 years of age to participate. Therefore, parental permission did not need granted in order to participate in this study. Participants who were in their first year of college, but were under the age of 18, did not accept or complete questionnaires. There was no coercion to participate in this study – students made the decision about whether or not they wanted to complete the questionnaire. In addition, participants were informed prior to survey administration that they could stop answering questions anytime during the completion of the questionnaire. Voluntary consent was obtained from students through their completion of the questionnaire, and the study ensured that all information regarding the identity of the participant (demographic information) was available only to the researcher and stored in a secure location that was not accessible by anyone else. Additionally, the study remained in compliance with Institutional Review Board

(IRB) protocol. Participants were provided with personal contact information if there were any questions or concerns regarding the study.

Administrators and institutional review boards were utilized to ensure safeguards in administering the surveys. There is no doubt that the topic of cyber-bullying can be difficult to admit, given the harmful consequences that follow; the psychological effects of cyber-bullying can be very serious. There was a possibility that through the administration of this survey, participants would come to the realization that the behaviors they engaged in online were detrimental to others. Students' reflections of their behavior, particularly those of the perpetrator, could generate a range of negative feelings and emotions. Conversely, this may have caused students to consider the ethical implications behind their actions which could bring a stop to the behavior or at least give cause for intervention. These issues were addressed by allowing students to stop participating during the survey if they felt it was causing them psychological harm. At the completion of the survey, participants were provided with contact information for their school counselor and local resources. Students were also encouraged to seek help if needed.

Conclusion

In order to examine the cyber-bullying phenomenon from a social learning perspective, the current study proposed a methodology that considered demographic information of college students and assessed their experiences of cyber-bullying as victims, perpetrators, and observers using quantitative, cross-sectional analysis. More importantly, the current study contained measures of social learning variables in order to gain a deeper understanding of how college students learn cyber-bullying behaviors after they were exposed to and received reinforcement from intimate groups, such as family and peers. The research questions that guided this study considered the fact that social learning theory was not applied to cyber-bullying as of yet. As

such, the primary purpose of this study was to examine how well social learning variables predicted perpetration of cyber-bullying among college students. The following chapter discusses the findings for the current study. Specifically, the chapter discusses descriptive, and bivariate analyses for the independent and dependent variables on interest, including the social learning and control variables. In addition, the chapter details the regression analyses included in the study.

CHAPTER V

RESULTS

The information gathered from this study aimed to describe and explain the nature of cyber-bullying among college populations using social learning theory as a theoretical foundation for policy implications. Social learning theory appears to be an appropriate theory to apply to this behavior because media users are often exposed to various attitudes and perceptions about what is and what is not appropriate behavior. In addition, individuals can easily behave differently online than they normally would in person. Suffice it to say that if someone is exposed to online aggression, they may follow suit of what they see. This is especially true if one is positively reinforced for their behaviors, as the theory suggests. Indeed, college students are heavy users of media and have countless interactions with others online. Therefore, the learning of cyber-bullying behaviors among a tech-savvy college population is worthy of explanation.

Social learning theory is a well-established criminological theory and is flexible in its' application of a wide variety of behaviors. The current study examined each of the four variables that make up the theory and applied them to cyber-bullying behaviors that college students experience, with special attention made to perpetration. This chapter discusses the results from various statistical analyses utilized to answer the research questions and test hypotheses from this study. The chapter begins with a discussion of descriptive analyses and provides an account of each of the variables of interest. Additionally, the chapter discusses several statistical techniques used to test social learning theory to predict cyber-bullying perpetration among college students.

Descriptive Statistics

Sample

The sample for this study included 329 undergraduate students enrolled in undergraduate classes at a public university in the Northeastern United States during the Fall 2016 semester. Once freshmen students (*n*=25) were excluded, the sample then consisted of 304 students. Eight students were also excluded from the analyses because their class rank was unable to be determined based on the information they provided on the questionnaire. Therefore, the final sample consisted of 296 undergraduate students. Table 10 provides information on sample demographics.

The average age of respondents was 20 years, with overall ages ranging from 19 to 51. Additionally, the sample included 129 males (43.6%), 165 females (55.7%), and one transgender (0.3%) student. One student did not indicate a gender (0.3%). Heterosexual students (*n*=263) made up the majority of the sample (88.9%). Twelve students (3.9%) reported that they identified as homosexual, while 7 students (2.4%) indicated that they identified as bisexual. Four students indicated (1.4%) that they identified with another sexual orientation. Ten students did not include a response for their sexual orientation (3.4%).

The majority of the sample (*n*=251) consisted of White students (84.8%). The remaining students identified as either Black (*n*=23), or Hispanic (*n*=7). Specifically, 7.8% of students identified as Black, and 2.4% of students identified as Hispanic. Several respondents also identified with another race/ethnicity (*n*=15), which comprised 5.1% of the students in the sample. In the current study, minorities were underrepresented when compared to the total national population. Nationally, Whites make up the majority (72.4%) while minorities make up approximately 27.6% of the population (Black or African American, 12.6%; American Indian

and Alaska Native, 0.9%; Asian, 4.8%; Hispanic, 2.9%; Native Hawaiian and Pacific Islander, 0.2%; and another race, 6.2%) (Proctor, Semega, & Kollar, 2015). Moreover, individuals who identify with more than one race made up 2.9% of the population (Proctor et al., 2015). Minorities were also underrepresented in the current study when compared to the university population. For example, minorities comprised 15.2% of the sample whereas whites made up 84.8%. According to recent data for the university from the Fall 2016 semester, minority students made up 19% of the total student body, while Whites made up 81% of the population. Therefore, it should be noted that findings based on the current sample cannot be generalized to other populations.

In the current study, student socioeconomic status was measured in two ways. The first way was by providing respondents with an open-ended question asking students to indicate the social class to which their parents/guardians belonged and then by asking students to numerically indicate their parents'/guardians' annual income. For the first measure, a new variable was created which collapsed student responses into three levels of socioeconomic status – upper, middle, and lower class. Based on the information provided by the participants in the sample, the majority of the students (69.3%) classified themselves as middle class (*n*=205). Twenty-five students (8.4%) indicated that they were upper class, while 38 (12.8%) reported that they were lower class. Twenty-eight students (9.5%) did not categorize themselves by social class and were marked as missing in the analysis. The second measure for students' socioeconomic status, which indicated household annual income was later excluded from the analysis because the data lacked variability due to a large amount of missing data.

The students in the sample also represented various stages of undergraduate student careers. Juniors (*n*=108) represented the largest group of participants (36.5%). The sample also

consisted of 95 sophomores (32.1%) and 93 seniors (31.4%). At the time of data collection, the most frequently reported average number of credit hours was 30 (*n*=25). There was, however, much variability in the data, with responding indicating that they had earned anywhere between 12 (*n*=2) and 200 (*n*=1) college credits. Ninety-five respondents did not report how many college credits they had earned thus far, which made up close to one-third of the sample (32.1%) for this variable.

Finally, prior victimization was included in the analysis as a control variable. Data revealed that most (*n*=207) of the respondents in the current study had not experienced cyber-bullying prior to being in college (69.9%). Additionally, 38 students (12.8%) did not provide information about their prior victimization. More importantly, numerous students (*n*=51) indicated that they had been cyber-bullied prior to coming to college (17.2%). Most of the cyber-bullying reported by respondents who experienced prior victimization occurred during students' senior (*n*=15) year of high school, however cyber-bullying was also reported by prior victims during freshman (*n*=12), sophomore (*n*=6), and junior (*n*=7) years, as well as throughout middle school (6^{th} grade *n*=1, 7^{th} grade *n*=2, 8^{th} grade *n*=8).

Descriptive Statistics for the Social Learning Variables

The theoretical framework guiding the current study is Ronald Akers' (1998, 2009) social learning theory. Descriptive statistics were calculated to describe the characteristics of social learning theory by yielding common scores in the distribution and dispersion of data, including the mean, standard deviation, and range of scores (Bachman & Paternoster, 2009; Pallant, 2013). The following section describes the descriptive statistics that are related to the theoretical constructs differential association, differential reinforcement, definitions, and imitation.

Table 10

Descriptive Statistics for the Sample

Measure	%	Frequency
Gender		
Female	55.7	165
Male	43.6	129
Transgender	0.3	1
Race/Ethnicity		
White	84.4	251
Black	7.8	23
Hispanic	2.4	7
Other	5.1	15
SES		
Upper	8.4	25
Middle	69.3	205
Lower	12.8	38
Sexual Orientation		
Heterosexual	88.7	263
Homosexual	4.1	12
Bisexual	2.4	7
Other	1.4	4
Class Rank		
Sophomore	32.1	95
Junior	36.5	108
Senior	31.4	93
Prior Victimization		
Yes	17.2	51
No	69.9	207

Measure	Range	$\bar{x}$	SD
Age	19 – 51	20.78	2.56
Class Credits	12 – 200	65.63	34.04
Annual Income*	1 – 1,000,000	100,631.56	104,636.13

Note. Ns ranged from 201 to 296.

*This measure of SES was later dropped from subsequent analyses due to issues with missing data and outliers.

Differential association. As referenced in chapter four, *differential association* was measured with a three-item-scale, where respondents reported their approval of a given statement about cyber-bullying behaviors. The values for the scale ranged from three through 12 ($\overline{x}$=4.25, *SD*=1.30). Two items contained within the scale measured the general attitudes of respondents' family and close friends toward cyber-bullying while the third item measured the frequency of friends' cyber-bullying behavior. The majority of the respondents indicated that their family members disapproved of the behavior (disapprove, 30.7%; strongly disapprove, 66.2%). Only one respondent indicated that their parents approved of cyber-bullying (0.3%). Most of the respondents also reported that their close friends disapproved of cyber-bullying (disapprove, 44.6%; strongly disapprove, 50.3%), though several respondents also indicated that their friends approved of the behavior (approve, 2%; strongly approve, 0.3%). In addition, most of the participants reported that their friends never cyber-bully (63.9%) and if they do, it is a rare occasion (27%). Several respondents, however, indicated that their close friends cyber-bully others sometimes (5.7%), while one student indicated that they had a friend who cyber-bullied other people all the time (0.3%). Table 11 displays the descriptive statistics for differential association.

Table 11

Descriptive Statistics for Differential Association

Measure	%	Frequency
Family Members Attitudes		
Strongly disapprove	66.2	196
Disapprove	30.7	91
Approve	0.3	1
Strongly approve	0	0
Close Friends Attitudes		
Strongly disapprove	50.3	149
Disapprove	44.6	132
Approve	2.0	6
Strongly approve	0.3	1
Close Friends Behavior		
Never	63.9	189
Rarely	27.0	80
Sometimes	5.7	17
All the time	0.3	1

Measure	Range	$\bar{x}$	SD
Differential Association Scale	3 – 12	4.25	1.30

Note. Ns ranged from 287 to 288.

Imitation. A scale that included a series of six response categories and determined how much students learned about cyber-bullying from their family, close friends, other students, books or magazines, television and movies, and websites measured *imitation*, with higher scores indicating having learned more about cyber-bullying through imitation than lower scores. The values on the scale ranged from six through 24 ($\bar{x}$=12.25, *SD*=3.36). Most of the respondents learned a few things about cyber-bullying from their close friends (49.3%), family (44.9%), and peers (42.6%). Many respondents also indicated that they learned a few things from websites (40.9%), and books/magazines (38.2%). In addition, most of the respondents reported that they learned a few things from television and movies (36.5%).

Students also reported that they learned ‘a lot’ about cyber-bullying from their family (11.8%), friends (20.6%), and other students (14.9%). Moreover, the respondents indicated that they learned a lot about cyber-bullying from the media, particularly through television and movies (37.5%), websites (30.1%), and books/magazines (23.3%). Individuals who reported learning ‘everything’ about cyber-bullying indicated that the learning was modeled from family (5.7%), friends (3.4%), and other students (2%). The media were also influential in a few cases, with several respondents reporting that they learned everything about cyber-bullying from television and movies (8.8%), websites (4.1%), and books/magazines (3%). In spite of these findings, many of the respondents in the sample never learned about cyber-bullying from peers (38.2%), family (35.1%), or friends (24.3%). Moreover, there were a few cases where websites (22.6%), television and movies (14.9%), and books/magazines (33.1%) did nothing to influence learning among respondents. Table 12 displays the descriptive statistics for imitation.

Differential reinforcement. Three survey items adapted from prior literature (Akers et al., 1989) were utilized to measure differential reinforcement. The three individual items that measured the variable created a scale with a range of scores that fell between three and 15 ($\bar{x}$=4.74, *SD*=1.88). To measure differential reinforcement, information was gathered about participants’ perceptions of their family members, close friends, and peer responses to their involvement in cyber-bullying. The majority of students in the sample (75%) indicated that their parents disapprove of and discourage cyber-bullying. Several (10.5%) noted that their parents disapprove of cyber-bullying, yet they do nothing about it. Others (6.4%) indicated that their parents would not have a response to their cyber-bullying.

Table 12

Descriptive Statistics for Imitation

Measure	%	Frequency
Family		
Learned nothing	35.1	104
Learned a few things	44.9	133
Learned a lot	11.8	35
Learned everything	5.7	17
Friends		
Learned nothing	24.3	72
Learned a few things	49.3	146
Learned a lot	20.6	61
Learned everything	3.4	10
Other Students		
Learned nothing	38.2	113
Learned a few things	42.6	126
Learned a lot	14.9	44
Learned everything	2.0	6
Books/Magazines		
Learned nothing	33.1	98
Learned a few things	38.2	113
Learned a lot	23.3	69
Learned everything	3.0	9
Television/Movies		
Learned nothing	14.9	44
Learned a few things	36.5	108
Learned a lot	37.5	111
Learned everything	8.8	26
Websites		
Learned nothing	22.6	67
Learned a few things	40.9	121
Learned a lot	30.1	89
Learned everything	4.1	12

Measure	Range	$\bar{x}$	SD
Imitation Scale	6 – 24	12.25	3.36

Note. N = 289.

In addition, most of the participants (54.1%) indicated that their close friends disapprove of and discourage cyber-bullying. Conversely, three students (1%) indicated that their close friends approved of cyber-bullying, but did nothing to encourage it, whereas two participants (0.7%) noted that their close friends approve of and encourage cyber-bullying. In comparison, the majority of the participants (71.3%) indicated that their peers disapprove of cyber-bullying to some degree, however their peers either actively discouraged the behavior (33.8%) or did nothing about it (37.5%). In fact, only a few respondents (2.1%) indicated that their peers approved of cyber-bullying behaviors. Table 13 displays the descriptive statistics for differential reinforcement.

Table 13

Descriptive Statistics for Differential Reinforcement

Measure	%	Frequency
Parents Reaction		
Disapprove/discourage	75.0	222
Disapprove/do nothing	10.5	31
No reaction	6.4	19
Approve/do nothing	0.0	0
Approve/encourage	0.3	1
Close Friends Reaction		
Disapprove/discourage	54.1	160
Disapprove/do nothing	26.0	77
No reaction	10.8	32
Approve/do nothing	1.0	3
Approve/encourage	0.7	2
Peers Reactions		
Disapprove/discourage	33.8	100
Disapprove/do nothing	37.5	111
No reaction	19.3	57
Approve/do nothing	1.4	4
Approve/encourage	0.7	2

Measure	Range	$\bar{x}$	SD
Differential Reinforcement Scale	3 – 15	4.74	1.88

Note. Ns ranged from 273 to 274.

Definitions. A four-item scale based on a series of statements about cyber-bullying behaviors was utilized to measure definitions. The values for the scale ranged from four through 20 (*M*=5.54, *SD*=2.14). In order to measure this variable, respondents indicated the level to which they agreed, or disagreed, with statements about cyber-bullying behaviors. The vast majority of students (90.5%) either strongly disagreed (69.9%) or disagreed (20.6&) with the statement "cyber-bullying does not hurt anyone." Additionally, 3.4% of students were not sure how to perceive the statement. A small proportion either agreed (1%) with, or strongly agreed with (0.7%) this statement. Likewise, most students either strongly disagreed (75%) with or disagreed with (17.2%) the statement "it is alright to cyber-bully someone if you can get away with it." Eight respondents (2.8%) reported that they were not sure, while two indicated that they either agreed with (0.3%) or strongly agreed (0.3%) with the statement. Additionally, most people in the sample indicated that they either strongly disagreed (83.4%) or disagreed (9.8%) with the statement "I have a lot of respect for someone who cyber-bullies another person," while four people (1.4%) were unsure of it. Two other respondents strongly agreed with the statement (0.7%). Finally, most of the respondents in the sample strongly disagreed (57.1%), with the statement that read "cyber-bullying is morally wrong," while others (22%) expressed general disagreement. Some students (3.7%) were not sure how to perceive the statement, however a few maintained that they either strongly agreed (8.8%) or agreed (3.7%) with it. Table 14 summarizes the descriptive statistics for definitions.

Table 14

Descriptive Statistics for Definitions

Measure	%	Frequency
Cyber-bullying does not hurt anyone.		
Strongly agree	0.7	2
Agree	1.0	3
Not sure	3.4	10
Disagree	20.6	61
Strongly disagree	69.9	207
It is alright to cyber-bully if you can get away with it.		
Strongly agree	0.3	1
Agree	0.3	1
Not sure	2.8	8
Disagree	17.2	51
Strongly disagree	75.0	222
I have a lot of respect for someone who cyber-bullies another person.		
Strongly agree	0.7	2
Agree	0.0	0
Not sure	1.4	4
Disagree	9.8	29
Strongly disagree	83.4	247
Cyber-bullying is morally wrong.		
Strongly agree	8.8	26
Agree	3.7	11
Not sure	2.7	8
Disagree	22.0	65
Strongly disagree	57.1	169

Measure	Range	$\bar{x}$	SD
Definitions Scale	4 – 20	5.54	2.14

Note. Ns ranged from 279 to 283.

Descriptive Statistics for the Dependent Variables

This study aimed to add to the growing body of evidence supporting cyber-bullying literature by testing three dependent variables that include measures of students' experiences with victimization, perpetration, and observation. Therefore, descriptive statistics were calculated in order to gather more information on college students' participation in these roles. The descriptive statistics in this section address the following research questions:

1. *What is the extent of cyber-bullying among college students as victims?*
2. *What is the extent of cyber-bullying among college students as perpetrators?*
3. *What is the extent of cyber-bullying among college students as observers?*
4. *What course of action, if any, did the observers take?*
5. *What harmful consequences do victims, perpetrators, and observers experience?*
6. *Do college students recognize/understand the term 'cyber-bullying'?*
7. *What knowledge do college students have about cyber-bullying victimization?*

Cyber-bullying victimization. The current study assessed students' experiences of cyber-bullying victimization in two ways. Initially, participants were asked to provide the number of times that they had been cyber-bullied since they have been at college. The first measure of victimization indicated that out of 296 students in the sample, only nine (3.3%) reported being cyber-bullied by someone else since they started college ($\bar{x}$=.306, *SD*=.973). The first measure of cyber-bullying victimization was missing 224 cases. In addition, 63 individuals noted that they had been cyber-bullied zero times since being in college. Interestingly, more respondents reported that they experienced cyber-bullying with the second victimization measure than the first. There was also much more variability in the data for the second victimization measures. Therefore, the first measure of victimization was eliminated from subsequent analyses in favor of the second measure.

The second measure of cyber-bullying victimization, which utilized behavioral-specific responses, indicated that 99 respondents (33.4%) in the sample were cyber-bullied during college ($\bar{x}$=9.92, *SD*=19.67). The variable utilized the summation of a series of seven continuous variables that reflected cyber-bullying typologies (i.e., flaming, online harassment, cyber-stalking, denigration, masquerading, exclusion, and outing). This variable was later

dichotomized for regression analyses in order to determine if students had or had not experienced victimization, where responses were coded 1 to represent victimization and 0 to represent an absence of victimization ($\bar{x}$=.367, *SD*=.483). The results indicated that victims most often experienced incidents of flaming (*n*=58, 58.6%), online harassment (*n*=36, 36.4%), and denigration (*n*=31, 31.3%). Overall, the average level of victimization by specific typology ranged from a high of flaming ($\bar{x}$=4.96, *SD*=15.63) to a low of exclusion ($\bar{x}$=0.53, *SD*=2.14). Table 15 summarizes the descriptive statistics for the three variables that measured cyber-bullying victimization and is specific to those students in the sample who reported being cyber-bullied.

Table 15

Descriptive Statistics for Cyber-Bullying Victimization Among Study Sample

Measure	Range	$\bar{x}$	SD
Victimization 1			
# Times Cyber-Bullied	0 – 5	0.31	0.97
Victimization 2			
Victimization Count	0 – 100	9.92	19.67
Victimization 3			
Dichotomized	0 – 1	0.37	0.48
CB Typologies			
Flaming	0 – 100	4.96	15.63
Online Harassment	0 – 50	2.25	7.45
Denigration	0 – 20	1.18	2.91
Masquerading	0 – 5	0.09	0.54
Outing	0 – 10	0.64	1.48
Cyber-stalking	0 – 10	0.27	1.11
Exclusion	0 – 20	0.53	2.14

Note. Ns ranged from 9 to 99.

Incidents of cyber-bullying victimization. Victims indicated that their experiences took place mostly through social media websites (*n*=8, 8.1%), text messages (*n*=6, 6.1%), pictures and videos (*n*=3, 3%), applications (*n*=2, 2%), instant messages (*n*=2, 2%), and chat rooms (*n*=1, 1%), however, none took place via phone calls, emails, or reality gossip blogs. Ten victims

(10.1%) indicated that they did not have knowledge of the perpetrator's identity, however 11 students (11.1%) did know who was targeting them. Victims who knew their cyber-bully noted that the perpetrator was either another student (*n*=7, 7.1%), an ex-partner (*n*=3, 3%), or a close friend (*n*=1, 1%). For 10 victims (10.1%), the cyber-bully was affiliated with the university. About a quarter of victims (22.2%) reported their victimization to someone else including a partner (10.1%), family member (9.1%), teacher (4%), ex-partner (4%), or co-worker (2%). Most of the time, however, victims notified a friend (21.2%) or parent (14.1%). Table 16 summarizes the descriptive statistics for the incidents of cyber-bullying victimization that took place among students in the sample who reported being cyber-bullied.

Victims who experienced cyber-bullying were provided with opportunities to provide written comments to indicate how satisfied they were with the resolution of the incident they experienced. Five victims (5.1%) reported that they did not care about whether the incident was resolved or that the experience was not a major concern for them. Three others (3%) revealed that the incident had eventually resolved itself or had 'blown over' with time. Moreover, three (3%) of the victims indicated that they were satisfied with how their incident was resolved because the cyber-bullying had stopped once they reported it to somebody. One victim (1%) mentioned how happy he/she was to be able to walk around his/her school without having to worry anymore. Additionally, some of the victims provided further insight as to how they responded to the cyber-bullying. For example, three (3%) of the victims reported that they had either blocked the perpetrator online or ignored their pursuits altogether. Conversely, two victims (2%) indicated that their issue was resolved after having the opportunity to talk with the perpetrator about the cyber-bullying.

Table 16

Descriptive Statistics for Incidents of Cyber-Bullying Among Those Reporting Victimization

Measure	%	Frequency
Know perpetrator		
Yes	11.1	11
No	10.1	10
Relation to perpetrator		
Another student	7.1	7
Close friend	1.0	1
Ex-partner	3.0	3
CB affiliated with University		
Yes	10.1	10
No	5.1	5
Not sure	5.1	5
Report victimization		
Yes	22.2	22
No	34.3	34
Reported CB		
Co-worker	2.0	2
Family	9.1	9
Parent	14.1	14
Teacher	4.0	4
Friend	21.2	21
Ex-partner	4.0	4
Partner	10.1	10
Resolution to CB		
Nothing happened	7.1	7
Police report filed	1.0	1
University notified	1.0	1
CB told to stop/Did	8.1	8
CB told to stop/Didn't	3.0	3

Measure	Range	$\bar{x}$	SD
Text Message	3 – 10	7.2	3.19
Picture/Video	0 – 10	3.2	4.32
Phone	0	0.0	0.00
Email	0	0.0	0.00
Chat Room	0 – 1	0.2	0.48
Instant Message	0 – 5	2.5	2.89
Social Media	1 – 50	11.1	16.22
Applications	0 – 10	3.8	4.79
Gossip Blogs	0	0.0	0.00

Note. Ns ranged from 4 to 56.

Unfortunately, not all of the victims had a positive resolution. Several victims expressed that the cyber-bullying incident caused them great embarrassment, loss, and frustration. For example, in one case, pictures of text messages obtained by a victim were inadmissible in court because "anybody could have been behind the screen" (Case ID 306). Another student indicated that he/she "lost a friend and felt used, betrayed, and hurt" as a result of cyber-bullying (Case ID 294). Victims also indicated that they suffered from multiple threats and had difficulty removing information about them online. In one incident, a victim complained to their school about the cyber-bullying, however it was not taken seriously. As these findings reveal, although situations and individual responses vary, there are various issues that can arise as a result of cyber-bullying.

Consequences of cyber-bullying victimization. Respondents who reported victimization were also asked about the consequences of their experiences. Specifically, students were asked to reflect on how the victimization impacted their emotional health and education. Findings indicate that victims were affected in multiple ways as a result of being cyber-bullied. For example, most of the victims indicated that they were either angry (21.2% somewhat affected, 22.2% affected, 11.1% severely affected), frustrated (19.2% somewhat affected, 19.2% affected, 10.1% severely affected), or self-conscious (22.2% somewhat affected, 19.2% affected, 4% severely affected) about their victimization. Other victims experienced various levels of embarrassment (23.2% somewhat affected, 19.2% affected, 1% severely affected), stress (13.1% somewhat affected, 15.2% affected, 11.1% severely affected), and anxiety (21.2% somewhat affected, 14.1% affected, 4% severely affected) as a result of their victimization. Table 17 displays the descriptive statistics for the psychological consequences of cyber-bullying victimization that were reported by the respondents in the sample who were cyber-bullied.

Table 17

Frequency of Psychological Consequences Among Those Reporting Victimization

Measure	%	Frequency
Embarrassed		
Not affected	45.5	45
Somewhat affected	23.2	23
Affected	19.2	19
Severely affected	1.0	1
Worried/Anxious		
Not affected	49.5	49
Somewhat affected	21.2	21
Affected	14.1	14
Severely affected	4.0	4
Afraid/Scared		
Not affected	67.7	67
Somewhat affected	7.1	7
Affected	11.1	11
Severely affected	4.0	4
Angry		
Not affected	32.3	32
Somewhat affected	21.2	21
Affected	22.2	22
Severely affected	11.1	11
Self-conscious		
Not affected	44.4	44
Somewhat affected	22.2	22
Affected	19.2	19
Severely affected	4.0	4
Frustrated		
Not affected	41.4	41
Somewhat affected	19.2	19
Affected	19.2	19
Severely affected	10.1	10
Depressed/Sad		
Not affected	55.6	55
Somewhat affected	10.1	10
Affected	18.2	18
Severely affected	4.0	4
Stressed		
Not affected	50.5	50
Somewhat affected	13.1	13
Affected	15.2	15
Severely affected	11.1	11

Note. Ns ranged from 86 to 89.

In addition to experiencing a wide range of psychological consequences, victims also weighed in on the educational consequences that they experienced. For example, victims (10.1%) indicated that the cyber-bullying negatively affected them academically, especially in terms of grades (5.1%), concentration (8.1%), and attendance issues (7.1%), while others experienced relationship issues with their peers (8.1%) after being cyber-bullied. Table 18 displays the descriptive statistics for the educational consequences of cyber-bullying victimization that were reported by the victims in the sample.

Table 18

Frequency of Educational Consequences Among Those Reporting Victimization

Measure	%	Frequency
Education affected		
Affected	10.1	10
Not affected	58.6	58
Grades	5.1	5
Concentration	8.1	8
Attendance	7.1	7
Relationship with peers	8.1	8

Note. Ns ranged from 12 to 68.

Awareness of cyber-bullying victimization. Students in the entire sample provided qualitative commentary in order to provide additional information about their awareness of cyber-bullying on their college campus. Out of 296 students in the sample, 17 (5.7%) did not provide a response when asked to define cyber-bullying, thus it is unclear whether their nonresponse was indicative of their lack of knowledge regarding the definition or their decision to skip the question. The majority (94.6%) of the participants in the sample, however, were familiar with the term *cyber-bullying*, although a small portion of students (*n*=5, 1.7%) were not. The students who were familiar with cyber-bullying pointed out that the behaviors are characterized by emotional harassment, verbal abuse, stalking, and other aggressive interactions

that take place online (i.e. insulting Facebook comments, trolling, or making fun of/belittling someone). Students in the sample also recognized that cyber-bullying includes the spreading of lies about another person, uploading embarrassing pictures of them, or sharing private information about them without their permission, using an online platform. Additionally, students indicated that cyber-bullying is often done anonymously and that the public at large are exposed to whatever the cyber-bully posts online about their targeted victim.

Students recognized that cyber-bullying incidents are performed over various forms of electronic media. One participant (0.3%) indicated that cyber-bullying is a newer phenomenon and mentioned that it emerged within the last fifteen years. Just over one fifth (21.9%) of respondents acknowledged that cyber-bullying involves harassment of some form using online media. Overall, 26.2% of the students in the sample largely identified social media as the place where cyber-bullying occurs most often, although many of them also mentioned that cyber-bullying occurs on the phone (3.2%) and through emails (2.2%), applications (0.3%), blogs (0.3%), websites (1.2%), videos (2.9%), and pictures (3.9%). Eight of the students in the sample (2.9%) also indicated that cyber-bullying behaviors occur on a repetitive basis, with 13 others (4.7%) noting that the cyber-bully 'attacks' their target with an intention to harm (either mentally or physically). Specifically, two students mentioned that the cyber-bully intended to ruin the victim's reputation (0.3%) or blackmail (0.3%) them. To summarize, a student in the sample explained cyber-bullying using one word: "awful."

It also appears that students were familiar with cyber-bullying because someone they know was affected. Fifty students (16.9%) in the sample knew of someone, other than themselves, who was cyber-bullied since they began college. The respondents indicated that most of the cyber-bullying took place mostly through social media (12.3%) and text messages

(8.8%). They also noted that several incidents took place through pictures and videos (7.1%) and applications (6.0%), as well as on the phone (2.9%). In addition, students indicated that they knew of a friend who had been cyber-bullied on gossip blogs (1.6%) and instant messages (2.9%). Finally, students reported that they knew of a friend who had been victimized through email (0.6%) and in online chat rooms (0.9%). Table 19 displays the descriptive statistics for students' awareness of cyber-bullying victimization at their university.

Table 19

Descriptive Statistics for Awareness of Cyber-Bullying Victimization Among the Study Sample

Measure	Range	$\bar{x}$	SD
Texting	0 – 100	14.45	24.81
Pictures/Videos	0 – 20	3.37	4.74
Email	0 – 10	0.61	2.35
Phone	0 – 50	4.28	11.01
Chat Room	0 – 100	6.16	23.53
Instant Message	0 – 100	8.05	22.25
Social Media	0 – 100	11.80	22.66
Applications	0 – 100	9.79	20.57
Gossip Blogs	0 – 100	5.70	22.30

Note. Ns ranged from 18 to 33.

Cyber-bullying perpetration. The current study assessed students' experiences of cyber-bullying perpetration in two parts. Initially, participants were asked to provide the number of times that they cyber-bullied someone else since they have been in college. The first measure of perpetration found that out of 296 students in the sample, only eight (2.7%) cyber-bullied someone else since they began college ($\bar{x}$=.062, *SD*=.410). Specifically, three perpetrators (1.0%) cyber-bullied someone else one time, while three (1%) had cyber-bullied someone else on two occasions. Two respondents (0.7%) also indicated that they cyber-bullied others on at least four occasions during their time as college students. The first measure of cyber-bullying perpetration was missing 21 cases. Conversely, over 90% of the sample (*n*=267) noted that they had *not*

cyber-bullied someone else since being in college. Similar to the victimization count, the second measure for perpetration contained much more variation in responses and was therefore utilized in subsequent bivariate and multivariate analyses. Specifically, out of 296 students in the sample, 26 (8.8%) had reported perpetration based on the second measure ($\bar{x}$=8.15, *SD*=19.31).

The second measure of cyber-bullying perpetration utilized the summation of a series of seven continuous variables that represented each of the seven cyber-bullying typologies identified in cyber-bullying literature (Li, 2006; Willard, 2004). Similar to the previously discussed victimization measure, more respondents reported that they cyber-bullied someone else using the second victimization measure rather than the first, which prompted the decision to exclude the first measure from subsequent analyses and solely use the second measure of perpetration. The second measure of perpetration was later dichotomized for regression analyses in order to determine whether someone had, or had not, perpetrated cyber-bullying. Responses were coded 1 to represent perpetration and 0 to represent an absence of perpetration ($\bar{x}$=.105, *SD*=.307). The results indicated that cyber-bullies most often instigated incidents of flaming (*n*=22, 84.4%), online harassment (*n*=6, 23%), and exclusion (*n*=5, 19.2%). Overall, the average level of perpetration by specific typology ranged from a high of flaming ($\bar{x}$=6.58, *SD*=19.29) to a low of cyber-stalking ($\bar{x}$=.04, *SD*=.20). There were not any incidents of masquerading reported by perpetrators. Table 20 summarizes the descriptive statistics for the three variables that measured cyber-bullying perpetration and includes findings for students in the sample who reported participation in cyber-bullying.

Table 20

Descriptive Statistics for Cyber-Bullying Perpetration Among Study Sample

Measure	Range	$\bar{x}$	SD
Perpetration 1			
# Times CB	0 – 4	0.06	0.41
Perpetration 2			
Perpetration Count	0 – 100	8.15	19.31
Perpetration 3			
Dichotomized	0 – 1	0.10	0.31
CB Typologies			
Flaming	0 – 100	6.58	19.29
Online Harassment	0 – 3	0.35	0.75
Denigration	0 – 10	0.58	2.02
Outing	0 – 5	0.38	1.10
Cyber-Stalking	0 – 1	0.04	0.20
Exclusion	0 – 2	0.23	0.51

Note. Ns ranged from 8 to 26.

Incidents of cyber-bullying perpetration. The current study found that incidents of cyber-bullying were perpetrated mostly through text messages (15.4%), applications (11.4%), and instant messages (11.4%). Perpetrators also utilized pictures and videos (7.6%), social media (7.6%), and the phone (7.6%). Fewer instances were reported among perpetrators that utilized chat rooms (3.8%), email (3.8%), and reality gossip blogs (3.8%). Perpetrators of cyber-bullying indicated that they were mostly targeting close friends online (34.6%), however some respondents targeted their ex-partner (15.4%), a co-worker (15.4%), or another student (7.7%). In addition, one student (3.8%) cyber-bullied their partner/spouse. Surprisingly, one student (3.8%) indicated that they cyber-bullied a parent/guardian online. Table 21 displays the descriptive statistics for incidents of cyber-bullying that were reported by perpetrators.

Table 21

Descriptive Statistics for Incidents of Cyber-Bullying Among Those Reporting Perpetration

Measure	%	Frequency
Targeted		
Another student	7.7	2
Co-worker	15.4	4
Parent/guardian	3.8	1
Close friend	34.6	9
Ex-partner	15.4	4
Partner/spouse	3.8	1

Measure	Range	$\bar{x}$	SD
Text Message	0 – 5	0.75	1.69
Picture/Video	0 – 2	0.20	0.56
Phone	0 – 3	0.27	0.80
Email	0 – 1	0.07	0.26
Chat Room	0 – 2	0.13	0.52
Instant Message	0 – 5	0.53	1.36
Social Media	0 – 5	0.53	1.46
Applications	0 – 5	0.60	1.45
Gossip Blogs	0 – 3	0.20	0.77

Note. Ns ranged from 15 to 21.

Several respondents (*n*=21) who admitted to cyber-bullying provided brief commentary about why they targeted their victims. For example, one student (3.8%) indicated that he/she cyber-bullied someone as a form of revenge because of rumors, and two others (7.6%) reported that their victims angered them. Another student (3.8%) targeted the victim because he/she had betrayed and embarrassed them at some point. Three others reported that they cyber-bullied others as a way to defend themselves online (11.4%). Respondents also indicated that the cyber-bullying was the result of a disagreement (7.6%) or argument (19.0%). Some students also admitted to targeting others due to negative emotions that they were experiencing (7.6%). Additionally, some respondents neutralized their behaviors by viewing cyber-bullying as a joke between friends (11.4%). Finally, one student indicated that their cyber-bullying was the result of a breakup with an ex-partner (3.8%). Although each student experienced perpetration differently,

it is still important to consider the challenges that college students face outside of the classroom as well as those within. The qualitative comments obtained in the current study provide a valuable glimpse as to which areas of concern should be addressed and/or considered by educators and policymakers alike.

Cyber-bullying observation. Finally, similar to previous measures of cyber-bullying victimization and perpetration, students' experiences with cyber-bullying observation were measured in two parts. Initially, participants were asked to provide the number of times that they witnessed someone else being cyber-bullied since they were in college. The first measure of observation indicated that out of 296 students in the sample, 105 (35.5%) witnessed cyber-bullying since entering college ($\bar{x}$=3.41, *SD*=19.57). Specifically, 32 students (10.8%) witnessed someone being cyber-bullied once, 15 students (5.1%) witnessed cyber-bullying on five occasions, and three (1%) witnessed it on 50 occasions. One observer (0.3%) even indicated that they witnessed another person being cyber-bullied 300 times during their time as a college student. The first measure of cyber-bullying perpetration was missing 13 cases. In addition, 178 individuals noted that they cyber-bullied someone else zero times since being in college. Similar to the victimization and perpetration counts, the first measure of observation was eliminated from subsequent analyses in favor of the second measure which had more variability in responses. Specifically, out of 296 students in the sample, 135 (45.6%) had reported observation based on the second measure ($\bar{x}$=17.37, *SD*=28.41).

The second measurement for observation, which included the summation of cyber-bullying typologies, determined how prevalent types of cyber-bullying were among sample participants. The variable measuring observation was later dichotomized for regression analyses in order to determine whether someone had, or had not, observed cyber-bullying. Responses

were coded 1 to represent observation and 0 to represent not observing the behavior ($\bar{x}$=.532, *SD*=.499). The results indicated that witnesses most often observed incidents of flaming (*n*=117, 86.7%), denigration (*n*=77, 57%), and online harassment (*n*=68, 50.4%). Overall, the average level of observation by specific typology ranged from a high of flaming ($\bar{x}$=6.78, *SD*=15.04) to a low of masquerading ($\bar{x}$=0.51, *SD*=1.67). Table 22 summarizes the descriptive statistics for the three variables that measured cyber-bullying observation among those respondents who reported witnessing the behavior.

Table 22

Descriptive Statistics for Cyber-Bullying Observation Among Study Sample

Measure	Range	$\bar{x}$	SD
Observation 1			
# Times CB	0 – 300	3.41	19.57
Observation 2			
Observation Count	0 – 181	17.37	28.41
Observation 3			
Dichotomized	0 – 1	0.53	0.50
CB Typologies			
Flaming	0 – 100	6.78	15.04
Online Harassment	0 – 100	3.09	9.23
Denigration	0 – 20	2.72	4.37
Masquerading	0 – 10	0.51	1.67
Outing	0 – 30	1.64	3.90
Cyber-Stalking	0 – 35	1.48	4.72
Exclusion	0 – 20	1.15	2.84

Note. Ns ranged from 24 to 135.

Incidents of cyber-bullying observation. Students who witnessed cyber-bullying indicated that most of the cyber-bullying that they observed was on social media websites (*n*=64, 47.2%), or through text messages (*n*=27, 20%). Moreover, many incidents were witnessed through pictures and videos (*n*=32, 16.9%), and applications (*n*=24, 17.7%). Only a few incidents of cyber-bullying were observed through instant messages (*n*=8, 5.7%), phone calls (*n*=7, 5.1%), chat rooms (*n*=3, 2.1%), reality gossip blogs (*n*=2, 1.4%), or email (*n*=1, 0.7%).

Table 23 summarizes the descriptive statistics for incidents of cyber-bullying observation, as reported by respondents who witnessed the behaviors during their time in college.

Table 23

Descriptive Statistics for Incidents of Cyber-Bullying Among Those Reporting Observation

Measure	Range	$\bar{x}$	SD
Text Message	0 – 30	1.54	4.04
Picture/Video	0 – 10	0.63	1.50
Phone	0 – 5	0.22	0.81
Email	0 – 9	0.13	1.06
Chat Room	0 – 10	0.18	1.20
Instant Message	0 – 10	0.46	1.59
Social Media	0 – 50	4.62	9.53
Applications	0 – 50	2.07	6.42
Gossip Blogs	0 – 6	0.11	0.75

Note. Ns ranged from 1 to 64.

After observing the cyber-bullying, 29 witnesses (21.5%) made an attempt to intervene. For example, five students (3.7%) reported that they intervened in order to defend the victims after cyber-bullies instigated situations. Seven students (5.2%) spoke up because it was wrong. One witness (0.7%) also admitted that they did not want to be targeted by the cyber-bully as well. Another student (0.7%) went as far as reporting the comments to a social media website. Four other observers (3%) intervened by talking with the victim, whereas 16 students (11.9%) reached out directly to the perpetrator to tell them to stop.

Despite interdiction by a small portion of respondents in the sample, 91 witnesses (67.4%) did not attempt to stop cyber-bullying. Of those who provided commentary, 17 (12.6%) mentioned that they failed to speak up because they did not know the victim well enough to get involved in the dispute. In addition, 14 witnesses (10.3%) refrained from intervening because it was not their business or of concern to them, while seven others (5.2%) stated that they simply did not want to become involved in the incident. Seven witnesses (5.2%) did not intervene

because they felt that there was not anything that they could do to stop the behavior, especially given the nature of social media. For example, one student (0.7%) pointed out that they were unable to do anything about a friend's image posted on Snapchat because it disappeared after a few seconds. Another student (0.7%) pointed out that people on Twitter often just retweet something that they know about a specific person and that it cannot be prevented.

Two students (1.5%) did not intervene because the victim did not want help, whereas four other witnesses (3%) mentioned that they did not want to become a victim themselves. Additionally, two students (1.5%) did not believe that the issue was a big deal, so they did not think it was necessary to become involved. One witness (0.7%) even mentioned that they viewed the cyber-bullying as a joke between two people. Finally, two students (1.5%) felt that they did not need to intervene because other people had instead, or the school was handling the issue. Fortunately for some of the victims, someone took notice of their victimization and was willing to step forward. Given the harmful consequences that result from cyber-bullying, this is a positive step toward alleviating and preventing the behavior.

Consequences of cyber-bullying observation. Students were also asked how they felt after they witnessed someone being cyber-bullied. Students who observed cyber-bullying indicated that they felt some degree of anger (40.7%) or frustration (41.5%) after having witnessed the behavior. Witnessing cyber-bullying was also stressful for some students (19.9%) and left others feeling worried or anxious (28.8%) or self-conscious (17.8%). Several respondents also indicated that they were afraid or scared (17%) after witnessing the cyber-bullying, while others noted that they felt embarrassed (22.2%) or saddened (16.2%) by the incident. Table 24 summarizes the descriptive statistics for consequences of cyber-bullying observation, as reported by respondents who witnessed the behaviors.

Table 24

Frequency of Cyber-Bullying Consequences Among Those Reporting Observation

Measure	%	Frequency
Embarrassed		
Not affected	63.7	86
Somewhat affected	14.1	19
Affected	8.1	11
Severely affected	0.0	0
Worried/Anxious		
Not affected	60.0	81
Somewhat affected	14.8	20
Affected	13.3	18
Severely affected	0.7	1
Afraid/Scared		
Not affected	71.1	96
Somewhat affected	7.4	10
Affected	8.9	12
Severely affected	0.7	1
Angry		
Not affected	46.7	63
Somewhat affected	20.7	28
Affected	11.9	16
Severely affected	8.1	11
Self-conscious		
Not affected	69.6	94
Somewhat affected	12.6	17
Affected	5.2	7
Severely affected	0.0	0
Frustrated		
Not affected	46.7	63
Somewhat affected	20.0	27
Affected	18.5	25
Severely affected	3.0	4
Depressed/Sad		
Not affected	69.6	94
Somewhat affected	9.6	13
Affected	5.9	8
Severely affected	0.7	1
Stressed		
Not affected	67.4	91
Somewhat affected	9.6	13
Affected	9.6	13
Severely affected	0.7	1

Note. Ns ranged from 114 to 120.

Descriptive Statistics for Students' Use of Technology

Finally, in order to assess college students' use of media and technology, the current study included several questions that asked participants to report additional information as it pertained to their routine activities of technology use; specifically, their use of cell phones, text messages, and computer/Internet. Table 25 summarizes descriptive statistics for the sample of students' use of technology.

Table 25

Descriptive Statistics for Use of Technology Among Study Sample

Measure	%	Frequency
Cell Phone Use	99.7	295
Computer Use	94.3	279
Social Media Use		
Instagram	81.4	241
Facebook	88.5	262
Snapchat	88.5	262
The Dirty	0.7	2
Twitter	61.5	182

Measure	Range	$\bar{x}$	SD
# Hours Texting	1 – 24	4.52	4.46
# Hours Talking	1 – 20	1.54	1.87
# Hours Online	1 – 24	4.07	2.99

Note. Ns ranged from 203 to 296.

Cell phone use. The findings revealed that virtually the entire sample (*n*=295) used their cell phones regularly throughout their day (99.7%), with the exception of one student (0.3%). The entire sample of 296 respondents (100%) possessed a cell phone that had Internet access. Students indicated that, on average, they spend about an hour and a half talking on the phone each day (*M*=1.54, *SD*=1.87). Further, they spend almost five hours texting per day (*M*=4.52, *SD*=4.46). Overall, students estimated that they send and received as few as zero text messages

(.03%) and as many as 2,000 (.03%). On average, students send and receive at least 128 text messages per day (*M*=128.03, *SD*=198.74).

Computer use. The majority of students within the sample (92.9%) reported that they used their computer on a regular basis. Students spend as little as one hour online per day, or as much as the whole day (.03%). On average, students spend about four hours online per day (*M*=4.07, *SD*=2.99). In addition, students reported that they most commonly use the Internet for schoolwork (8.8%), or to visit websites (8.5%), send and receive emails (8.5%), shop online (7.2%), download music and/or movies (6%), chat with others through text (5.3%), share photos (3.6%), chat with others using video (3.8%), and play games (3.6%). Students also reported that they use the Internet to watch Netflix (.06%), access news (.03%), listen to music on Pandora (.03%), view pornography (.03%), read (.06%), and interact with others through social media websites (.09%).

Social media use. Without a doubt, social media has changed the way that users connect and communicate with one another. This is especially the case among college students, who are heavy users of social media. The findings indicated that students utilized Facebook (7.9%) and Snapchat (7.9%) the most often, followed by Instagram (7.2%), and Twitter (5.5%). Only two students reported that they visited the gossip blog *The Dirty*. Moreover, students reported that they also spent time on the Internet visiting LinkedIn (.03%), Pinterest (.06%), Reddit, (.03%), Tumblr (.09%), and Yik Yak (.03%).

The descriptive statistics in this study provided an overall glimpse into students' perceptions of learning of cyber-bullying behaviors and offered opportunities to examine their experiences as victims, perpetrators, and observers of cyber-bullying, as well as their use of

technology. The following section discusses bivariate correlations and presents findings obtained by using Pearson's *r* for the primary variables of interest.

Bivariate Correlations

Correlation refers to the examination of the relationship between two variables (Bachman & Paternoster, 2009). In order to measure the strength and direction of the linear correlation between both the independent and dependent variables, Pearson's correlation coefficient, or Pearson's *r* (Pearson, 1985), which is one of the most utilized measures for strength of association (Frankfort-Nachmias & Leon-Guerrero, 2011; Newton & Rudestam, 2013), was utilized. This information is important for social scientists because it determines whether there exists a relationship between two variables, therefore helping to determine what specific models to use for the regression analyses (Bachman & Paternoster, 2009). In addition, bivariate correlations are used to rule out multicollinearity, a necessary prerequisite for regression analyses.

Correlation coefficient scores can range from -1.0 to +1.0, with a value of 0 indicating no correlation between two variables, a value of +1.0 indicating a perfect positive relationship, and a value of -1.0 indicating a perfect negative relationship (Bachman & Paternoster, 2009). According to Cohen (1988), a Pearson's *r*-value that ranges from .10 to .29 represents a small effect, whereas a value that ranges from .30 to .49 represents a medium effect. Any magnitude of effect that ranges from .50 to 1.0 represents a large magnitude of effect (Cohen, 1988, p. 79-81). In the current study, Pearson product-moment correlation coefficients were calculated to describe the relationship between dependent variables and independent variables. Table 26 presents the correlations among the variables in the study.

Table 26

Pearson Correlations between the Variables of Interest

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Age	1.00													
Gender	.082	1.00												
Race/Ethnicity	.869	-.004	1.00											
SES	.921	.136*	-.075	1.00										
Sexual Orientation	.010	.065	.180**	-.037	1.00									
Class Rank	.406**	.151**	.008	.057	-.038	1.00								
Prior Victimization	-.064	-.170**	.001	-.003	-.139*	-.091	1.00							
Diff. Association	-.047	.166**	.043	-.015	-.088	-.092	.091	1.00						
Imitation	-.048	-.220**	-.056	-.060	.076	-.015	.154*	-.134*	1.00					
Diff. Reinforce.	-.012	.114	.143*	.034	.015	.016	-.046	.489**	-.198**	1.00				
Definitions	.000	.319**	.104	.167**	-.071	-.012	-.081	.397**	-.132*	.371**	1.00			
Victimization	.102	.055	.300	.085	-.040	-.057	.016	.267**	-.100	.315**	.365**	1.00		
Perpetration	-.042	.090	.011	.161*	-.009	-.083	-.001	.309**	-.035	.277*	.271**	.569**	1.00	
Observation	.003	.061	.034	-.074	-.027	-.003	.087	.161*	.102	.114	.013	.155*	.136*	1.00

** Correlation is significant at the 0.01 level (1-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Bivariate Correlation Results

Although the correlations do not control for extraneous variables, the table still provides a preliminary description of the relationships between the variables of interest. Moreover, the bivariate correlations provided a preliminary test of the current study's main hypotheses and helped to determine if there were any relationships between the independent and dependent variables (Pallant, 2013). There were 29 instances where the data yielded significant results. Statistical significance was found among several of the variables of interest, including demographic, social learning, control, and dependent variables. Each of the significant correlations for the variables of interest are described in more detail below.

There were several significant correlations found among social learning variables. For example, a small, positive correlation occurred between gender and differential association (r=.166, p<.01). Differential association assumes that individuals learn values, attitudes, techniques, and motives for criminal behavior through interaction with others (Sutherland, 1947). Findings from the current study suggest that males are more likely to associate with cyber-bullies than females. It is already well-established that males engage in most types of crime and deviance at higher rates than females (Lee et al., 2004). In fact, researchers argue that males and females maintain differential preference for risk-taking, and because delinquent behavior often involves risk, there is a greater chance for males to become involved in delinquent activities than females (Grasmick, Blackwell, & Bursik, 1993). Prior research also indicated that gender is one of the strongest correlates of delinquent behavior, supporting the notion that males and females are differentially exposed to, or differentially affected by, the same criminogenic conditions (Mears et al., 1998). Therefore, this recent finding fits well with previous literature on differential association.

A small, positive correlation between prior victimization and imitation (r=.154, p<.05) was found, which indicated that students who experienced cyber-bullying in high school or middle school may be more adept to learning new behaviors that were acquired by observing and imitating others (Akers, 1998; 2001). Conversely, students who did not experience prior victimization reported less learning through imitation. Additionally, a small, negative correlation occurred between differential association and imitation (r= -.134, p<.01), which indicated that as students learn values, attitudes, techniques, and motives for cyber-bullying through interaction with others, their imitation of the behavior decreases. Interestingly, the imitation variable also yielded additional negative correlations. For example, a small, negative correlation occurred between imitation and differential reinforcement (r= -.198, p<.01), and between imitation and definitions *(*r= -.132, p<.05). This assumes that individuals who learn as a result of imitating others might not learn as much from exposure to differential reinforcements or definitions. Finally, a small negative correlation also occurred between gender and imitation (r= -.220, p<.01). In other words, male students reported that they may learn less through imitation than females. Conversely, females may experience higher levels of learning behaviors as a result of modeling others than males.

In several instances, medium effect sizes were found among social learning variables. For example, a medium, positive correlation occurred between differential reinforcement and differential association (r=.489, p<.01). According to Akers (1998, 2001), differential reinforcement refers to the balance of actual or anticipated rewards and punishments that are consequential of an individual's behavior (Akers, 1998, 2001). In this case, students who reported higher levels of differential reinforcement also maintained that they experienced higher levels of differential associations. A medium, positive correlation also occurred among

differential association and definitions (r=.397, p<.01). Definitions include rationalizations and attitudes and are the moral components of social interaction that determine whether or not something is right or wrong (Akers, 1985). Therefore, this correlation suggests that students who reported exposure to differential associations also reported a greater tendency to rationalize their behaviors and attitudes. In addition, a medium, positive correlation occurred between differential reinforcement and definitions (r=.371, p<.01), indicating that students who reported higher levels of differential reinforcement also reported higher levels of definitions. In addition, a medium, positive correlation also occurred between gender and definitions (r=.319, p<.01), meaning that males reported higher levels of definitions than females. A significant small, positive correlation occurred between socioeconomic status and definitions (r=.167, p<.01), which suggested that students who reported higher incomes maintained more definitions supportive of cyber-bullying.

The results from the present study mirror previous research that also found positive correlations for social learning variables; strong to moderate effects are typically found among social learning variables and other variables of interest, with the differences relating to which social learning variable is used, how the variables are measured, the type of deviance being considered, and the sample (Akers & Jenson, 2006).

Interestingly, significant correlations occurred between perpetration and a few of the social learning variables. Specially, a small positive correlation was found between perpetration and differential reinforcement (r=.277, p<.05), and between perpetration and definitions (r=.271, p<.01). A medium positive correlation also occurred between perpetration and differential association (r=.309, p<.01). Therefore, students who reported higher levels of differential reinforcement, differential association, and definitions also reported higher levels of cyber-bullying perpetration. These findings suggest that the relationships between social learning

variables and cyber-bullying behaviors might be predictable, since increased associations with a perpetrator of cyber-bullying may increase an individuals' likelihood to engage in similar behaviors. Moreover, an individual might be more likely to engage in cyber-bullying behavior if they are positively rewarded by their peers for engaging in cyber-bullying. In addition, a small positive correlation also occurred between socioeconomic status and perpetration (r=.161, p<.01).

Several significant correlations were also found among the observation and victimization variables as well. For example, a small positive correlation occurred between differential association and observation (r=.161, p<.05), which suggests that students who report higher levels of differential association may be more likely to report higher levels of witnessing cyber-bullying behaviors. More importantly, however, a small positive correlation occurred between observation and victimization (r=.155, p<.05). This finding suggests that observers and victims of cyber-bullying may be one in the same. In addition, significant correlations were also found among the dependent variable measuring victimization and social learning variables. For example, a medium, positive correlation occurred between differential reinforcement and victimization (r=.315, p<.01), which suggested that students reporting high levels of differential association were more likely to report cyber-bullying victimization. A medium, positive correlation also indicated that students who reported high levels of definitions were at higher risk for victimization (r=.365, p<.01). Finally, a small, positive correlation was found between differential association and victimization (r=.267, p<.01), which indicated that higher levels of differential association correspond with higher levels of cyber-bullying victimization.

The largest correlation in the study, a positive one, occurred between victimization and perpetration (r=.569, p<.01). Ultimately, this finding suggested that individuals who experienced

higher levels of victimization were more likely to cyber-bully others. Prior research confirms that students involved in cyber-bullying can take on multiple roles, as a victim, offender, and/or observer (Baroncelli & Ciucci, 2014). Therefore, this phenomenon is challenging to study because it is difficult to classify an individual's role in cyber-bullying - they may be a victim, a perpetrator, or an observer of cyber-bullying on multiple occasions (Espelage & Swearer, 2003). Regardless, there is evidence that suggests some individuals are involved in both perpetration and victimization (Ancak, 2009). Certainly, preliminary findings from the current study warrant multivariate analyses in order to establish the relationship between social learning theories and involvement in cyber-bullying further.

Statistical Assumptions for the Variables of Interest

The current study utilized regression analyses in order to examine the relationship between an outcome variable and one or more variables of interest that are expected to influence it (Bachman & Paternoster, 2009; Schroeder, Sjoquist, & Stephan, 2017). That is, the regression analyses allowed the researcher to summarize how one variable (independent variable) explained variation in another (dependent variable). A number of steps were taken prior to regression analyses in order to ensure that the key assumptions were met (Berry, 1993; Berry & Feldman, 1985; Pallant, 2013; Tabachnick & Fidell, 2001). Several statistical tests were conducted to investigate if the assumptions of Ordinary Least Squares (OLS) Regression were met, including tests to ensure that the regression model was linear in parameters, there was a random sampling of observations, the condition mean was zero, there was no multi-collinearity, there was no homoscedasticity, and the error terms were normally distributed (Pallant, 2013). The Kolmogorov-Smirnov test, as well as examinations of the variable means, histograms, boxplots, and scatterplots, determined that not all of the assumptions were met and thereby ruled out the

use of OLS for multivariate analyses. Specifically, the data violated the assumptions of linearity and normality. Appendix D and Appendix E display the descriptive statistics for regression assumptions for the sample, as well as histograms and boxplots for the variables of interest.

Regression Analyses

In regard to the current study, regression analyses were used to determine if social learning variables (definitions, differential association, differential reinforcement, and imitation) predict the perpetration of cyber-bullying. The regression analyses addressed the following hypotheses as they related to social learning theory:

H_a(1) There will be a significant positive relationship between differential association and cyber-bullying perpetration.

Ha(2) There will be a significant positive relationship between imitation and cyber-bullying perpetration.

H_a(3) There will be a significant positive relationship between differential reinforcement and cyber-bullying perpetration.

H_a(4) There will be a significant positive relationship between definitions and cyber-bullying perpetration.

The results of the current study also included regression models that examined the relationships between social learning variables and the dependent variables that measured victimization and observation. These models were included for several reasons. First, there are theoretical expectations related to social learning theory that suggest that experiences with perpetration, victimization, and observation can occur simultaneously. That is, someone who is cyber-bullied, or someone who observed cyber-bullying, may learn from those experiences and

imitate what they see with other people. Aspects of cyber-bullying are social; cyber-bullies may associate with others who approve of and positively reinforce the behaviors. Simply put, the motivation for perpetrating cyber-bullying is derived socially, even if the act itself is done in private. For these reasons, it can be difficult to identify bully-victims since there is overlap between victimization and offending (Ancak, 2009; Baroncelli & Ciucci, 2014; Espelage & Swearer, 2003). For example, studies have found that traditional bullying victims are likely to cyber-bully others as a form of retaliation toward their own aggressor (Beran & Li, 2007; Jang et al., 2014). Other studies indicate that traditional bullies have a greater tendency to be cyber-bullied in comparison to non-bullies, while cyber-bullies are more likely to experience online victimization than those who do not engage in cyber-bullying (Li, 2006).

Correlation analyses conducted for the current study revealed significant relationships between both cyber-bully observation and victimization and various social learning variables. By testing all three dependent variables in the regression models, a clearer picture of the relationships between cyber-bullying behaviors and social learning theory comes into view. Moreover, the inclusion of demographic and control variables (age, gender, race/ethnicity, socioeconomic status, and prior victimization) in the regression analyses help determine personal characteristics associated with cyber-bullying as victims, perpetrators, and observers. The regression analyses addressed the following hypotheses that relate to the demographics of the sample:

Ha(5) Levels of victimization will significantly differ by gender.

Ha(6) Levels of offending will significantly differ by gender.

Ha(7) Levels of observation will significantly differ by gender.

Ha(8) Levels of victimization will significantly differ by age/class standing.

Ha(9) Levels of offending will significantly differ by age/class standing.

Ha(10) Levels of observation will significantly differ by age/class standing.

Ha(11) Levels of victimization will significantly differ by race/ethnicity.

Ha(12) Levels of offending will significantly differ by race/ethnicity.

Ha(13) Levels of observation will significantly differ by race/ethnicity.

Ha(14) Levels of victimization will significantly differ by sexual orientation.

Ha(15) Levels of offending will significantly differ by sexual orientation.

Ha(16) Levels of observation will significantly differ by sexual orientation.

Ha(17) Levels of victimization will significantly differ by socioeconomic status.

Ha(18) Levels of offending will significantly differ by socioeconomic status.

Ha(19) Levels of observation will significantly differ by socioeconomic status.

Zero-Inflated Negative Binomial Regression

Several types of regression models, including logistic regression, poisson regression, negative binomial regression, zero-inflated negative binomial regression, zero-inflated poisson regression, poisson hurdle, and negative binomial hurdle regression, were compared to determine the best fit for the data. A comparison of the various models, both with and without the control variables, can be found in Appendix F and Appendix G. Ultimately, an excess of zeros and over dispersion of data led to the decision to use zero-inflated negative binomial regression (Long, 1997; Long & Freese, 2006). Specifically, these issues occurred within each of the dependent variables. The zero-inflated model, which analyzes positive count data first and then runs a zero-inflated analysis, consists of two components including a count model, reflected with positive values, and a logit model that predicts excess zeros (Hu, Pavlicova, & Nunes, 2011; Long, 1997; Zeileis, Kleiber, & Jackman, 2008). The zero observations that occurred by chance are seen as

sampling zeros, indicating that respondents did not engage in the measured behavior (He, Tang, Wang, & Crits-Christoph, 2014; Hu et al., 2011) – in this case, cyber-bullying perpetration. Table 27 and Table 28 each provide a summary of the two components to the zero-inflated negative binomial regression, including the logit and count models for all three dependent variables measuring cyber-bullying victimization, perpetration, and observation.

Multivariate analyses were conducted using both zero-inflated negative binomial logistic regression analyses and zero-inflated count analyses on all three models. Model One examined relationships between social learning variables and each of the dependent variables. Likewise, Model Two included social learning variables with the addition of demographic variables. Finally, Model Three included social learning and demographic variables, along with the control variable, prior victimization. The results of the zero-inflated negative binomial regression logit models (Table 27) did not show any instances of significance for the dependent variable measuring victimization, however there were statistically significant findings among differential association and perpetration and observation. There was also a statistically significant relationship between gender and perpetration. However, once the prior victimization control variable was entered into the model (Model 3), the significant findings between perpetration and both differential association and gender disappeared. It was ultimately determined that the zero-inflated negative binomial count models (Table 28) provided a better fit for each of the phenomena because it gave an actual count for the number of times the participants had experienced cyber-bullying as perpetrators, victims, or observers, rather than only informing of whether or not victimization had or had not occurred, as demonstrated in the logit model.

Table 27

Zero-Inflated Negative Binomial Regression Logit Model to Predict Excess Zeros

Perpetration Count	*B*	Std. Error	Odds Ratio	97% CI Lower Bound	CI Upper Bound
Model 1					
Differential Association	-0.630**	0.236	1.338	0.336	8.452
Imitation	-0.102	0.092	0.965	0.755	1.082
Definitions	-0.143	0.137	1.015	0.663	1.133
Differential Reinforcement	0.123	0.182	1.247	0.791	1.616
Log likelihood = -121.6 (*df*=11)					
Model 2					
Differential Association	-0.647*	0.252	0.538	3.197	8.581
Imitation	-0.161	0.100	0.851	6.996	1.036
Definitions	-0.578	0.152	0.944	7.005	1.272
Differential Reinforcement	0.159	0.204	1.173	7.867	1.749
Age	0.035	0.167	1.036	7.471	1.435
Gender	-1.767*	0.736	0.171	4.036	7.228
SES (lower class)	-0.695	1.005	0.499	6.953	3.583
Race/ethnicity	0.049	1.005	1.036	1.465	7.527
Log likelihood = -116.2 (*df*=19)					
Model 3					
Differential Association	-0.481	0.301	6.180	3.424	1.115
Imitation	-0.209	0.150	8.116	6.054	1.088
Definitions	0.101	0.188	1.107	7.654	1.600
Differential Reinforcement	-0.324	0.255	7.230	4.385	1.192
Age	-0.308	0.439	7.351	3.111	1.737
Gender	-1.713	0.929	1.804	2.923	1.113
SES (lower class)	-7.620	15.971	4.905	1.248	1.928
Race/ethnicity	23.356	4178.772	1.392	0.000	Inf.
Prior victimization	-0.889	0.093	4.112	6.701	2.524
Log likelihood = -110.2 (*df*=21)					

Victimization Count	*B*	Std. Error	Odds Ratio	97% CI Lower Bound	Upper Bound
Model 1					
Differential Association	-0.932	0.866	0.394	0.0721	2.153
Imitation	0.075	0.199	1.078	0.731	1.591
Definitions	0.266	0.252	1.305	0.796	2.141
Differential Reinforcement	-0.225	0.614	0.798	0.240	2.659
Log likelihood = -383.2 (*df*=11)					
Model 2					
Differential Association	-5.114	4.160	5.997	0.265	1.355
Imitation	-2.597	1.908	7.713	0.531	1.121
Definitions	3.208	1.891	1.033	0.713	1.496
Differential Reinforcement	-2.192	2.685	8.031	0.474	1.359
Age	-5.270	1.205	9.487	1.016	1.201
Gender	4.410	8.292	1.554	0.297	8.944
SES (lower class)	-2.394	1.237	4.015	0.000	Inf.
Race/ethnicity	1.354	1.111	7.578	0.000	Inf.
Log likelihood = -373.2 (*df*=19)					
Model 3					
Differential Association	-0.398	0.284	6.720	0.385	1.172
Imitation	-0.176	0.147	8.385	0.628	1.119
Definitions	0.038	0.156	1.039	0.765	1.411
Differential Reinforcement	-0.136	0.213	8.727	0.575	1.324
Age	-0.026	0.082	9.737	0.829	1.144
Gender	0.695	0.774	2.005	0.440	9.135
SES (lower class)	-14.556	1349.327	4.770	0.000	Inf.
Race/ethnicity	0.372	1.742	1.450	0.048	4.404
Prior victimization	-1.079	1.135	3.400	0.037	3.145
Log likelihood = -343.2 (*df*=21)					

Observation Count	*B*	Std. Error	Odds Ratio	97% CI Lower Bound	CI Upper Bound
Model 1					
Differential Association	-0.670*	0.288	0.512	0.291	0.900
Imitation	-0.176	0.101	0.839	0.688	1.023
Definitions	0.220	0.188	1.246	0.862	1.800
Differential Reinforcement	-0.070	0.221	0.932	0.604	1.437
Log likelihood = -603.3 (*df*=11)					
Model 2					
Differential Association	-0.695**	0.258	0.499	3.010	0.828
Imitation	-0.090	0.081	0.914	7.799	1.071
Definitions	0.091	0.158	1.100	8.042	1.492
Differential Reinforcement	0.078	0.173	1.081	7.707	1.516
Age	0.209	0.176	1.233	8.736	1.740
Gender	0.544	0.545	1.723	5.919	5.016
SES (lower class)	-1.081	1.658	0.339	1.317	8.740
Race/ethnicity	-0.390	0.713	0.677	1.673	2.740
Log likelihood = -591.8 (*df*=19)					
Model 3					
Differential Association	-0.799*	0.407	0.450	2.025	0.999
Imitation	-0.093	0.120	0.911	7.208	1.152
Definitions	0.248	0.303	1.282	7.078	2.322
Differential Reinforcement	0.033	0.250	1.033	6.327	1.688
Age	0.465	0.344	1.591	8.114	3.121
Gender	0.050	1.002	1.051	1.475	7.485
SES (lower)	-1.771	1.890	0.170	4.192	6.911
Race/ethnicity	0.271	1.214	1.312	1.214	14.176
Prior victimization	0.181	0.250	1.199	2.513	5.720
Log likelihood = -533.2 (*df*=21)					

Note. Variables labeled with intervals 0 and Inf. indicate that the true values of the parameters are unknown. * indicates statistical significance at the .05 level; ** indicates statistical significance at the .001 level; *** indicates statistical significance at the .000 level.

Table 28

Zero-Inflated Negative Binomial Regression Count Models to Predict Excess Zeros

Perpetration Count	*B*	Std. Error	Odds Ratio	97% CI Lower Bound	97% CI Upper Bound
Model 1					
Differential Association	0.291	0.188	1.338	0.924	1.936
Imitation	-0.036	-0.036	0.965	0.809	1.151
Definitions	0.015	0.143	1.015	0.767	1.344
Differential Reinforcement	0.221	0.176	1.247	0.883	1.762
Log likelihood = -121.6 (*df*=11)					
Model 2					
Differential Association	0.195	0.188	1.215	8.400	1.756
Imitation	-0.031	0.084	0.970	8.226	1.143
Definitions	0.008	0.154	1.008	7.446	1.364
Differential Reinforcement	0.382	0.252	1.465	8.942	2.400
Age	0.241	0.227	1.273	8.150	1.988
Gender	-1.208	0.733	0.299	7.106	1.255
SES (lower class)	-0.797	0.008	0.451	6.395	3.175
Race/ethnicity	0.521	0.252	1.683	1.912	1.482
Log likelihood = -116.2 (*df*=19)					
Model 3					
Differential Association	0.446	0.237	1.562	9.825	2.483
Imitation	-0.051	0.155	0.950	7.008	1.288
Definitions	0.203	0.144	1.225	9.232	1.625
Differential Reinforcement	-0.247	0.210	0.781	5.175	1.179
Age	-0.213	0.293	0.808	4.552	1.434
Gender	-0.132	0.806	0.877	1.807	4.252
SES (lower class)	-3.419**	1.058	0.033	4.113	2.605
Race/ethnicity	3.240**	0.872	25.530	4.626	1.409
Prior victimization	-0.395	1.142	0.674	7.185	6.316
Log likelihood = -110.2 (*df*=21)					

Victimization Count	*B*	Std. Error	Odds Ratio	97% CI Lower Bound	97% CI Upper Bound
Model 1					
Differential Association	-0.006	0.139	0.994	0.757	1.305
Imitation	-0.002	0.062	0.998	0.884	1.127
Definitions	0.230*	0.094	1.258	1.046	1.514
Differential Reinforcement	0.102	0.118	1.107	0.880	1.394
Log likelihood = -383.2 (*df*=11)					
Model 2					
Differential Association	0.178	0.131	1.195	0.923	1.547
Imitation	-0.127*	0.053	0.881	0.794	0.977
Definitions	0.212*	0.084	1.236	1.048	1.457
Differential Reinforcement	0.150	0.101	1.161	0.952	1.417
Age	0.100*	0.043	1.106	1.016	1.203
Gender	-0.504	0.362	0.604	0.297	1.228
SES (lower class)	0.119	0.485	1.126	0.048	2.912
Race/ethnicity	0.582	0.451	1.790	0.740	4.330
Log likelihood = -373.2 (*df*=19)					
Model 3					
Differential Association	0.110	0.129	1.117	0.867	1.438
Imitation	-0.163**	0.062	0.850	0.752	9.600
Definitions	0.261**	0.085	1.299	1.100	1.534
Differential Reinforcement	0.144	0.099	1.155	0.952	1.402
Age	0.107**	0.039	1.113	1.031	1.202
Gender	-0.452	0.394	0.636	0.294	1.377
SES (lower class)	-0.206	0.508	0.814	0.301	2.202
Race/ethnicity	0.491	0.566	1.634	0.540	4.954
Prior victimization	0.875*	0.424	2.398	1.044	5.508
Log likelihood = -343.2 (*df*=21)					

Observation Count	*B*	Std. Error	Odds Ratio	97% CI Lower Bound	CI Upper Bound
Model 1					
Differential Association	0.141	0.122	1.152	0.907	1.463
Imitation	0.030	0.037	1.030	0.958	1.108
Definitions	0.006	0.094	1.006	0.837	1.209
Differential Reinforcement	0.056	0.118	1.057	0.839	1.332
Log likelihood = -603.3 (*df*=11)					
Model 2					
Differential Association	0.056	0.110	1.058	8.536	1.311
Imitation	0.081	0.043	1.084	9.965	1.180
Definitions	-0.039	0.092	0.962	8.027	1.152
Differential Reinforcement	0.015	0.113	1.162	9.319	1.450
Age	0.243	0.131	1.276	9.875	1.648
Gender	0.390	0.365	1.477	7.225	3.019
SES (lower class)	-0.543	0.504	0.581	2.164	1.562
Race/ethnicity	-0.634	0.521	0.530	1.910	1.472
Log likelihood = -591.8 (*df*=19)					
Model 3					
Differential Association	0.066	0.136	1.068	8.186	1.393
Imitation	0.013	0.057	1.012	9.063	1.132
Definitions	0.039	0.112	1.040	8.350	1.295
Differential Reinforcement	0.015	0.123	1.161	9.007	1.495
Age	0.368	0.153	1.445	1.070	1.952
Gender	0.104	0.459	1.110	4.518	2.726
SES (lower class)	-0.434	0.543	0.648	2.235	1.877
Race/ethnicity	-0.575	0.517	0.563	2.041	1.551
Prior victimization	0.921	0.409	2.511	1.126	5.599
Log likelihood = -533.2 (*df*=21)					

Note. Variables labeled with intervals 0 and Inf. indicate that the true values of the parameters are unknown. * indicates statistical significance at the .05 level; ** indicates statistical significance at the .001 level; *** indicates statistical significance at the .000 level.

As can be seen in Table 28, results of the zero-inflated negative binomial count analyses indicated no support for the four hypotheses that predicted significant positive relationships between each of the social learning variables (e.g., differential association, imitation, definitions, and differential reinforcement) and cyber-bullying perpetration. That is, there were not any instances where social learning variables were significant for the perpetration counts. Therefore, the decision was made to accept the null hypotheses; there were no significant positive relationships between the social learning variables – including differential association, imitation, definitions, and differential reinforcement – and cyber-bullying perpetration. Although these findings contradict the majority of research that has been conducted on social learning theory, they are still important nonetheless. Similarly, there were no positive relationships between age, gender, and prior victimization and cyber-bullying perpetration. Therefore, the decision was made to accept the null hypotheses.

The count analyses did, however, indicate support for the hypotheses that predicted significant positive relationships between socioeconomic status (lower class) and race/ethnicity and cyber-bullying perpetration (Model 3). In regard to socioeconomic status, these findings suggest that low socioeconomic status has lower odds of cyber-bullying perpetration than higher socioeconomic status. Specifically, the odds of being lower-class and perpetrating cyber-bullying are .033 times lower than the odds of being higher-class and perpetrating cyber-bullying. It is important to note that the original hypothesis related to socioeconomic status and cyber-bulling perpetration predicted a positive relationship between the two (e.g., those with higher socioeconomic status engage in more cyber-bullying perpetration). The final analyses used a dichotomous measure for socioeconomic status with low socioeconomic status coded as 1 for 'yes' and 0 for 'no,' which resulted in a statistically significant negative relationship.

Nonetheless, the original predicted relationship, those with higher socioeconomic status engage in more cyber-bullying as perpetrators, holds true. Additionally, the findings revealed that in regard to race/ethnicity, the odds of Whites perpetrating cyber-bullying are 25.530 times the odds of minority participants in perpetrating cyber-bullying. Future research can help to establish the relationship among these variables in order to learn more about perpetrators.

Holding all else constant, the multivariate analysis yielded several significant relationships between social learning variables and cyber-bullying victimization (Model 3). In addition, the demographic variable age and the control variable, prior victimization, were also related to victimization at the multivariate level. More specifically, there was a significant positive relationship between definitions and victimization and a significant negative relationship between imitation and victimization. These findings suggest that the odds of holding attitudes supportive of cyber-bullying behaviors and experiencing cyber-bullying victimization are 1.299 times the odds of not holding attitudes that are supportive of cyber-bullying behaviors and experiencing victimization. Conversely, and contrary to what was expected, the findings revealed that the odds of imitating cyber-bully behaviors and *not* experiencing victimization are 0.850 times the odds of imitating cyber-bully behaviors and experiencing victimization.

In addition, there was a significant positive relationship between age and victimization, and prior victimization and victimization. These findings suggest that the odds of older students experiencing cyber-bullying victimization are 1.113 times the odds of younger students experiencing victimization. In addition, the findings revealed that the odds of individuals who have been victimized prior to college experiencing victimization are 2.398 times the odds of those who have not been victimized prior to college experiencing victimization while in college. There were not any instances where variables that measured differential association and

differential reinforcement were significant for the victimization counts. Additionally, there were no instances of significance between gender, socioeconomic status, and/or race/ethnicity. Therefore, the decision was made to accept the null hypotheses; there were no significant positive relationships between these variables and cyber-bullying victimization.

Finally, results of the zero-inflated negative binomial count analyses indicated no support for the four hypotheses that predicted significant positive relationships between each of the social learning variables and cyber-bullying observation. Similarly, there were no positive relationships between age, gender, socioeconomic status, race/ethnicity, and prior victimization and cyber-bullying observation. Therefore, the decision was made to accept the null hypotheses for all of the variables of interest. Although the current study did not find any significant positive relationships, future research can help to better establish the relationships among these variables to learn more about witnesses of cyber-bullying behaviors.

Several implications can be drawn from these results. For one, it is possible that the theory did not apply to the sample. It is also likely that the results were affected by the way cyber-bullying was defined and measured in the study. It is also possible, however, that social learning theory does not apply to cyber-bullying. Although confounding variables could have impacted these results, future research can help to determine if the behaviors are learned. Given the support that the victimization counts received in regard to social learning variables, it is certainly worth exploring.

Conclusion

In summary, findings from this study suggested that there are several factors that contribute to an individual's involvement in cyber-bullying victimization, perpetration, and observation. For example, in relation to cyber-bullying victimization, prior victimization and age appear to be relevant variables in need of more exploration. In addition, there were statistically significant relationships found between perpetration and variables measuring race/ethnicity and socioeconomic status. There were, however, no significant findings related to observation for either social learning variables, demographic, or control variables.

More importantly however, the results from the zero-inflated negative binomial regression models indicated some support for social learning theory as a viable explanation for cyber-bullying victimization, especially when considering definitions and imitation. It is important to note, however, that imitation had a statistically significant negative relationship with victimization when controlling for prior victimization, a finding that was not anticipated. None of the social learning variables were significant in relation to cyber-bullying perpetration or observation.

The results from current study also indicated support for a few of the demographic/control variables. Specifically, a positive significant relationship occurred between socioeconomic status and cyber-bullying perpetration, and race/ethnicity and cyber-bullying perpetration. In addition, a positive significant relationship was found between age and cyber-bullying victimization and prior victimization and cyber-bullying victimization. Conversely, none of the demographic/control variables were significant in relation to cyber-bullying observation.

The following chapter summarizes the major findings of the study, including those associated with the research questions and hypotheses. Additionally, the chapter discusses how current findings relate to other criminological research, particularly those that focus on social learning theory and cyber-bullying behaviors. The chapter concludes with discussion of limitations and strengths of the study in order to serve as a framework for future analyses of college cyber-bullying. Suggestions of how to approach future research are also discussed.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Evidence suggests that the frequency and severity of cyber-bullying, both in and out of schools, becomes greater as students reach higher levels of education (Li, 2006). In addition, research demonstrates that the aggressive behaviors that characterize cyber-bullying are found among college students who are regular consumers of technology (Akbulut & Eristi, 2011; Dilmaç, 2009; Finn, 2004; Hinduja & Patchin, 2009; Kraft & Wang, 2010; Walker et al., 2011). Yet, prior studies demonstrate that college students are rarely explored in cyber-bullying literature (Smith & Yoon, 2013; Ybarra & Mitchell, 2007). Considering that college students are heavy consumers of media and technology, they face issues that previous generations did not.

This study aimed to determine how well social learning variables predict cyber-bully perpetration and increase awareness of the cyber-bullying phenomenon by describing and explaining cyber-bullying among college students using a quantitative analysis of their experiences as victims, perpetrators, and observers. Social learning theory, which is one of the most important, influential, and tested theories in the field of criminology (Ellis & Walsh, 1999; Stitt & Giacopassi, 1992; Wolfgang et al., 1978), posits that people learn deviant behavior in the same manner and fashion as they learn non-deviant behaviors (Akers, 1998, 2009). Specifically, the four major concepts – differential association, differential reinforcement, imitation, and definitions – concern the attitudes toward criminal behavior and stimuli, as well as the balance of rewards and punishments, gained from committing a criminal act (Brauer, 2012). The following section includes a summary and discussion of the major findings from this study. Additionally, a discussion of the conclusions that were drawn in regard to cyber-bullying among college students, as well as how the behavior relates to social learning theory, are presented. An

overview of strengths and limitations is also included in this chapter, followed by a discussion of policy implications and suggestions for future research.

Summary of the Findings

Social Learning and Cyber-Bullying

According to social learning theory, individuals make rational decisions about whether or not to interact with peers who engage in deviant acts (Akers, 1985, 1998; Akers et al., 1979). It is through interactions, or differential associations, with others, that individuals learn values, attitudes, techniques, and motives to rationalize behavior as being socially desirable or undesirable (Akers, 1998, 2009; Brauer, 2012; Sutherland, 1947). Therefore, this study was concerned with how well social learning variables predict cyber-bullying perpetration. Specifically, it was hypothesized that there would be a significant positive relationship between cyber-bullying perpetration and each of the four variables that make up social learning theory which includes definitions, differential association, differential reinforcement, and imitation. As previously mentioned, research on cyber-bullying and theoretical foundations is scarce, thus, findings from the current study that tested social learning variables are useful for gaining insight about the phenomena. In addition, cyber-bullying victimization and observation were also included in multivariate models due to several significant bivariate correlations that suggested a relationship between these dependent variables and various social learning variables and extant research that suggests those who experience cyber-bullying behaviors may do so through a variety of roles (e.g., perpetrator, victim, and/or observer) (Ancak, 2009; Baroncelli & Ciucci, 2014; Espelage & Swearer, 2003).

Differential association. According to social learning theory, criminal and deviant behaviors are most likely to occur when a person differentially associates with deviant others (Akers, 1998, 2009). Therefore, differential associations reveal the amount of exposure one has to criminal or deviant behavior (Akers, 1998, 2009; Brauer, 2012). In addition, differential associations, particularly those which occur between family and friends, provide a social context in which mechanisms of social learning operate (Akers & Jennings, 2009; Akers & Sellers, 2013).

In the current study, predictors of cyber-bullying perpetration were initially examined. The zero-inflated negative binomial regression count models did not indicate that a statistically significant relationship between differential association and perpetration. It is important to note that social learning theory contends that the process of learning criminal behavior is not simply a matter of associating with criminals or non-criminals because the process of learning varies according to the modalities of association (Akers, 2002). Instead, an individual is more likely to engage in crime if they have early exposure (priority), frequent occurrences (duration), and greater intensity (importance) toward definitions favorable toward law violation that occur through their differential associations (Akers, 1985, 1998; Akers & Sellers, 2013). Though these concepts were not examined in this study, follow up research involving cyber-bullying perpetration should consider this notion in order to study the measure in the best way possible. Furthermore, differential association was not significantly related to either cyber-bullying victimization or observation.

Imitation. According to social learning theory, modeling or imitation occurs when an individual engages in a behavior after observing others doing the same (Akers, 2001; Akers & Sellers, 2013). Akers argued that people are more likely to exhibit behaviors similar to those of

family members and close friends because they serve as important models in one's life (Akers, 1998). Therefore, the current study examined imitation by inquiring about how much participants learned about cyber-bullying from their family and close friends, in addition to other sources of influence such as peers, books/magazines, television/movies, and websites.

The variable measuring imitation generated interesting findings for the zero-inflated negative binomial regression count models. For example, the count model indicated that there was a statistically significant negative relationship between imitation and victimization. Conversely, imitation was not significantly related to either cyber-bullying perpetration or observation. Findings from the current study suggest that when individuals observe other people engaging in cyber-bullying behaviors, they are less likely to be victimized regardless of whether or not they had experienced cyber-bullying victimization prior to college. In other words, those with higher levels of imitation are less likely to be victimized. One potential explanation for this finding is that there may potentially be some type of isolating effect that comes from observing cyber-bullying from a variety of sources. It should be noted, however, that imitation has previously been recognized as a weak social learning variable (Akers et al. 1979), therefore future studies should develop measures that can capture imitation independently from other influences (Kubrin et al., 2009).

Definitions. The last social learning variable to demonstrate significant findings using zero-inflated negative binomial regression count models was the variable measuring definitions. According to social learning theory, definitions consist of rationalizations and attitudes that determine whether or not something is right or wrong and are learned just as any other behaviors are learned (Akers, 1985; Williams & McShane, 2010). Moreover, definitions of an individual's behavior are a central component to Akers' (1985) social learning theory, as individuals learn in

a process of differential association (Sutherland, 1949; Kubrin et al., 2009). Although definitions are difficult to measure, given the challenge of measuring the ratio of definitions favorable versus definitions unfavorable (Matsueda, 1988; Kubrin et al., 2009), the current study examined the variable by inquiring about participants' attitudes about various statements including 'cyber-bullying doesn't hurt anyone,' 'it is alright to cyber-bully someone if you can get away with it,' 'I have a lot of respect for someone who cyber-bullies another person,' and 'cyber-bullying is morally wrong.'

Study findings indicated that the definitions variable was statistically significant in relation to cyber-bullying victimization, but not observation or perpetration. Therefore, the results from the current study suggest that the way that individuals perceive cyber-bullying can ultimately impact whether or not they are victimized themselves. That is, those who are supportive of cyber-bullying behaviors are more likely to be victimized. Future research can help determine more about definitions as a predictor of victimization including how the ratio of definitions favorable versus definitions unfavorable can be measured more accurately (Matsueda, 1988; Kubrin et al., 2009).

Certainly, as these findings indicated, not only are social learning variables worthy of further exploration, but cyber-bullying is complex, especially when considering the cyclical nature of the behavior. This has already been pointed out by researchers who note that it is difficult to classify an individual's role in cyber-bullying because they may be a victim, a perpetrator, or an observer of cyber-bullying on multiple occasions (Espelage & Swearer, 2003). Despite these barriers, the current study offers a starting point for researchers to consider when examining the learning of cyber-bullying behavior from a social learning perspective.

There are several possible explanations for the finding that perpetration was not predicted by social learning theory variables. First, there were some issues with measuring cyber-bullying behaviors within the study sample. Specifically, there were differences in variability between the first and second measures of each of the dependent variables, including perpetration, which necessitated the dichotomization of all three dependent variables. Considering the broad scope of behaviors predicted by social learning theory in prior research., it is possible that the dependent variables might have suffered from measurement error. In addition, participants who were identified in the study as perpetrators might not have perceived themselves to be cyber-bullies, which could have lead them to underreport, or inaccurately estimate, their actual involvement in cyber-bullying. Therefore, future researchers should utilize alternate measures of cyber-bullying, especially perpetration, in order to confirm or refute findings. This same approach should be taken with measures of social learning variables.

Differential reinforcement. Differential reinforcement is defined as the balance of actual or anticipated rewards and punishments that are consequential of an individual's behavior (Akers, 1998, 2001). According to social learning theory, an imbalance in differential reinforcement increases the likelihood of a behavior by operating through four key modes, which include positive reinforcement, negative reinforcement, positive punishment, and negative punishment (Akers & Jennings, 2009). Differential reinforcement did not produce significant findings for any of the three dependent variables in the current study. There are several possible explanations for the finding that cyber-bullying perpetration, victimization, and observation were not predicted by differential reinforcement. For example, the variable may not have been measured accurately enough to represent the modes (e.g., positive reinforcement, negative reinforcement, positive punishment, and negative punishment). In addition, individuals interpret

and experience rewards and punishments differently from each other. Some Internet users might act differently online than they would in real life in order to gain respect and acceptance from their peers. Certainly, behaviors are more likely to be repeated if they are reinforced or rewarded (Pratt et al., 2010). In addition, the current study did not include any specific measures to represent the amount, frequency, and probability of differential reinforcements (Akers, 1998). Future research can help to isolate these variables and determine how influential differential reinforcements are on an individual's behavior.

Demographic Variables

Public policy and academic dialogues surrounding cyber-bullying have prompted researchers to examine characteristics of bullies (Cesaroni et al., 2012), however the cyber-bullying literature has resulted in mixed findings (Dilmaç, 2009; Finn, 2004; Kowalski & Limber, 2007). The current study examined gender, age, race/ethnicity, and socioeconomic status in relation to cyber-bullying perpetration, victimization, and observation. The current study found that females were more likely to experience cyber-bullying as victims than males, though gender was not significantly related to victimization in the final regression models. In addition, findings also suggested that females below the age of 25 who come from middle or lower-class families are most likely to be victimized. Interestingly, female participants reported spending more time using social media than males, which may explain why they had experienced more cyber-bullying than males.

Prior research reports mixed findings regarding the gender of cyber-bullies (Vandebosch & Van Cleemput, 2009), however males were often found to be the perpetrators of cyber-bullying (Ancak, 2009; Dilmaç, 2009; Raskauskas & Stoltz, 2007). In line with this research, the current study found that males were more likely than females to be perpetrators of cyber-bullying

(69.2% versus 30.8%). Research and statistics have consistently shown that men are more likely to commit crime than women. For example, in 2015, 73.1% of individuals who were arrested in the United States were males. Men also accounted for 79.7% of violent crime and 61.7% of property crimes in the country (Federal Bureau of Investigation [FBI], 2016).

Socioeconomic status was one of only two significant findings in the final negative binomial regression models that related to cyber-bullying perpetration. That is, the current study found that individuals from higher social classes cyber-bully more than those individuals from the lower-class. It is logical to assume that individuals can only cyber-bully other people if they are financially stable enough to have regular access to the Internet, albeit through a computer, smart phone, or similar device. Since all students in the current study reported owning a cell phone, additional research regarding socioeconomic status is needed in order to flesh out the relationship between financial well-being and participation in cyber-bullying as perpetrators. As this study has indicated, the variable is worthy of further exploration.

In addition, the current study found that race/ethnicity was a significant factor in relation to perpetration of cyber-bullying among college students. These findings indicate that white college students were more likely to cyber-bully others than non-whites. There is currently a lack of research that analyzes cyber-bullying perpetration by race/ethnicity in samples of college students, therefore, this finding is especially useful for future studies. Indeed, most cyber-bullying literature that discusses race/ethnicity focuses on victims rather than on the cyber-bullies themselves. Therefore, more research is needed in order to justify why these differences in racial categories exist. In addition, future studies should also consider the likelihood of intersectionality between race and socioeconomic status as they relate to perpetration.

Similar to previous research (Kowalski & Limber, 2007; Patchin & Hinduja, 2006; Raskauskas & Stoltz, 2007), this study also found that the chances for cyber-bullying victimization increased as people grow older. In addition, findings suggest that college students were also more likely to observe cyber-bullying as older adults. Other researchers agreed that students were verbally and physically bullied less, but cyber-bullied more as they age (Ryoo, Wang, & Swearer, 2015). Certainly, cyber-bullying is serious in any context and at any age, however the findings suggest that the college culture makes it easier for perpetrators to target others. As the current study found, victimization and observation are more likely to occur for college-aged adults than perpetration. Given that college students utilize technology on a regular basis and they have more freedom to browse the Internet compared to someone who is being supervised such as a child or adolescent, it makes sense that they have more exposure to cyber-bullying behaviors. The more time an individual spends online, the more opportunities they have to observe cyber-bullying as it occurs. Likewise, people who spend a lot of time online, such as college students, have more chances to be targeted by a cyber-bully compared to individuals who do not utilize technology as much.

In summary, more research is needed to better understand the demographics of college-aged cyber-bullying. Future studies should also consider researching additional issues that relate to cyber-bullying including substance use, delinquency, and interpersonal violence (Aseltine et al., 2000; Broidy & Agnew, 1997; Mazerolle et al., 2000; Mazerolle & Piquero, 1998; Mitchell, Ybarra, & Finkelhor, 2007). By exploring demographic information further, researchers will be able to compare and contrast victimization, observation, and perpetration rates across groups. In addition, demographics help researchers determine patterns and prevalence rates.

Cyber-Bullying Among College Students

As noted by researchers, cyber-bullying is a unique phenomenon (Katzer et al., 2009; Kowalski & Limber, 2007; Patchin & Hinduja, 2006; Vandebosch & Van Cleemput, 2008; Ybarra & Mitchell, 2004). The phenomenon, which is rooted in traditional bullying, is complex because it occurs repeatedly which means that victims are exposed to the behavior over a period of time (David-Ferdon & Hertz, 2007; Olweus, 1999; Vandebosch & Van Cleemput, 2008, 2009). Certainly, cyber-bullying is difficult to address since the behavior occurs virtually, in an online environment rather than in real-life, where situations are more easily controlled (Amando et al., 2009). Given the nature of technology, including the Internet, countless media users can witness evidence of cyber-bullying incidents (Patchin & Hinduja, 2006; Vandebosch & Van Cleemput, 2009). Moreover, evidence of cyber-bullying is often easily manipulated (Erdur-Baker, 2010; Vandebosch & Van Cleemput, 2009) and permanent once it is online (Hay et al., 2010; Patchin & Hinduja, 2006).

In order to understand more about cyber-bullying, typologies of perpetrators were developed so that the behaviors could be predicted (Cesaroni et al., 2012). However, it is difficult to classify an individual's role in cyber-bullying because they may be a victim, a perpetrator, and/or an observer of cyber-bullying on multiple occasions (Espelage & Swearer, 2003). In addition, literature suggests that the experiences of victims and offenders overlap (Berg & Felson, 2016; Cuevas et al., 2007; Jennings, 2016; Jennings et al., 2012; Lauritsen & Laub, 2007; Moore, 2013; Schreck & Stewart, 2011; Singer, 1981; Widom, 1989). Thus, several of the most pressing research questions undertaken by this study pertained to the prevalence and nature of cyber-bullying victimization, observation, and perpetration.

Prevalence of Cyber-Bullying Victimization

Research traditionally demonstrated that 10% to 34% of college students are cyber-bullied (Hinduja & Patchin, 2010; Smith & Yoon, 2013; Walker et al., 2011). The current study's findings are in line with this research. Specifically, this study found that 33.4% of students in the sample were cyber-bullied since being in college. Furthermore, the study's results are confirmed by national data on more recent trends in victimization. Data from the National Crime Victimization Survey (NCVS) indicated that 28.5% of students experienced bullying behaviors in 2005 (Bureau of Justice Statistics, 2015). However, recent studies that utilized national data found that 34.0% of students had experienced cyber-bullying in their lifetime (Hinduja & Patchin, 2015).

Not surprisingly, the current study found that victimization occurred most often through social media (8.1%), followed by text messages (6.1%), and pictures and videos (3%). Prior research that examined college populations demonstrated that cyber-bullying often occurs on these platforms as well (Crosslin & Golman, 2014; Finn, 2004; Francisco et al., 2015; MacDonald & Roberts-Pittman, 2010; Munawar et al., 2014; Walker et al., 2011). Moreover, victims also experienced incidents of flaming (58.6%), online harassment (36.4%), and outing (28.3%) more often than other types of cyber-bullying. These findings add to current literature that suggests that these specific cyber-bullying behaviors take place online among college populations (Akbulut & Eristi, 2011; Crosslin & Golman, 2014).

Reporting cyber-bullying victimization. College students agree that cyber-bullying is deserving of more attention (Crosslin & Golman, 2014). Reporting cyber-bullying behaviors can be challenging though. Although college students are typically encouraged to talk with faculty or staff about problems, previous studies found that victims of cyber-bullying perceive adults as ill-

equipped to help them with incidents of cyber-bullying, making them feel helpless about the situation (Hay et al., 2010; Hinduja & Patchin, 2015). Complicating the cyber-bullying phenomenon further, technology allows for victims to be bullied anywhere at any time, which makes it incredibly difficult to supervise and fully regulate the behaviors (Hinduja & Patchin, 2009; Nansel et al., 2001; Patchin & Hinduja, 2006). Regardless, prior research suggests that third-party witnesses to cyber-bullying play an important role in interventions (Carter, 2013).

Similar to previous studies (Finn, 2004; Kraft & Wang, 2010; Walker et al., 2011), the current research found that 34.3% of the students (*n*=34) who were cyber-bullied did not report their victimization to an authority figure. Conversely, 22.2% of the victims (*n*=22) did confide in someone else. Specifically, most of the victims spoke with either a friend (21.2%) or a parent (14.1%). Previous studies, however, indicated that students often reported their victimization to other parties, including their Internet service provider, a residence hall advisor, a computer help desk, or campus police (Finn, 2004). Therefore opportunities for reporting of cyber-bullying should be considered from other avenues beyond only friends and parents.

Research by Finn (2004) indicated that despite their attempts to stop the cyber-bullying, students were frequently unhappy with the resolution of their reporting. Prior research showed mixed reactions from students about how they handled the reporting of cyber-bullying behaviors. For example, some students reported talking to their friends about their victimization (Paullet & Pinchot, 2014), while others avoided friends and peers altogether (Schenk & Fremlouw, 2012). Moreover, some students indicated that they did not report their victimization because they wanted to feel independent and autonomous from the rest of the student body population (Crosslin & Golman, 2014). In other situations, students relied more on their own sources for a

resolution to cyber-bullying problems rather than seeking outside help (Crosslin & Golman, 2014).

In some cases, when students reported their victimization, they were able to resolve their incidents, though generally not by using formal means. For example, the current study found that very few had dealt with the cyber-bullying by filing a police report (1%) or notifying someone at the university (1%). Moreover, 8.1% of victims confronted their cyber-bully and told them to stop the behavior, which they did. These findings suggest that victims should make every attempt to speak out against those who cyber-bully them online. Although there are times when incidents of cyber-bullying may not be resolved (7.1%), or cyber-bullies may not stop after being told to do so (3%), when victims stand up for themselves, perpetrators may become less interested in targeting them.

As the current study demonstrated, not only is cyber-bullying prevalent on college campuses, but it warrants special attention because of the harmful consequences that can result from the behavior (Hinduja & Patchin, 2010). Based on the many scenarios that can occur in regard to cyber-victimization and perpetration, more research is needed in order to fully understand the extent of the behavior, and to explore the trials of reporting (Wang et al., 2009). Cyber-bullying remains a challenging phenomenon to research and supervise in college settings, largely due to inconsistencies in reporting victimization rates according to age, the expansion of media, and the proliferation of media use among young adults (Wensley & Campbell, 2012). Therefore, additional studies are needed in order to gain insight about the extent of cyber-bullying victimization among college-aged adults (Wang et al., 2009).

Prior victimization. Similar to findings from previous research (Gibb & Devereux, 2014; Kraft & Wang, 2010; Zalaquett & Chatters, 2014), the current study found evidence that

prior victimization in high school is a significant risk factor for being cyber-bullied in college. Specifically, the current study demonstrated that prior victimization contributed significantly to the zero-inflated negative binomial regression model that measured victimization. Importantly, this finding suggests that participants who experienced cyber-bullying before reaching college were more likely to be involved with cyber-bullying as victims, but not perpetrators or observers. Even though there have been inconsistencies in the reporting of victimization rates for a variety of reasons (Wensley & Campbell, 2012), this study expands the current knowledge of the cyber-bullying phenomenon by indicating that these behaviors are typically not isolated and they can span the course of years.

Awareness of cyber-bullying victimization. In order to understand more about how college-aged students perceive cyber-bullying, the current study inquired about students' knowledge of the behavior, including its prevalence on campus and awareness of other students' cyber-bullying victimization. It was largely determined that most college students are aware of what behaviors constitute cyber-bullying. In fact, 94.6% of the participants in this study were familiar with the term cyber-bullying. These findings were not surprising since it was also found that most of the students in the sample were heavy users of media. Certainly, other studies have found that young people rely on social networking, instant messaging, blogs, and text messages to communicate and interact with one another (Hinduja & Patchin, 2008). Therefore, it should not be surprising that computers and cellular phones are the two primary electronic devices bullies employ to victimize others from afar (Dilmaç & Aydoğan, 2010).

Prior studies suggest that the most popular means of cyber-bullying occurs through text messaging, instant messaging, and Facebook (Walker et al., 2011). Other research indicates that cyber-bullying takes place on social networks most often (Ellison & Boyd, 2013). The current

study found that although most college-aged adults recognize that cyber-bullying incidents are performed over various forms of electronic media, only about a quarter (26.2%) of them mentioned social media as an example of where it takes place with very few mentioning other media such as phones (3.2%), emails (2.2%), applications (0.3%), blogs (0.3%), websites (1.2%), videos (2.9%), and pictures (3.9%). The remaining 59.8% of the sample did not indicate where cyber-bullying took place most often.

The current study found that a few respondents (4.7%) recognized that cyber-bullying behaviors are psychologically harmful to victims with some (2.9%) mentioning that the behavior can occur on more than one occasion. Interestingly, when discussing perceptions of cyber-bullying, students only recognized the psychological consequences that can occur after victimization. That is, students did not mention anything related to educational consequences. However, the educational consequences suffered by victims are detrimental to their success. In addition, only a very small portion of students (0.3%) made mention of reputational damage or blackmail that can result from cyber-bullying.

Study findings also indicated that 16.9% of students had knowledge of others' victimization since they have been in college. Therefore, even if students had not personally experienced cyber-bullying, a number of college-aged adults know of someone else who had been victimized. In addition, the current study found that 21.5% of students who observed cyber-bullying tried to intervene. This information suggests that third-party witnesses play an important role in preventing cyber-bullying victimization and they are familiar with intervention techniques. Although prior research found higher prevalence rates of college students who reported that they knew someone who was cyber-bullied (MacDonald & Roberts-Pittman 2010), the current study provides a useful estimate of prior victimization and adds to our knowledge

about the phenomenon. These findings are especially important because, in order to intervene or assist someone who is experiencing issues related to cyber-bullying, students must first be aware of the behaviors, including how they impact those involved.

Psychosocial Consequences of Cyber-Bullying

Similar to previous research that has examined a myriad of harmful consequences of college cyber-bullying (Belsey, 2005; Beran & Li, 2005; David-Ferdon & Hertz, 2007; Dooley, et al., 2009; Gilroy, 2013; Hinduja & Patchin, 2007; Langos, 2014; Mitchell et al., 2007; Patchin & Hinduja, 2006, 2011; Raskauskas & Stoltz, 2007; Willard, 2005; Ybarra & Mitchell, 2007), the current study found that when students were cyber-bullied or witnessed cyber-bullying among peers, they experienced a great deal of emotional and psychological distress including feelings of anger, frustration, stress, self-consciousness, sadness, anxiety, embarrassment, and fear. Therefore, this research extends much of what is known about the consequences of cyber-bullying and illustrates that it is important to understand the relationship between cyber-bullying, mental health, and suicide, especially since suicide is the second leading cause of death for individuals 15-24 years old (Drapeau & McIntosh, 2015) and because peer victimization is related to an increased chance of suicidal ideation and suicide (Gini & Espelage, 2014). Therefore, it behooves college administrators to take notice of cyber-bullying as a public health issue, in order to prevent future incidents.

Educational Consequences of Cyber-Bullying

Prior research demonstrates that victims of cyber-bullying suffer educationally as well as psychologically (Beran & Li, 2005; Schneider et al., 2012; Ybarra et al., 2007). The majority (59%) of the respondents indicated that they did not experience any educational consequences, however, there were a few students (n=10, 10.1%) who reported experiencing these

consequences. The current study supported these findings, with some victims indicating that their grades and ability to concentrate were affected as a result of being cyber-bullied. In addition, several victims did not attend class regularly as a result of cyber-bullying. Finally, victims also struggled with relationships with other peers as a result of cyber-bullying victimization. Based on these findings, universities are in ideal positions to educate young adults about appropriate ways to socialize with others online as well as how to report victimization and obtain help and additional resources. Not doing so may jeopardize students' educational success.

Prevalence of Cyber-Bullying Observation

The extensive use of technology and social media outlets allow for greater opportunities for cyber-bullying (Gilroy, 2013; Mishna et al., 2010). Additionally, the Internet and technology allow for such a large audience of witnesses, third-party observers to cyber-bullying are unlimited (Kowalski & Limber, 2007; Wolak et al., 2007). Therefore, it is likely that college-aged adults will observe cyber-bullying behaviors at some point. Not much is known about third-party observers to cyber-bullying because very few empirical studies considered observation as extensively as cyber-bullying victimization and perpetration (Carter, 2013; Kowalski & Limber, 2007; Lenhart et al., 2011; Mishna et al., 2010; Wolak et al., 2007). However, studies have found that a large portion of online users – between 47% and 69% of college students - witnessed other individuals engaging in cyber-bullying (Lenhart et al., 2011; Patchin & Hinduja, 2006; Paullet & Pinchot, 2014). Other research found that one quarter of cyber-bullying occurs in the presence of others (Mishna et al., 2010). This study found that at least 45% of the sample (n=135) witnessed cyber-bullying behaviors since attending college. In fact, 120 witnesses (88.9%) indicated that they observed cyber-bullying on more than one occasion. Moreover, most of the observers indicated that they witnessed flaming (86.7%) during most incidents, followed by denigration

(57.0%), and online harassment (50.4%). In addition, 47.2% of the incidents were observed on social media websites.

Observers' courses of action. Third-party witnesses are unique to the cyber-bullying phenomenon because they can play a proactive role in the behavior by intervening and breaking the cycle of cyber-bullying (Carter, 2013). They can also help others by reporting the behavior (Carter, 2013). However, there are challenges to these responses. For example, the current study found that 67.4% (*n*=91) of the students in the sample did not attempt to stop the cyber-bullying after having witnessed it. Some students indicated that they did not intervene because they did not know the people who were being targeted (12.6%) and because it was not any of their business or concern (10.3%). Others noted that there was not anything that they could have done to prevent the behavior (5.2%). Going forward, one must consider that although it may not happen in all instances, there are many individuals who are willing to intervene in cyber-bullying for the sake of those being attacked by perpetrators, which is beneficial to victims who may feel helpless.

This study found that a small portion of the sample (21.5%) tried to intervene after having observed cyber-bullying. Interestingly, several students (11.9%) reached out to the perpetrator directly and told them to stop bullying the target. A smaller number of students spoke directly with victims to see if they needed help (3%). Based on these results, it can be said that student responses to cyber-bullying will vary, however if students knew of a friend who was being cyber-bullied, they may be less hesitant to become involved as opposed to a stranger or mere acquaintance. Findings from this study also imply that students may intervene for ethical reasons. For example, seven students in the sample (5.2%) indicated that they intervened with the cyber-bullying incident because they knew that the behavior was wrong and immoral.

Indeed, researchers already noted that students must make ethical considerations of which content is appropriate to post online (Kraft & Wang, 2010). Therefore, future research can certainly help determine more about what motivates students to intervene. In addition, future policy implications should consider placing greater emphasis on moral reasoning in secondary schools or including ethics classes in college curriculum.

Prevalence of Cyber-Bullying Perpetration

In order to understand the nature and scope of cyber-bullying, the current study included measures to analyze individuals who were responsible for targeting other people online. Evidence suggests that there are often pre-existing relations between cyber-bullies and their victims. For example, previous research shows that some students who are cyber-bullied know their cyber-bully (Francisco et al., 2015; Walker et al., 2011). In fact, many times, perpetrators are peers (Francisco et al., 2015). As this study found, in some cases, the perpetrator was affiliated with the same university as the victim (10.1%). Interestingly, this study also found that 34.6% of perpetrators targeted their close friends and 15.4% targeted their ex-partners. In addition, 15.4% of perpetrators cyber-bullied their co-workers, while others targeted either a parent/guardian (3.8%) or their partner/spouse (3.8%). Therefore, in order to help victims, policy makers and administrators should consider ways to improve social relationships, especially among peers, such as through counseling or mediation. Moreover, counseling should also be available for parents and children.

Often, college-aged adults cyber-bully others because of interpersonal problems with others (Akbulut & Eristi, 2011) or because they wanted to retaliate against others (Croslin & Golman, 2014). In other cases, cyber-bullies target others in order to anger or embarrass them, or to invoke feelings of fear or sadness (Francisco et al., 2015). The current study expands our

current knowledge of cyber-bullying by finding that college-aged cyber-bullies also seek revenge because of rumors being said about the perpetrator (3.8%) or because the victim angered them (7.6%). Students also expressed that they cyber-bullied others because the victim betrayed or embarrassed them (0.10%). Not surprisingly, disagreements and arguments also led to cyber-bullying (26.6%). Indeed, the Internet is the perfect place do serious harm to someone's reputation and psyche. While technology will continue to evolve, more attention should be paid to improving interpersonal relations among college-aged adults. Therefore, more efforts should be made to improve prosocial coping skills; these efforts should begin early, such as during elementary or secondary schools, with additional support in college. Intervention should also include referrals for mental health services and counseling for both victims and perpetrators of cyber-bullying, especially since both parties can experience negative consequences.

Strengths and Limitations

Strengths

Modern times call for researchers to investigate more about the complexities of college students' online behaviors since they can result in harmful psychosocial and educational consequences (Beran & Li, 2005; Hinduja & Patchin, 2007; Kowalski et al., 2012; Langos, 2014; Mitchell, Ybarra, & Finkelhor, 2007; Patchin & Hinduja, 2006, 2011; Raskauskas & Stoltz, 2007; Ybarra & Mitchell, 2007). It is already widely accepted that cyber-bullying behaviors are associated with substance use, delinquency, and interpersonal violence among youth and young adults (Aseltine et al., 2000; Broidy & Agnew, 1997; Mazerolle et al., 2000; Mazerolle & Piquero, 1998; Mitchell, Ybarra, & Finkelhor, 2007). More importantly, however, cyber-bullying is a concern for college students because it has been linked to suicidal behavior (Patchin & Hinduja, 2011).

The current research acquired rich data about cyber-bullying behaviors which establish groundwork for future research on cyber-bullying among college populations. With knowledge of cyber-bullying incidence in a stage of infancy, this study provided a deeper understanding regarding this phenomenon and helped to identify key variables for future analyses. While most cyber-bullying literature examined the behavior as it occurs through text messages and websites, this study also expanded upon previous research by including more modern components, such as applications and reality gossip blogs, in order to better reflect college students' use of media. Finally, this study is valuable to cyber-bullying literature because it approached the phenomenon holistically to consider the trajectories of perpetrators, victims, and observers.

Perhaps most importantly, this research served as the first study to examine cyber-bullying from a social learning perspective by testing social learning variables to determine the degree to which social learning theory (Akers, 1998, 2009) predicts the occurrence of cyber-bullying among college students. While social learning theory has been utilized to examine a multitude of criminal and deviant behaviors, none to date explored cyber-bullying. Therefore, this research contributed to the literature by offering another phenomenon in which this theoretical framework can be applied. The current study found that Ronald Akers' (1998, 2009) Social Learning Theory, specifically differential association, imitation, and definitions are worthy of further exploration as they relate to cyber-bullying victimization. This information is important, because it indicates that cyber-bullying behaviors may be learned from others, just like other behaviors, which is one of the main propositions of Akers' (1998, 2009) social learning theory.

Limitations

Despite its strengths, the current study also suffered from limitations. The most pressing limitation in the current study involved the use of open-ended count items to refer generally to cyber-bullying behaviors which resulted in missing data within the dependent variables and led to the use of zero-inflated negative binomial regression analyses. Future studies should consider other ways of measuring cyber-bullying victimization, perpetration, and observation, such as behavior-specific measures or Likert-scale responses, which are likely to yield greater variability in responses.

Findings from this study cannot be generalized to any other group of college students, geographic area, culture, or time (Bachman & Schutt, 2014). Therefore, the final findings of this study are only specific to the university in which it took place. In addition, the nature of the cross-sectional research design prevents assessment of causality between social learning and cyber-bullying variables (Bachman & Schutt, 2014). It is important to note, however that much of the quantitative research that relates to social learning theory includes linear models that are based on survey data analyses (Akers & Jenson, 2006).

Policy Implications and Directions for Future Research

Theoretical Implications

Social learning theory has received positive feedback from the academic community, given its strong empirical support, however this study found that not all of the underlying variables that make up social learning theory resulted in statistical significance. That is, definitions and imitation predicted victimization but did not predict the primary outcome variable, cyber-bullying perpetration, as was anticipated. In addition, the were not any social learning variables that were positively significant in terms of observation. Given the importance

of differential association, definitions, imitation, and differential reinforcement to social learning processes, this study demonstrates that the variables that make up social learning theory are worthy of further exploration in relation to college cyber-bullying.

One of the most significant findings of the current study indicated that there were significant relationships between both definitions and imitation and cyber-bullying victimization. These models should be examined further in order to determine their effectiveness in predicting cyber-bullying behaviors, especially victimization. These findings can help to identify those most at risk of being targeted cyber-bullied. Despite not finding any relationships between social learning variables and perpetration and observation, the two phenomena warrant further exploration, especially in regard to college populations which is where a great deal of social learning take place. Future studies should examine each of the variables separately, or in combination with other, and should also explore perpetration using other theories.

Implications for Cyber-Bullying Research

Based on the observations outlined in the current study, there remains a need for more critical, theoretical analysis of college students' online experiences. There is, however, a paucity of empirical studies that have examined cyber-bullying from a theoretical perspective (Xiao & Wong, 2013). Future studies should examine prior research findings on models, propositions, and variables that characterize social learning theory (Akers & Jenson, 2006). Moreover, future research should explore other theoretical models in addition to social learning theory, such as routine activities theory, general theory of crime, or general strain theory since findings from the current study suggest that perpetration often results from strain/positive coping. Fortunately, the research design in this study allowed for the comparison of several different variables at the same time, including social learning variables. For example, the study examined age, gender,

race/ethnicity, and socioeconomic status in relation to cyber-bullying perpetration, victimization and observation. Therefore, while causation cannot be established, this study revealed more about the cyber-experiences and behaviors of college students than what was previously known.

Certainly, the Internet dramatically changed the way that people socialize with one another (Kraft & Wang, 2010). In turn, cyber-bullying behaviors evolved with the expansion and development of technology (David-Ferdon & Hertz, 2007). As the Internet continues to expand, research indicates that researchers too, must remain flexible and innovative in their approaches. In doing so, it is important that researchers remain keenly aware of technological trends and have knowledge of the continuously-changing media that attract college-aged adults. For example, earlier studies about college cyber-bullying only explored victimization that occurred through email or instant messages (Finn, 2004). Contemporary works, however, also examine social media (Kowalski & Agatston, 2008; MacDonald & Roberts-Pittman, 2010; Walker et al., 2011). Not surprisingly, findings from the current study support the contention that social media websites continue to be among the most popular outlets for cyber-bullying victimization. Regardless of this fact, future studies should consider cyber-bullying that occurs via other means as well, since technology is so vast.

It has also been demonstrated that cyber-bullying varies in the way that it is defined (Ybarra et al., 2012). Researching cyber-bullying is challenging because of a lack of conceptual clarity and because of differences that exist in behavioral definitions (Finn, 2004). This hurdle led researchers to approach cyber-bullying studies cautiously and be skeptical in interpreting the findings (Patchin & Hinduja, 2012). Still, despite the numerous definitions that emerged over the years, a standard definition of cyber-bullying still does not exist (Wolak et al., 2007). Therefore,

in order to advance the discipline, researchers must adopt a more widely accepted definition for the phenomena.

Additionally, it may be time to consider renaming cyber-bullying behaviors altogether. Prior studies indicated that college-age adults think the term 'cyber-bullying' is dated (Crosslin & Golman, 2014). There is also evidence that college students do not consider cyber-bullying to be a significant issue and do not know what behaviors warrant it as such (Brewer et al., 2012; Crosslin & Golman, 2014). One study even found that almost half its participants believed that cyber-bullying was becoming normalized in society (Paullet & Pinchot, 2014). As demonstrated by the current study, college-aged adults are familiar with what behaviors constitute cyber-bullying. Moreover, they are keen about where the behaviors occur most often. However, more studies are needed in order to determine how young people define and perceive cyber-bullying (Bouton et al., 2012; Kraft & Wang, 2010).

The term *online harassment* may be a better term to describe behaviors that represent cyber-bullying (Crosslin & Golman, 2014). Recently, the Pew Research Institute (2017), conducted a nationally representative survey to examine harassing behavior online. The study found that most Americans agree that harassment occurs when direct personal threats are made against someone else. Interestingly, however, people were divided on whether certain behaviors such as flaming and outing constitute online harassment (Duggan, 2017). More seriously, however, the study found that nearly one-in-five Americans (18%) were subjected to particularly severe forms of harassment online, such as physical threats, harassment over a sustained period, sexual harassment, or stalking (Duggan, 2017).

According to the Pew Research Institute (2017), the American public maintains different views on how to best address the issue of cyber-bullying, or online harassment. For example, the

study found that nearly eight in 10 Americans (79%) believe that online services are responsible for intervening in incidents that occur on their platforms (Duggan, 2017). Conversely, some Americans argue that they are concerned with both safety and a desire to encourage free speech. Others feel as though offensive content online is taken too seriously or dismissed too easily (Duggan, 2017). Indeed, it will be difficult to achieve a full consensus of how to handle the issue. Regardless, all parties should address the concern, including universities.

One of the biggest issues with the current study involved methodological issues regarding the clarity of the survey items that measured the dependent variables, which is something that future researchers should consider. The current research found that behavioral specific questions elicit much better information from survey respondents than do questions that broadly ask about a behavior. Thus, future surveys should provide explicit definitions/instructions regarding the behavior being measured in order to increase the accuracy of the reported data. This implication is similar to literature on sexual assault and offending that suggests specific, focused questions help victims to recall, clarify, or offer more narrative of incidents that they have experienced (Lamb, Orbach, Hershkowitz, Esplin, & Horowitz, 2007; Myers, 2005; Saywitz & Camparo, 2009; Saywitz, Lyon, & Goodman, 2011; White, Strom, Santilli, & Halpin, 1986).

In addition to these methodological issues, it may also be worthwhile for future studies to include freshman students in samples of college populations so that their experiences can be compared to older students. Although the current study opted to omit freshman from the sample since they would not have had many opportunities to experience cyber-bullying as college students when the questionnaire was administered, one can also assume that victimization in high school can carry over to higher education. In addition, incoming students have opportunities to meet new people and many interactions among them can occur online. For example, freshmen

may connect with others via social media and online messaging services. Therefore, they may be more vulnerable to victimization.

Implications for Educational Institutions

Results from this study suggest that students may be able to avoid incidents of cyber-bullying victimization as college students if these behaviors are addressed prior to a student starting college. For example, educational programs can be implemented during a student's time in middle school and high school to curtail behaviors from occurring in college. Students should also be educated about what behaviors constitute cyber-bullying and should familiarize themselves with how to intervene. Additionally, students should be educated on appropriate ways to communicate with others online and in person. If cyber-bullying can be prevented during these times in a student's life, it stands to reason that they might carry these lessons with them into college.

In addition, universities can take a more pro-active approach toward the issue of cyber-bullying by identifying those students who are at most risk of victimization before they start classes at the university. One way to do so is to administer a pre-admission survey to incoming freshmen that inquires whether or not individuals have been targeted by cyber-bullies before. Those who indicate that they experienced prior victimization as elementary, middle-school, or high school students can then be linked to services, as they may be at higher risk for victimization compared to the rest of the student population.

Prevention programs can also be more effective if they concentrate on student perceptions rather than adult perceptions (DeLara, 2012 in Francisco et al., 2015). For example, studies found that college students would take cyber-bullying more seriously if more severe consequences were in place and if students were educated about the behavior on a continued

basis rather than at one point in time, such as at university orientation (Crosslin & Golman, 2014). Therefore, educational opportunities should occur regularly throughout the semester in addition to freshman orientation. It is important to note however that freshmen orientation provides a good opportunity for universities to target incoming students. Given that the likelihood that students will observe cyber-bullying increases as individuals grow older, incoming students should be educated about the risks associated with cyber-bullying so that if, and when, they witness the behavior as third-party observers, they will be more prepared to react responsibly and appropriately to the situation presented to them.

Universities can create a safe culture that is conducive to learning by providing an environment that is supportive of students who experience cyber-bullying. For example, universities can implement more resources for victims of cyber-bullying since students are more likely to report cyber-bullying behaviors if there is a centralized place to do so such as a specified phone number or email address (Brewer et al., 2012; Kraft & Wang, 2010). In addition, implementing programs that offer educational and gender-specific programming, and focus on strengthening social bonds may also be effective (Bastiaensens et al., 2014; Francisco et al., 2015). Moreover, universities can combat cyber-bullying by implementing sanctions for those responsible for cyber-bullying other students. For example, universities can initially address cyber-bullying by adopting anti-bullying policies that are included in their student codes of conduct. Likewise, universities can also require that cyber-bullies attend educational programming or risk the loss of technology privileges on campus. Finally, parents and other adults should also be included in some way, since students have indicated that they are likely to talk to their parents or to other adults about incidents of cyber-bullying (Walker et al., 2011).

Implications for Parents and Students

This study demonstrates that parents play a unique role in cyber-bullying because students are likely to report their victimization to their parents, however, many times nothing happened with the incident. In a few cases, the cyber-bully was told to stop and they did, whereas in other incidents, victims filed police reports. Fortunately for these few, they were able to find help, although some students might be unaware of resources for cyber-bullying victims (Brewer et al., 2012) or programming may be unavailable to them (Paullet & Pinchot, 2014). Therefore, this research indicates that students and parents should both be able to access resources and services to assist college-aged adults who are involved in incidents of cyber-bullying. In order to reach such a large audience, however, the university must be creative in their approach. Ironically, social media may be a good outlet for cyber-bullying education. Indeed, while social media serves as a catalyst for cyber-bullying behaviors among college students, it can also be used to help them, and their parents, connect to resources such as local police and mental health agencies.

Conclusion

Based on current knowledge of information compiled by experts regarding cyber-bullying among heavy media-users, it appears that this phenomenon has the potential to become a major problem among young adults today. The current study found that approximately one-third of the sample experienced cyber-bullying victimization since entering college. This finding is corroborated by other studies that estimated 11% to 34% of college students experience cyber-bullying during their undergraduate years (Walker et al., 2011). Taking these rates into account, cyber-bullying presents itself as an important social issue worthy of attention. The reality is, many cyber-bullying incidents go unnoticed or students do not report them. In turn, the Internet

allows perpetrators to cyber-bully victims at a whim because their identity remains anonymous. Ultimately, this phenomenon is important for criminologists to examine given the damaging consequences that perpetrators and victims experience.

As this study has demonstrated, social learning theory was found to provide some support for the prediction of cyber-bullying victimization, however more research is needed to determine if the variables are better accounted for when they are measured independent from other learning processes, or in combination with other criminological theories. Regardless of this implication, the study identified several findings related to victimization, perpetration, and observation that can be beneficial in shaping policies about cyber-bullying on college campuses.

References

Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology, 30,* 47-87.

Agnew, R. (2001). Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime and Delinquency, 38,* 319-361.

Agnew, R. (2001). *Juvenile delinquency: Causes and control.* Los Angeles, CA: Roxbury.

Akbulut, Y., & Eristi, B. (2011). Cyberbullying and victimization among Turkish university students. *Australian Journal of Educational Technology*, *27*(7), 1155-1170.

Akers, R. L. (1973). *Deviant behavior: A social learning approach.* Belmont, CA: Wadsworth.

Akers, R. L. (1977). *Deviant behavior: A social learning approach.* (2nd ed.). Belmont, CA: Wadsworth.

Akers, R. L. (1985). *Deviant behavior: A social learning approach*. (3rd ed.) Belmont, CA: Wadsworth.

Akers, R. L. (1998). *Social learning and social structure: A general theory of crime and deviance.* Boston, MA: Northeastern University Press.

Akers, R. L. (2001). Social learning theory. In R. Paternoster & R. Bachman (Eds.), *Explaining criminals and crime: Essays in contemporary criminological theory* (pp. 192–210). Los Angeles, CA: Roxbury.

Akers, R. L., & Cochran, J. K. (1985). Adolescent marijuana use: A test of three theories of deviant behavior. *Deviant Behavior, 6,* 323-346.

Akers, R. L., & Jennings, W. (2009). Social learning theory. In J. Miller (Ed.), *21st Century criminology: A reference handbook. (*pp. 323-332). Thousand Oaks, CA: Sage Publications, Inc.

Akers, R. L., & Jensen, G. F. (2006). The empirical status of social learning theory of crime and deviance: The past, present, and future. In. F. T. Cullen, J. P. Wright, & K. R. Blevins (Eds.), *Taking stock: The status of criminological theory.* New Brunswick, NJ: Transaction Publishers.

Akers, R. L., Krohn, M. D., Lanza-Kaduce, L., & Radosevich, M. (1979). Social learning and deviant behavior: A specific test of a general theory. *American Sociological Review, 44,* 636-655.

Akers, R. L., & La Greca, A. J. (1991). Alcohol use among the elderly: Social learning, community context, and life events. In D. J. Pittman & H. R. White (Eds.), *Society, culture, and drinking patterns re-examined* (pp. 242-262). New Brunswick, NJ: Rutgers Center of Alcohol Studies.

Akers, R. L., La Greca, A. J., Cochran, J., & Sellers, C. (1989). Social learning theory and alcohol behavior among the elderly. *Sociological Quarterly, 30,* 635-655.

Akers, R. L., & Lee, G. (1996). A longitudinal test of social learning theory: Adolescent smoking. *Journal of Drug Issues, 26*(2), 317-344.

Akers, R. L., & Sellers, C. S. (2013). *Criminological theories: Introduction, evaluation, and application* (6th ed.). New York: Oxford University Press.

Amado, J., Matos, A., Pessoa, T., & Jäger, T. (2009). Cyberbullying: A challenge to research. *Interactions, 5*(13), 301-326.

Ancak, O. T. (2009). Psychiatric symptomology as a predictor of cyberbullying among university students. *Egitim Arastirmalari-Eurasian Journal of Educational Research, 34*, 167-184.

Andrews, D. A., & Bonta, J. (2006). *The psychology of criminal conduct* (4th ed.). Cincinnati, OH: Anderson.

Archwamety, T., & Katsiyannis, A. (1998). Factors related to recidivism among delinquent females at a state correctional facility. *Journal of Child and Family Studies, 7*, 59-67.

Aseltine, R. H., Gore, S., & Gordon, J. (2000). Life stress, anger and anxiety, and delinquency: An empirical test of general strain theory. *Journal of Health and Social Behavior, 41*(3), 256-275.

Bachman, R. D., & Paternoster, R. (2009). *Statistics for criminology and criminal justice* (3rd ed.). Boston: McGraw Hill.

Bachman, R. D., & Schutt, R. K. (2007). *The practice of research in criminology and criminal justice* (10th ed). Thousand Oaks, CA: Sage Publications, Inc.

Bachman, R. D., & Schutt, R. K. (2014). *Research in criminology and criminal justice* (3rd ed.). Los Angeles, CA: Sage Publications, Inc.

Bachmann, M. (2010). The risk propensity and rationality of computer hackers. *International Journal of Cyber Criminology*, *4*, 643-656.

Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Baroncelli, A., & Ciucci, E. (2014). Unique effects of different components of trait emotional intelligence in traditional bullying and cyberbullying. *Journal of Adolescence, 37,* 807-815.

Bastiaensens, S., Vandebosch, H., Poels, K., Van Cleemput, K., DeSmet, A., & DeBourdeaudhuij, D. (2014). Cyberbullying on social network sites: An experimental study into bystanders' behavioral intentions to help the victim or reinforce the bully. *Computers in Human Behavior, 31,* 259-271.

Beaver, K., Wright, J. P., & DeLisi, M. (2008). Delinquent peer group formation: Evidence of a gene X environment correlation. *Journal of Genetic Psychology, 169,* 227–244.

Belsey, B. (2005). *Cyberbullying: An emerging threat to the always on generation.* Retrieved from http://www.cyberbullying.ca.

Belsey, B. (2010). *Always on, always aware*. Retrieved from http://www.cyberbullying.org.

Benda, B., & DiBlasio, F. (1991). Comparison of four theories of adolescent sexual exploration. *Deviant Behavior, 12,* 235-257.

Benda, B., & Whiteside, L. (1995). Testing an integrated model of delinquency using LISREL. *Journal of Social Service Research, 21,* 1-32.

Beran T., & Li, Q. (2005). Cyber-harassment: A study of a new method for an old behavior. *Journal of Educational Computing Research, 32,* 265–277.

Beran, T., & Li, Q. (2007). The relationship between cyberbullying and school bullying. *Journal of Student Wellbeing, 1*(2), 15-33.

Berg, M. T., & Felson, R. B. (2016). Why are offenders victimized so often? In C. A. Cuevas & C. M. Rennison (Eds.), *The Wiley handbook on the psychology of violence* (pp. 49–65). Chichester, UK: Wiley Blackwell.

Berlan, E. D., Corliss, H. L., Field, A. E., et al. (2010). Sexual orientation and bullying among adolescents in the growing up today study. *Journal of Adolescent Health, 46,* 366-371.

Bernard, T. J., Snipes, J. B., & Gerould, A. L. (2010). *Vold's Theoretical Criminology* (6th ed.). Oxford University Press.

Berry, W. D. (1993). *Understanding regression assumptions.* Newberry Park, CA: Sage.

Berry, W. D., & Feldman, S. (1985). *Multiple regression in practice*. Beverly Hills, CA: Sage.

Blum, L. (2015, April 4). Real life 'Burn Book' encourage cyberbullying among students. *College.* Retrieved from http://college.usatoday.com/2015/04/04/real-life-burn-book-encourages-cyberbullying-among-students/.

Bolles, R. C. (1979). *Learning theories* (2nd Ed.). New York: Holt, Rinehart, and Winston.

Boulton, M., Lloyd, J., Down, J., & Marx, H. (2012). Predicting undergraduates' self-reported engagement in traditional and cyberbullying from attitudes. *Cyberpsychology, Behavior, and Social Networking, 15*(3), 141-147.

Bower, G. H., & Hilgard, E. R. (1981). *Theories of learning.* Englewood Cliffs, NJ: Prentice Hall.

Boyd, D. M., & Ellison, N. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1), 210-230.

Brauer, J. R. (2012). Social learning theory and human reinforcement. *Sociological Spectrum: Mid-South Sociological Association, 32*(6), 157-177.

Brauer, J. R. (2009). Testing social learning theory using reinforcement's residue: A multilevel analysis of self-reported theft and marijuana use in the National Youth Survey. *Criminology, 47*(3), 929-970.

Brewer, B., Cave, A., Massey, A., Vurdelja, A., & Freeman, J. (2012). Cyber-bullying among female college students: An exploratory study. *Californian Journal of Health Promotion, 12*(1), 40-51.

Brewer, G., & Kerslake, J. (2015). Cyberbullying, self-esteem, empathy and loneliness. *Computers in Human Behavior, 48,* 255-260.

Briggs, S. R. & Cheek, J. M. (1986). The role of factor analysis in the development and evaluation of personality scales. *Journal of Personality, 54,* 106-148.

Brody, G. H. (1998). Sibling relationship quality: Its causes and consequences. *Annual Review of Psychology, 49,* 1-24.

Broidy, L. M., & Agnew, R. (1997). Gender and crime: A general strain theory perspective. *Journal of Research in Crime and Delinquency, 34*(3), 275-306.

Bureau of Justice Statistics (2015). *Indicators of School Crime and Safety.* Retrieved from http://www.bjs.gov/index.cfm?ty=pbdetail&iid=6206.

Burgess, R., & Akers, R. L. (1966). A differential association-reinforcement theory of criminal behavior. *Social Problems, 14,* 363-383.

Burton, D. L., & Meezan, W. (2004). Revisiting recent research on social learning theory as an etiological proposition for sexually abusive male adolescents. *Journal of Evidence-Based Social Work, 1*(1), 41-80.

Button, D. B., & Gealt, R. (2010). High risk behaviors among victims of sibling violence. *Journal of Family Violence, 25*, 131-140.

Cafarro, J. V., & Conn-Cafarro, A. (2005). Treating sibling abuse families. *Aggression and Violent Behavior, 10,* 604-623.

Calvete, E., Orue, I., Estévez, A., Villardón, L., & Padilla, P. (2010). Cyberbullying in adolescents: Modalities and aggressors' profile. *Computers in Human Behavior, 26*(5), 1128-135.

Canning, M. (2008). *Lust, anger, love: Understanding addiction and the road to heathy intimacy.* Naperville, Il: Sourcebooks, Inc.

Cao, L. (2004). *Major criminological theories: Concepts and measurement.* Belmont, CA: Wadsworth.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment.* Thousand Oaks, CA: Sage.

Carter, M. A. (2013). Third party observers witnessing cyber bullying on social media sites. *Procedia – Social and Behavioral Sciences, 84,* 1296-1309.

Cassidy, W., Jackson, M., & Brown, K. (2009). Sticks and stones can break my bones, but how can pixels hurt me? Students' experiences with cyber-bullying. *School Psychology International, 30,* 383-402.

Celizic, M. (2009, March 6). Her teen committed suicide over 'sexting.' *Today Parents.* Retrieved from http://www.today.com/parents/her-teen-committed-suicide-over-sexting-2D80555048.

Cesaroni, C., Downing, S., & Alvi, S. (2012). Bullying enters the 21st century? Turning a critical eye to cyber-bullying research. *Youth Justice, 12*(3), 199-211.

Chappell, A. T., & Piquero, A. R. (2004). Applying social learning theory to police misconduct. *Deviant Behavior, 25,* 89-108.

Chodorow, N. (1978). *The reproduction of mothering.* Berkeley: University of California Press.

Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in scale development. *Psychological Assessment, 7,* 309-319.

Clinard, M. B. (1942). The process of urbanization and criminal behaviour. *American Journal of Sociology, 48,* 202-213.

Clinard, M. B. (1944). Rural criminal offenders. *American Journal of Sociology, 50,* 38-45.

Clinard, M. B. (1949). Criminal behaviour in human behaviour. *Federal Probation, 13,* 21-27.

Clinard, M. B. (1956). Criminological research. In R. K., Merton, L. Broom, & L. Cottrell (Eds.), *Sociology Today* (pp. 510-513). New York: Basic Books.

Clinard, M. B. (1957). *Sociology of Deviant Behaviour.* New York: Rinehart.

Cloward, R. A., & Ohlin, L. E. (1960). *Delinquency and opportunity: A theory of delinquent gangs.* New York: Free Press.

Cochran, J. K., Maskaly, J., Jones, S., & Sellers, C. S. (2015). Using structural equations to model Akers' social learning theory with data on intimate partner violence. *Crime & Delinquency*, 1-22.

Cohen, A. K. (1965). The sociology of the deviant act: Anomie theory and beyond. *American Sociological Review, 30,* 5-14.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Conger, R. (1976). Social control and social learning models of delinquency: A synthesis. *Criminology, 14,* 17-40.

Cooper, J., & Harrison, D. M. (2001). The social organization of audio piracy on the Internet. *Media, Culture & Society, 23,* 71-89.

Craig, W. M., Henderson, K., & Murphy, J. G. (2000). Prospective teachers' attitudes toward bullying and victimization. *School Psychology International, 21*(1), 5–21.

Cressey, D. R. (1952). Application and verification of the Differential Association Theory. *Journal of Criminal Law and Criminology, 43*, 43-62.

Cressey, D. R. (1953). *Other People's Money: A Study of the Social Psychology of Embezzlement.* Glencoe, IL: Free Press.

Cressey, D. R. (1954). The differential association theory and compulsive crimes. *Journal of Criminal Law and Criminology, 45*, 49-64.

Cressey, D. R. (1960). The theory of differential association: An introduction. *Social Problems, 8*, 2-6.

Cressey, D. R. (1964). *Delinquency, crime and differential Association.* The Hague, Netherlands: Martinus Nijhaff.

Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*(33), 710-722.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.

Crosslin, K. L., & Golman, M. (2014). "Maybe you don't want to face it" – College students' perspectives on cyberbullying. *Computers in Human Behavior, 41*, 14-20.

Crute, A., Redinbaugh, M., & Gregory, D. (2012). Cyberbullying on college and university campuses. *Campus Safety & Student Development*, 5-21.

Cuevas, C. A., Finkelhor, D., Turner, H. A., & Ormrod, R. K. (2007). Juvenile delinquency and victimization: A theoretical typology. *Journal of Interpersonal Violence, 22*, 1581–1602.

Curtis, G. C. (1963). Violence breeds violence-perhaps? *American Journal of Psychiatry, 120,* 386-837.

Cutlak, G. (2013, April 1). What are apps and how do they work with your smartphone? *Tech Radar.* Retrieved from http://www.techradar.com/us/news/phone-and-communications/mobile-phones/what-are-apps-and-how-do-they-work-with-your-smartphone--1141429.

David-Ferdon, C., & Hertz, M. F. (2007). Electronic media, violence, and adolescents: An emerging public health problem. *Journal of Adolescent Health, 41*(6), 51-55.

DeFleur, M. L, & Quinney, R. (1966). A reformulation of Sutherland's differential association theory and a strategy for empirical verification. *Journal of Research in Crime and Delinquency, 3,* 1-2.

Dehue, F., Bolman, C., & Vollink, T. (2008). Cyberbullying: Youngsters' experiences and parental perception. *CyberPsychology & Behavior, 11,* 217-223.

DeLara, E. W. (2012). Why adolescents don't disclose incidents of bullying and harassment. *Journal of School Violence, 11*(4), 288-305.

DeMartino, C. H., Rice, R. E., & Saltz, R. (2015). An applied test of social learning theory of deviance to college alcohol use. *Journal of Health Communication: International Perspectives, 20*(4), 479-490.

den Hamer, A., Konijn, E. A., & Keijer, M. G. (2014). Cyberbullying behavior and adolescents' use of media with antisocial content: A cyclic process model. *Cyberpsychology, Behavior, and Social Networking, 17*(2), 74-81.

Derogatis, L. R., Lipman, R. S., & Covi, L. (1973). SCL-90: An outpatient psychiatric rating scale: *Psychopharmacology Bulletin, 9,* 13-28.

DeVellis, R. F. (1912). *Scale development: Theory and applications* (3rd ed.). Newbury Park, CA: Sage.

Dillman, D. (2009). *Internet, mail & mixed mode surveys: The Tailored Design Method* (3rd ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Dilmaç, B. (2009). Psychological needs as a predictor of cyber bullying: A preliminary report on college students. *Educational Sciences: Theory and Practice, 9*(3), 1307-1325.

Dilmaç, B., & Aydoğan, D. (2010). Values as a predictor of cyber-bullying among secondary school students. *International Journal of Social Sciences, 5*(3), 185-188.

Dooley, J. J., Pyźalski, J., & Cross, D. (2009). Cyberbullying versus face-to-face bullying: A theoretical and conceptual review. *Journal of Psychology, 217*(4), 182-188.

Drapeau, C. W., & McIntosh, J. L. (2015). U.S.A. Suicide 2013: Official final data. *American Association of Suicidology*. Retrieved from http://www.suicidology.org.

Duggan, M. (2014, October 22). Online harassment 2014. *Pew Research Center.* Retrieved from http://www.pewinternet.org/2014/10/22/online-harassment/.

Duggan, M. (2017, July 11). Online harassment 2017. *Pew Research Center.* Retrieved from http://www.pewinternet.org/2017/07/11/online-harassment-2017/.

Dulaney, J. (2014, September 29). Study: College students addicted to cellphones. *Higher Education.* Retrieved from http://www.presstelegram.com/social-affairs/20140929/study-college-students-addicted-to-cellphones.

Durkin, K. F., Wolfe, T. A., & Clark, G. A. (2005). College students and binge drinking: An evaluation of social learning theory. *Sociological Spectrum, 25*(3), 255-272.

Edwards, W. J. (1992). Predicting juvenile delinquency: A review of correlates and a confirmation by recent research based on an integrated theoretical model. *Justice Quarterly, 9,* 553-583.

El-Ghobashy, T. (2010, September 30). Suicide follows a secret webcast. *Wall Street Journal*, p. A27.

Elliot, M. A. (1956). *Crime in modern society.* New York: Harper and Brothers.

Elliot, D., Huizinga, D., & Menard, S. (1998). *Explaining delinquency and drug use.* Beverly Hills, CA: Sage.

Ellis, L. & Walsh, A. (1999). 'Criminologists' opinions about causes and theories of crime and delinquency. *The Criminologist, 24*(4), 4-6.

Ellison, N., & Boyd, D. (2013). Sociality through social network sites. In W. Dutton (Ed.), *The Oxford handbook of internet studies* (pp. 151-172). Oxford University Press.

Erdur-Baker, O. (2010). Cyberbullying and its correlation to traditional bullying, gender and frequent and risky usage of internet-mediated communication tools. *New Media & Society, 12*(1), 109-125.

Espelage, D. L., Bosworth, K., & Simon, T. R. (2000). Examining the social context of bullying in early adolescence. *Journal of Counseling and Development, 78,* 326-333.

Espelage, D., & Swearer, S. (2003). Research on school bullying and victimization: What have we learned and where do we go from here? *School Psychology Review, 32*(3), 365–383.

Fagan, J., & Wexler, S. (1987). Family origins of violent delinquents. *Criminology, 24,* 439-471.

Farrington, D. P. (1995). The development of offending and antisocial behavior from childhood: Key findings from the Cambridge Study in Delinquent Development. *Journal of Child Psychology and Psychiatry, 360,* 929–964.

Farrington, D. P., & Ttofi, M. M. (2011). Bullying as a predictor of offending, violence, and later life outcomes. *Criminal Behaviour and Mental Health, 21*, 90–98.

Finn, J. (2004). A survey of online harassment at a university campus. *Journal of Interpersonal Violence, 19*(4), 468-483.

Ford, J., & Ong, J. (2014). Non-medical use of prescription stimulants for academic purposes among college students: A test of social learning theory. *Drug and Alcohol Dependence, 144*, 279-282.

Foshee, V. A., Bauman, K. E., & Linder, G. F. (1999). Family violence and the perpetration of adolescent dating violence: Examining social learning and social control processes. *Journal of Marriage and the Family, 61,* 331-342.

Fox, K. A., Nobles, M. R., & Akers, R. A. (2011). Is stalking a learned phenomenon? An empirical test of social learning theory. *Journal of Criminal Justice, 39* (1), 39-47.

Francisco, S. M., Veiga Simão, A. M., & Ferreira, P. C. (2015). Cyberbullying: The hidden side of college students. *Computers in Human Behavior, 43,* 167-182.

Frankfort-Nachmias, C., & Leon-Guerrero, A. (2011). *Social statistics for a diverse society* (6th ed.). Thousand Oaks, CA: Pine Forge Press.

Garbarino, J., & deLara, E. (2002). *And words can hurt forever: How to protect adolescents from bullying, harassment, and emotional violence.* New York: The Free Press.

Garrity, C., Baris, M., & Porter, W. (2000). *Bully proofing your child: A parent's guide.* New York: Free Press.

Gelles, R. (1972). *The violent home: A study of physical aggression between husbands and wives.* Sage: Newbury Park, CA.

Gendreau, P., Goggin, C. E., & Law, M. A. (1997). Predicting prison misconducts. *Criminal Justice and Behavior, 24*, 414–431.

Gendreau, P., Little, T., & Goggin, C. E. (1996). A meta-analysis of the predictors of adult offender recidivism: What works? *Criminology, 34,* 575–607.

Gibb, Z. G., & Devereux, P. G. (2014). Who does that anyway? Predictors and personality correlates of cyberbullying in college. *Computers in Human Behavior, 38,* 8-16.

Gilligan, C. (1982). *In a different voice: Psychological theory and women's development.* Cambridge, MA: Harvard University Press.

Gilroy, M. (2013). Guns, hazing, and cyberbullying among top legal issues on campuses. *Education Digest, 78,* 45-50.

Gini, G., & Espelage, D. L. (2014). Peer victimization, cyberbullying, and suicide risk in children and adolescents. *JAMA, 312*(5), 545-546.

Glaser, D. (1956). Criminality theories and behavioral images. *American Journal of Sociology, 61,* 433-444.

Glaser, D. (1960). Differential association and criminological prediction. *Social Problems, 8,* 6-14.

Glaser, D. (1978). *Crime in our changing society.* New York: Holt, Rinehart and Winston.

Gliem, J. A., & Gliem, R. R. (2004). Calculating, interpreting, and reporting Cronbach Alpha reliability coefficient for Likert-type scales. Paper presented at the Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education. The Ohio State University, Columbus, OH, October 8-10, 2003. Retrieved from http://www.ssnpstudents.com/wp/wp-content/uploads/2015/02/Gliem-Gliem.pdf.

Glueck, S. (1956). Theory and fact in criminology. *British Journal of Delinquency, 7,* 92-109.

Glueck, S., & Glueck, E. (1950). *Unraveling juvenile delinquency.* Cambridge: Harvard University Press.

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime.* Stanford, CA: Stanford University Press.

Gottman, J. M. (1979). *Marital interaction: Experimental investigations.* San Diego, CA: Academic Press.

Gough, H. G., & Heilbrun, A. B. Jr. (1983). *The adjective check list manual*. Palo Alto, CA: Consulting Psychologists Press.

Gower, A. L., & Borowsky, I. W. (2013). Associations between frequency of bullying involvement and adjustment in adolescence. *Academic Pediatrics, 13*, 214–221.

Grasmick, H. G., Blackwell, B. S., & Bursik, R. J. (1993). Changes in sec patterning of perceived threats of sanctions. *Law and Society Review, 27,* 679-705.

Greene, M. B. (2000). Bullying and harassment in schools. In R. S. Moser & C. E. Franz (Eds.), *Shocking violence: Youth perpetrators and victims. A multidisciplinary perspective* (pp. 72-101). Springfield, IL.

Grotpeter, J. K., & Crick, N. R. (1996). Relational aggression, overt aggression, and friendship. *Child Development, 67*, 2328-2338.

Hair, J. F., Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis*, (5th Ed.). Upper Saddle River, NJ: Prentice Hall.

Halbasch, K. (1979). Differential reinforcement theory reexamined. *Criminology*, *17*(2), 217-229.

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin, 112,* 64–105.

Hay, C., Meldrum, R., & Mann, K. (2010). Traditional bullying, cyber bullying, and deviance: A General Strain Theory approach. *Journal of Contemporary Criminal Justice, 26*(2), 130-147.

Hayes, H. D. (1997). Using integrated theory to explain the movement into juvenile delinquency. *Deviant Behavior, 18,* 161-184.

Haynie, D. L. (2002). Friendship networks and delinquency: The relative nature of peer delinquency. *Journal of Quantitative Criminology, 18*(2), 99-134.

He, H., Tang, W., Wang, W., & Crits-Christoph, P. (2014). Structural zeros and zero-inflated models. *Shanghai Archives of Psychiatry, 26*(4), 236-242.

Herbert, S. (1998). Police subculture reconsidered. *Criminology, 36,* 343-369.

Higgins, G. E., Fell, B. D., & Wilson, A. L. (2006). Digital piracy: Assessing the contributions of an integrated self-control theory and social learning theory using structural equation modeling. *Criminal Justice Studies, 19*(1), 3-22.

Higgins, G. E., & Makin, D. A. (2004). Does social learning theory condition the effects of low self-control on college students' software piracy? *Journal of Economic Crime Management, 2*(2), 1-22.

Higgins, G. E., Marcum, C. D., Freiburger, T. L., & Ricketts, M. L. (2012). Examining the role of peer influence and self-control on downloading behavior. *Deviant Behavior, 33,* 412-423.

Higgins, G. E., & Wilson, A. L. (2006). Low self-control, moral beliefs, and social learning theory in university students' intentions to pirate software. *Security Journal, 19*(2), 75-92.

Higgins, G. E., Wolfe, S., & Marcum, C. (2008). Digital piracy: An examination of multiple conceptualization and operationalization of self-control. *Deviant Behavior: An Interdisciplinary Journal, 29,* 440-460.

Hill, W. F. (1977). *Learning: A survey of psychological interpretations* (3rd Ed.). New York: Crowell.

Hinduja, S. (2001). Correlates of Internet software piracy. *Journal of Contemporary Criminal Justice, 17*(4), 369-382.

Hinduja, S. (2003). Trends and patterns among software pirates. *Ethics and Information Technology, 5*(1), 49-61.

Hinduja, S., & Ingram, J. (2008). Self-control and ethical beliefs on the social learning of intellectual property theft. *Western Criminology Review, 9*(2), 52-72.

Hinduja, S., & Ingram, J. R. (2009). Social learning theory and music piracy: The differential role of online and offline peer influences. *Criminal Justice Studies, 22*(4), 405-420.

Hinduja, S., & Patchin, J. W. (2009). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying.* Thousand Oaks, CA: Sage.

Hinduja, S., & Patchin, J. W. (2015). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying* (2nd Ed.). Thousand Oaks, CA: Sage.

Hinduja, S., & Patchin, J. W. (2008). Cyberbullying: An exploratory analysis of factors related to offending and victimization. *Deviant Behavior, 29,* 129–156.

Hinduja, S., & Patchin, J. W. (2007). Offline consequences of online victimization: School violence and delinquency. *Journal of School Violence, 6*(3), 89-112.

Hinduja, S., & Patchin, J. W. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research, 14*(3), 206-221.

Hinduja, S., & Patchin, J. W. (2010). Lifetime cyberbullying victimization rates. Cyberbullying Research Center. Retrieved from http://www.cyberbullying.us/2010_charts/cyberbullying_ victimization_meta_chart.jpg.

Hirschi, T. (1969). *Causes of delinquency*. Berkeley, CA: University of California Press.

Hoffman, K. L., & Edwards, J. N. (2004). An integrated theoretical model of sibling violence and abuse. *Journal of Family Violence, 19*(3), 185-200.

Hoffman, K. L., Kiecolt, J., & Edwards, J. N. (2005). Physical violence between siblings: A theoretical and empirical analysis. *Journal of Family Issues, 26,* 1103-1130.

Hoge, R. D., Andrews, D. A., & Leschied, A. W. (1996). An investigation of risk and protective factors in a sample of youthful offenders. *Journal of Child Psychology and Psychiatry, 37*, 419-424.

Holt, T. J. (2007). Subcultural evolution? Examining the influence of on- and off-line experiences of deviant subcultures. *Deviant Behavior*, *28*, 171-198.

Holt, T. J. (2009). Lone hacks or group cracks: Examining the social organization of computer hackers. In F. Schmalleger & M. Pittaro (Eds.), *Crimes of the Internet* (pp. 336-355). Upper Saddle River, NJ: Pearson.

Holt, T. J., Blevins, K. R., & Burkert, N. (2010). Considering the pedophile subculture online. *Sexual Abuse, 22*, 3-24.

Holt, T. J., Blevins, K. R., & Kuhns, J. B. (2008). Examining the displacement practices of johns with on-line data. *Journal of Criminal Justice, 36*, 533-528.

Holt, T. J., & Copes, H. (2010). Transferring subcultural knowledge on-line: Practices and beliefs of persistent digital pirates. *Deviant Behavior, 31,* 625-654.

Hornbeck, J. (2009). JuicyCampus: Gone, and best forgotten. *Chronicle of Higher Education, 55*(25), A99.

Hu, M. C., Pavlicova, M., & Nunes, E.V. (2011). Zero-inflated and hurdle models of count data with extra zeros: Examples from an HIV-risk reduction intervention trial. *American Journal of Drug & Alcohol Abuse, 37*(5), 367-375.

Huizinga, D., Finn-Aage, E., & Weither, A. W. (1991). Are there multiple paths to delinquency? *Journal of Criminal Law and Criminology, 82,* 83-118.

Hulse, S. H., Egeth. H., & Deese, J. (1980). *The psychology of learning* (5th Ed.). New York: McGraw Hill.

Hwang, S., & Akers, R. L. (2005). Parental and peer influences on adolescent drug use in Korea. *Asian Journal of Criminology, 1,* 51-69.

Jang, H., Song, J., & Kim, R. (2014). Does the offline bully-victimization influence cyberbullying behavior among youths? Application of general strain theory. *Computers in Human Behavior, 31*(1), 85-93.

Jennings, W. G. (2016). Victim-offender overlap. In W. G. Jennings (Ed.), *The encyclopedia of crime and punishment* (pp. 1278–1281). Chichester, UK: John Wiley.

Jennings, W. G., Piquero, A. R., & Reingle, J. M. (2012). On the overlap between victimization and offending: A review of the literature. *Aggression and Violent Behavior, 17*, 16–26.

Jones v. Dirty World Entertainment Recording, LLC, 840 F.Supp.2d 1008 (E.D. Ky. 2012).

Jordan, T., & Taylor, P. (1998). A sociology of hackers. *The Sociological Review, 46*, 757-780.

Jung, S., & Rawana, E. P. (1999). Risk and need assessment of juvenile offenders. *Criminal Justice and Behavior, 26*, 69-90.

Juvonen, J., & Gross, E. F. (2008). Extending the school grounds? Bullying experiences in cyberspace. *Journal of School Health, 78*, 496–505.

Kantour, G. K., & Jasinski, J. L. (1998). Dynamics and risk factors in partner violence. In J. L. Jasinski & L. M. Williams (Eds.), *Partner violence: A comprehensive review of 20 years of research* (pp. 1-43). Thousand Oaks, CA: SAGE.

Katsiyannis, A., & Archwamety, T. (1997). Factors related to recidivism among delinquent youths in a state correctional facility. *Journal of Child and Family Studies, 6*, 43-55.

Katzer, C., Fetchenhauer, D., & Belschak, F. (2009). Cyberbullying: Who are the victims?: A comparison of victimization in internet chatrooms and victimization in school. *Journal of Media Psychology: Theories, Methods, and Applications, 21*, 25-36.

Kay, R. (2010, October 7). How a cell phone picture led to girl's suicide. *CNN*. Retrieved from http://www.cnn.com/2010/LIVING/10/07/hope.witsells.story/.

Khey, D. N., Miller, B. L., & Griffin, O. H. (2008). Salvia divinorum use among a college student sample. *Journal of Drug Education, 38*(3), 297-306.

Kiselica, M. S., & Morrill-Richards, M. (2007). Sibling maltreatment: The forgotten abuse. *Journal of Counseling & Development, 85*, 148-161.

Koo, H. (2007). A time line of the evolution of school bullying in differing social contexts. *Asia Pacific Education Review, 8*(1), 107-116.

Kowalski, R. M., & Agatston (2008). *Cyber bullying: A prevention curriculum for Grades 6–12.* Center City, MN: Hazelden.

Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health, 41*, 22-30.

Kowalski, R. M., Morgan, C. A., & Limber, S. P. (2012). Traditional bullying as a potential warning sign of cyberbullying. *School Psychology International, 33*(5), 505-519.

Kraft, E., & Wang, J. (2010). An exploratory study of the cyberbullying and cyberstalking experiences and factors related to victimization of students at a public liberal arts college. *International Journal of Technologies, 1*(4), 74-91.

Krohn, M. D. (1999). Social learning theory: The continuing development of a perspective. *Theoretical Criminology, 3,* 462-476.

Krohn, M. D., Lanza-Kaduce, L., & Akers, R. L. (1984). Community context and theories of deviant behavior: An examination of the elements of the social bond. *The Sociological Quarterly, 21*, 529-543.

Krohn, M. D., Skinner, W. F., Massey, J. L., & Akers, R. L. (1985). Social learning theory and adolescent cigarette smoking: A longitudinal study. *Social Problems, 32*(5), 455-473.

Kubrin, C. E., Stucky, T. D., & Krohn, M. D. (2009). *Researching theories of crime and deviance.* Oxford, NY: Oxford University Press.

Lamb, M. E., Orbach, Y., Hershkowitz, I., Esplin, P. W., & Horowitz, D. (2007). Structured forensic interview protocols improve the quality and effectiveness of investigative interviews with children: A review of research using the NICHD Investigative Interview Protocol. *Child Abuse & Neglect, 31*(11–12), 1201–1231.

Lange, J. E., Reed, M. B., Croff, J. M. K., & Clapp, J. D. (2008). College student use of Salvia divinorum. *Drug & Alcohol Dependence, 94*(1-3), 263-266.

Langos, C. (2014). Cyberbullying: The shades of harm. *Psychiatry, Psychology and Law, 12*(1), 1-8.

Lauritsen, J. L., & Laub, J. H. (2007). Understanding the link between victimization and offending: New reflections on an old idea. *Crime Prevention Studies, 12*, 55–76.

Lawrence, R. (2007). *School crime and juvenile justice*. New York, NY: Oxford University Press.

Lee, G., Akers, R. L., & Borg, M. J. (2004). Social learning and structural factors in adolescent substance use. *Western Criminology Review, 5*(1), 17-34.

Lemert, E. M. (1953). Isolation and closure theory of naïve check forgery. *Journal of Criminal Law and Criminology, 44*, 293-307.

Lenhart, A. (2007). Cyberbullying. *Pew Internet and American Life Project.* Retrieved from http://www.pewinternet.org/Reports/2007/Cyberbullying.aspx.

Lenhart, A. (2012). Teens, smartphones, & texting. *Pew Research Center's Internet & American Life Project.* Retrieved from http://pewinternet.org/Reports/2012/Teens-and-smartphones.aspx.

Lenhart, A., Madden, M., Smith, A., Purcell, K., Zickuhr, K., & Rainie, L. (2011). Teens, kindness, and cruelty on social network sites. *Pew Research Center's Internet & American Life Project.* Retrieved from http://pewinternet.org/Reports/2011/Teens-and-social-media.aspx.

Lewit, E. M., & Baker, L. S. (1996). Children as victims of violence. *The Future of Children, 6*(3), 147-156.

Li, Q. (2006). Cyberbullying in Schools: A research in gender differences. *School Psychology International, 27*(2), 157-170.

Li, Q. (2007). Bullying in the new playground: Research into cyberbullying and cyber victimization. *Australasian Journal of Educational Technology, 23*(4), 435-454.

Li, Q. (2008). A cross-cultural comparison of adolescents' experiences related to cyberbullying. *Educational Research, 50*(3), 223-234.

Lilly, J. R., Cullen, F. T., & Ball, R. A. (2011). *Criminological theory: Contexts and consequences* (5th ed.). Los Angeles, CA: Sage.

Lipsey, M. W., Chapman, G. L., & Landenberger, N. A. (2001). Cognitive-behavioral programs for offenders. *Annals of the American Academy of Political and Social Science, 578,* 144–157.

Lipsey, M. W., & Derzon, J. H. (1998). Predictors of violent or serious delinquency in adolescence and early adulthood: A synthesis of longitudinal research. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 86–105). Thousand Oaks, CA: Sage.

Lloyd, S. (1987). Conflict in premarital relationships: Differential perceptions of males and females. *Family Relations, 36,* 290-294.

Loeber, R., & Dishion, T. J. (1987). Antisocial and delinquent youths: Methods for their early identification. In J. D. Burchard & S. Burchard (Eds.), *Prevention of Delinquent Behavior* (pp. 75-89). Newberry Park, CA: Sage.

Loeber, R., & Dishion, T. J. (1983). Early predictors of male delinquency: A review. *Psychological Bulletin, 94,* 68-99.

Loeber, R., & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of juvenile conduct problems and delinquency. In M. Tonry & N. Morris (Eds.), *Crime and justice* (pp. 29-149). Chicago, IL: University of Chicago Press.

Loeber, R., Stouthamer-Loeber, M., Van Kammen, W., & Farrington, D. P. (1991). Initiation, escalation, and desistance in juvenile offending and their correlates. *Journal of Criminal Law and Criminology, 82,* 36-82.

Long, J. S. (1997). *Regression models for categorical and limited dependent variables.* Thousand Oaks, CA: Sage Publications.

Long, J. S., & Freese, J. (2006). *Regression models for categorical dependent variables using Stata* (2nd ed.). College Station, TX: Stata Press.

Lowenkamp, C. T., Cullen, F. T., & Pratt, T. C. (2003). Replicating Sampson and Groves's test of social disorganization theory: Revisiting a criminological classic. *Journal of Research in Crime and Delinquency, 40,* 351–373.

MacDonald, C. D., & Roberts-Pittman, B. (2010). Cyberbullying among college students: Prevalence and demographic differences. *Procedia - Social and Behavioral Sciences, 9,* 2003-2009.

MacKenzie, D. L. (2006). *What works in corrections: Reducing the criminal activities of offenders and delinquents.* New York: Cambridge University Press.

Marchiano, A. (2014, September 3). Father tells Ryan's story, speaks against bullying. *Republican Herald.* Retrieved from http://republicanherald.com/news/father-tells-ryan-s-story-speaks-against-bullying-1.1746020.

Marcum, C. D., Higgins, G. E., Ricketts, M. L., & Wolfe, S. E. (2015). Becoming someone new: Identity theft behaviors by high school students. *Journal of Financial Crime, 22*(3), 318-328.

Margolin, G., Burman, R. S., & John, R. S. (1989). Home observations of married couples reenacting naturalistic conflicts. *Behavioral Assessment, 11,* 101-118.

Martínez-Alemán, A. M. (2014, January-February). Social media go to college. *Change.* Retrieved from http://www.changemag.org/Archives/Back20Issues/2014/January-February202014/socialmedia_full.html.

Martínez-Alemán, A. M., & Wartman, K. L. (2009). *Online social networking on campus: Understanding what matters in student culture.* Routledge/Taylor Francis Group, NY.

Matsueda, R. L. (1982). Testing control theories and differential association: A causal modeling approach. *American Sociological Review, 47,* 489-504.

Matsueda, R. L. (1988). The current state of differential association. *Crime and Delinquency, 34,* 277-306.

Maxfield, M. G., & Babbie, E. R. (2010). *Research methods for criminal justice and criminology* (6th ed.). Belmont, CA: Wadsworth.

Mazerolle, P., Burton, V., Cullen, F. T., Evans, D., & Payne, G. L. (2000). Strain, anger, and delinquent adaptations: Specifying general strain theory. *Journal of Criminal Justice, 28,* 89-101.

Mazerolle, P., & Piquero, A. (1998). Linking exposure to strain with anger: An investigation of deviant adaptations. *Journal of Criminal Justice, 26*(3), 195-211.

McCord, J. (1979). Some child-rearing antecedents of criminal behavior in adult men. *Journal of Personality and Social Psychology, 37,* 1,477-1,481.

McCord, J. (1991). The cycle of crime and socialization practices. *Criminal Law and Criminology, 82*, 211-228.

McDermott, J. (2014, January 21). Facebook losing its edge among college-aged adults. *Digiday.* Retrieved from http://digiday.com/platforms/social-platforms-college-kids-now-prefer/.

McGloin, J. M., Pratt, T. C., & Maahs, J. (2004). Rethinking the IQ-delinquency relationship: A longitudinal analysis of multiple theoretical frameworks. *Justice Quarterly, 21*, 601–631.

McGraw, P. (2011, June 28). Dirt, Lies and the Internet. *Dr. Phil.* Retrieved from http://drphil.com/shows/show/1540/.

Mears, D. P., Ploeger, M., & Warr, M. (1998). Explaining the gender gap in delinquency: Peer influence and moral evaluations of behavior. *Journal of Research in Crime and Delinquency*, *35*(3), 251-266.

Menard, S., & Grotpeter, J. K. (2014). Evaluation of bully-proofing your school as an elementary school anti-bullying intervention. *Journal of School Violence, 13,* 188-209

Menard, S. (1992) Demographic and theoretical variables in the age-period-cohort analysis of illegal behavior. *Journal of Research in Crime and Delinquency, 29,* 178-199.

Menard, S. (2002). *Longitudinal research* (2nd ed.), Thousand Oaks, CA: Sage.

Merrell, K. W., Isava, D. M., Gueldner, B. A., & Ross, S. W. (2008). How effective are school bullying intervention programs? A meta-analysis of intervention research. *School Psychology Quarterly, 23,* 26-42.

Meyers, L., Gamst, G., & Guarino, A. (2005). *Applied multivariate research: Design and interpretation.* Thousand Oaks, CA: Sage Publications.

Mihalic, S. W., & Elliot, D. (1997). A social learning theory model of marital violence. *Journal of Family Violence, 12*(1), 21-47.

Miller, B. L., Griffin, O. H., Gibson, C. L., & Khey, D. N. (2009). Trippin' on sally D: Exploring predictors of Salvia divinorum experimentation. *Journal of Criminal Justice, 37*(4), 396-403.

Miller, B., & Morris, R. G. (2014). Virtual peer effects in social learning theory. *Crime & Delinquency, 62*(12), 1543-1569.

Miller, B. L., Stogner, J. M., Khey, D. N., Akers, R. L., Boman, J., Griffin, O. H. (2011). Magic mint, the Internet, and peer associations: A test of social learning theory using patterns of salvia divinorum use. *Journal of Drug Issues, 41*(3), 305-325.

Minora, M. (2010). Rumor has it that non-celebrity gossip web site operators are overestimating their immunity under the Communications Decency Act. *Commlaw Conspectus, 17,* 821-868.

Mitchell, K. J., Finkelhor, D., & Wolak, J. (2007). Risk factors for and impact of online sexual solicitation of youth. *Journal of the American Medical Association, 285*, 5011-5014.

Mitchell, K.J., Ybarra, M., & Finkelhor, D. (2007). The relative importance of online victimization in understanding depression, delinquency, and substance use. *Child Maltreatment, 12,* 314–324.

Mishna, F., Cook, C., Gadalla, T., Daciuk, J., & Solomon, S. (2010). Cyberbullying behaviors among middle and high school students. *American Journal of OrthoPsychiatry, Mental Health, & Social Justice, 80,* 362-374.

Monks, C. P., Robinson, S., & Worlidge, P. (2012). The emergence of cyberbullying: A survey of primary school pupils' perceptions and experiences. *School Psychology International, 33*(5), 477-491.

Moore, C. (2013). Beguiling Eve and her innocent counterpart: Victim-offender identities in the criminal justice process. In K. Jaishankar & N. Ronel (Eds.), *Global criminology: Crime and victimization in a globalized era* (pp. 289–313). Boca Raton, FL: CRC.

Morris, R. G., & Higgins, G. E. (2009). Neutralizing potential and self-reported digital piracy: A multi-theoretical exploration among college undergraduates. *Criminal Justice Review, 34,* 173-195.

Munawar, R., Inan-ul-haq, Asad, M., Ali, S., & Maqsood, H. (2014). Incidence, nature and impacts of cyber bullying on the social life of university students. *World Applied Sciences Journal, 30*(7), 827-830.

Mutchnick, R., Martin, R., & Austin, W. T. (2009). *Criminological thought: Pioneers past and present.* Boston, MA: Pearson Education, Inc.

Myers, J. E. B. (2005). *Myers on evidence in child, domestic and elder abuse cases*. New York, NY: Aspen Publishers.

Myner, J., Santman, J., Cappelletty, G., & Perlmutter, B. (1998). Variables related to recidivism among juvenile offenders. *International Journal of Offender Therapy and Comparative Criminology, 42,* 65-80.

Nansel, T. R., Ovepeck, M. D., Pilla, R. S., Ruan, W. J., Simmo-Morton, B., & Scheidt, P. (2001). Bullying behavior among U.S. youth: Prevalence and association with psychosocial adjustment. *Journal of the American Medical Association, 285*, 2094–2100.

Natvig, G. K., Albrektsen, G., & Quarnstrøm, U. (2001). School-related stress experience as a risk factor for bullying behavior. *Journal of Youth and Adolescence, 30*, 561–575.

Navarro, J. N., & Jasinski, J. L. (2012). Going cyber: Using routine activities theory to predict cyberbullying experiences. *Sociological Spectrum, 32*, 81-94.

Navarro, J. N., & Jasinski, J. L. (2013). Why girls? Using routine activities theory to predict cyberbullying experiences between girls and boys. *Women and Criminal Justice, 23*(4), 286-303.

Newton, R. R., & Rudestam, K. E. (2013). *Your statistical consultant: Answers to your data analysis questions* (2nd ed.). Thousand Oaks, CA: Sage.

Niarhos, F. J., & Routh, D. K. (1992). The role of clinical assessment in the juvenile court: Predictors of juvenile dispositions and recidivism. *Journal of Clinical Child Psychology, 21*, 151-159.

Nixon, C. L. (2014). Current perspectives: The impact of cyberbullying on adolescent health. *Adolescent Health, Medicine, and Therapeutics, 5*, 1143-158.

Ng, C. (2012, October 12). Bullied teen leaves behind chilling YouTube video. *ABC News.* Retrieved from http://abcnews.go.com/International/bullied-teen-amanda-todd-leaves-chilling-youtube-video/story?id=17463266.

Noll, J. G., Horowitz, L. A., Bonanno, G. A., Trickett, P. K., & Putnam, F. W. (2003). Re-victimization and self-harm in females who experienced childhood sexual abuse: Results from a prospective study. *Journal of Interpersonal Violence, 18*(12), 1452-1471.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Olweus, D. (1993). *Bullying in school: What we know and what we can do.* Oxford: Blackwell.

Olweus, D. (1999). Sweden. In P. K. Smith, Y. Morita, J. Junger-Tas, D. Olweus, R. Catalano, & P. Slee (Eds.), *The nature of school bullying: A cross-national perspective* (pp. 2-27). London & New York, Routledge.

Olweus, D., Limber, S. P., & Mihalic, S. (1999). *The Bullying Prevention Program: Blueprints for violence prevention, Vol.9.* Center for the Study and Prevention of Violence: Boulder, CO.

O'Moore, M., & Kirkham, C. (2001). Self-esteem and its relationship to bullying behaviour. *Aggressive Behavior, 27,* 269–283.

Pallant, J. (2013). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (5th ed.). New York, NY: Open University Press.

Parker, I. (2012, February 6). The story of a suicide. *The New Yorker.* Retrieved from http://www.newyorker.com/magazine/2012/02/06/the-story-of-a-suicide.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin, 102*(3), 357-389.

Patchin, J. W., & Hinduja, S. (2006). Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence and Justice,* 4(2), 148-169.

Patchin, J. W., & Hinduja, S. (2011). Traditional and nontraditional bullying among youth: A test of General Strain Theory. *Youth & Society, 43*(2), 727-751.

Patchin, J. W., & Hinduja, S. (2012). *Preventing and responding to cyberbullying: Expert perspectives.* Thousand Oaks, CA: Routledge.

Paternoster, R., & Piquero, A. R. (1995). Reconceptualizing deterrence: An empirical test of personal and vicarious experiences. *Journal of Research in Crime and Delinquency, 32,* 251–286.

Patterson, G. R., & Dishion, T. J. (1985). Contributions of families and peers to delinquency. *Criminology, 23,* 63-79.

Patterson, G. R., Reid, J. B., Jones, R. Q., & Conger, R. E. (1975). *A social learning approach to family intervention, Vol. 1*. Eugene, OR: Castalia Publishing Co.

Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. *Child Development, 55*(4), 1299-1307.

Paullet, K, & Pinchot, J. (2014). Behind the screen where today's bully plays: Perceptions of college students on cyberbullying. *Journal of Information Systems Education, 25*(1), 63-69.

Pearson, K. (1985). Notes on regression and inheritance in the case of two parents. *Proceedings of the Royal Society of London, 58*, 240–242.

Poteat, V. P., & Espelage, D. L. (2005). Exploring the relation between bullying and homophobic verbal content: The Homophobic Content Agent Target (HCAT) scale. *Violence and Victims, 20,* 513-528.

Pratt, T. C. (2000). Random and fixed effects models in meta-analysis in criminal justice and criminology: Choosing the appropriate method. *Journal of Crime and Justice, 23*, 65–79.

Pratt, T. C., & Cullen, F. T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology, 38*, 931–964.

Pratt, T. C., Cullen, F. T., Blevins, K. R., Daigle, L. E., & Madensen, T. D. (2006). The empirical status of deterrence theory: A meta-analysis. In F. T. Cullen, J. P. Wright & K. R. Blevins (Eds.), *Taking stock: The status of criminological theory—Advances in criminological theory* (Vol. 15) (pp. 367–396). New Brunswick, NJ: Transaction.

Pratt, T. C., Cullen, F. T., Sellers, C. S., Winfree, L. T., Madensen, T. D., Daigle, L. E., Fearn, N. E., & Gau, J. M. (2010). The empirical status of social learning theory: A meta-analysis. *Justice Quarterly, 27*(6), 765-802.

Price, M., & Dalgleish, J. (2010). Cyberbullying: Experiences, impact and coping strategies as described by Australian young people. *Youth Studies, Australia, 29*(2), 51-59.

Proctor, B. D., Semega, J. L., & Kollar, M. A. (2015). U.S. Census Bureau, Current Population Reports. *Income and Poverty in the United States: 2015,* U.S. Government Printing Office, Washington, DC, 2016.

Raskauskas, J., & Stoltz, A. D. (2007). Involvement in traditional and electronic bullying among adolescents. *Developmental Psychology, 43*(3), 564-75.

Reed, M. D., & Rountree, P. W. (1997). Peer pressure and adolescent substance use. *Journal of Quantitative Criminology, 13,* 143-181.

re:fuel (2013, June 13). Tech-savvy college students are gathering gadgets, saying yes to showrooming and rejecting second-screening. *College Explorer.* Retrieved from http://www.globenewswire.com/news-release/2013/06/13/554002/10036312/en/Tech-Savvy-College-Students-Are-Gathering-Gadgets-Saying-Yes-to-Showrooming-and-Rejecting-Second-Screening.html.

Rivers, I., & Noret, N. (2008). Well-being among same-sex- and opposite-sex-attracted youth at school. *School Psychology Review, 37,* 174-187.

Roberts, J. A., Petnji Yaya, L. H., & Manolis, C. (2014). The invisible addiction: Cell-phone activities and addiction among male and female college students. *Journal of Behavioral Addictions, 3*(4), 254-265.

Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (1991). Criteria for scale selection and evaluation. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 1-15). San Diego, CA: Academic.

Ryoo, J. H., Wang, C., & Swearer, S. M. (2015). Examination of the change in latent statuses in bullying behaviors across time. *School Psychology Quarterly*, *30*(1), 105-122.

Sabella, R. A. (2008). *GuardingKids.com: A practical guide to keeping kids out of high-tech trouble.* Minneapolis, MN: Educational Media.

Sampson, R. J., & Groves, W. B. (1989). Community structure and crime: Testing social disorganization theory. *American Journal of Sociology*, *94*, 774–802.

Sansone, R. A., & Sansone, L. A. (2008). Bully victims: Psychological and somatic aftermaths. *Psychology*, 62-64.

Saywitz, K. J., & Camparo, L. B. (2009). Contemporary child forensic interviewing: Evolving consensus and innovation over 25 years. In B. Bottoms, C. Najdowski, & G. Goodwin (Eds.), *Children as Victims, Witnesses, and Offenders: Psychological Science and the Law* (pp. 102-127). New York, NY: Guilford Press.

Schmalleger, F. (2015). *Criminology today: An integrative introduction* (7th ed.). Upper Saddle River, NJ: Pearson.

Schenk, A. M., & Fremlouw, W. J. (2012). Prevalence, psychological impact, and coping of cyberbully victims among college students. *Journal of School Violence, 11*, 21-37.

Schneider, S. K., O'Donnell, L., Stueve, A., & Coulter, R. W. S. (2012). Cyberbullying, school bullying, and psychological distress: A regional census of high school students. *American Journal of Public Health, 102*(1), 171-177.

Schreck, C. (1999). Victimization and low self-control: An extension and test of general theory of crime. *Justice Quarterly, 16,* 633-654.

Schreck, C. J., & Stewart, E. A. (2011). The victim-offender overlap and its implications for juvenile justice. In B. C. Feld & D. M. Bishop (Eds.), *The Oxford handbook of juvenile crime and juvenile justice* (pp. 47–70). New York: Oxford Univ. Press.

Schrock, A., & Boyd, D. (2008). Online threats to youth: Solicitation, harassment, and problematic content. *Enhancing Child Safety and Online Technologies: Final Report of the Internet Safety Technical Task Force.* Retrieved from http://cyber.law.harvard.edu/pubrelease/isttf/.

Schroeder, L. D., Sjoquist, D. L., & Stephan, P. E. (2017). *Understanding regression analysis: An introductory guide* (2nd ed.). Thousand Oaks, CA: SAGE Publications, Inc.

Schwartz, J. (2010, October 3). Bullying, suicide, punishment. *Wall Street Journal*, p. 10.

S.C. v. Dirty World LLC, No. 11-CV-00392-DW (W.D. Mo. March 12, 2012).

Sellers, C. S., Cochran, J. K., & Winfree, L. T., Jr. (2007). Social learning theory and courtship violence: An empirical test. In R. L. Akers & G. F. Jensen (Eds.), *Social Learning Theory and the explanation of crime: Advances in criminological theory,* Vol. 11 (pp. 339-362).

Sellers, C., & Winfree, L. (2010). Social learning theory. In F. Cullen, & P. Wilcox (Eds.), *Encyclopedia of criminological theory* (pp. 22-30). Thousand Oaks, CA: SAGE Publications, Inc.

Sharpe, K., & Earle, S. (2003). Cyberpunters and cyberwhores: Prostitution on the Internet. In Y. Jewkes (Ed.), *Dot.cons: Crime, deviance and identity on the Internet* (pp. 36-52). Portland, OR: Willan.

Siegel, L. J., Brown, G. P., & Hoffman, R. (2013). *Crime* (2nd ed.). Toronto, ON: Nelson Education Ltd.

Simons, R. L., Wu, C. I., Conger, R., & Lorenz, L. O. (1994). Two routes to delinquency: Differences between early and late starters in the impact of parenting and deviant peers. *Criminology, 32,* 247-275.

Singer, S. I. (1981). Homogeneous victim-offender populations: A review and some research implications. *Journal of Criminal Law and Criminology, 72,* 779–788.

Singer, S. D., & Hensley, C. (2004). Applying social learning theory to childhood and adolescent firesetting: Can it lead to serial murder? *International Journal of Offender Therapy and Comparative Criminology, 48*(4), 461-476.

Skinner, B. F. (1938). *The behavior of organisms: An experimental analysis.* New York: Appleton-Century.

Skinner, B. F., & Fream, A. M. (1997). A social learning theory analysis of computer crime among college students. *Journal of Research in Crime and Delinquency, 34,* 495-518.

Skrzypiec, G., Slee, P., Murray-Harvey, R., & Pereira, B. (2011). School bullying by one or more ways: Does it matter and how do students cope? *School Psychology International, 32,* 288–311.

Slonje, R., & Smith, P. K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology, 49*(2), 147-154.

Slonje, R., & Smith, P. K., & Frisén, A. (2013). The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior. 29*(1), 26-32.

Smith, C. A., Ireland, T. O., Park, A., Elwyn, L., & Thornberry, T. P. (2011). Intergenerational continuities and discontinuities in intimate partner violence: A two generational prospective study. *Journal of Interpersonal Violence, 26*(18), 3720-3752.

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry, 49*(4), 376-385.

Smith, J. A., & Yoon, J. (2013). Cyberbullying presence, extent, & forms in a mid-western post-secondary institution. *Information Systems Education Journal, 11*, 52-78.

Smorti, A., Menesini, E., & Smith, P. K. (2003). Parents' definitions of children's bullying in a five-country comparison. *Journal of Cross-Cultural Psychology, 34*(4), 417–432.

Snyder, J. J., & Patterson, G. R. (1995). Individual differences in social aggression: A test of a reinforcement model of socialization in the natural environment. *Behavior Therapy, 26,* 371-391.

Solberg, M., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behavior, 29,* 239–268.

Spitzberg, B. H. & Hoobler, G. (2002) Cyberstalking and the technologies of interpersonal terrorism. *New Media & Society, 4*(1), 71‑92.

Stafford, M. C., & Warr, M. (1993). A reconceptualization of general and specific deterrence. *Journal of Research in Crime and Delinquency, 30*, 123–135.

Steinhauer, J. (2008, November 26). Verdict in MySpace suicide case. *New York Times.* Retrieved from http://www.nytimes.com/2008/11/27/us/27myspace.html?_r=0.

Sticca, F., & Perren, S. (2012). Is cyberbullying worse than traditional bullying? Examining the differential roles of medium, publicity, and anonymity for the perceived severity of bullying. *Journal of Youth and Adolescence, 42,* 739-750.

Stitt, B. G., & Giacopassi, D. J. (1992). Trends in the connectivity of theory and research in criminology. *The Criminologist, 17*(1), 3-6.

Straus, M. A., Gelles, R. J., & Steinmetz, S. (1980). *Behind closed doors: Violence in the American family.* Newbury Park, CA: SAGE.

Sutherland, E. H. (1939). *Principles of criminology* (3rd ed.). Philadelphia: Lippencott.

Sutherland, E. H. (1947). *Principles of criminology* (4th ed.). Philadelphia: Lippencott.

Sutherland, E. H. (1973). Development of the theory. In K. Schuessler (Ed.), *Edwin H. Sutherland on analyzing crime* (pp. 13-29). Chicago: University of Chicago Press.

Sutherland, E. H., & Cressey, D. R. (1960). *Criminology* (6th ed.) Philadelphia: Lippencott.

Sutherland, E. H., & Cressey, D. R. (1966). *Principles of criminology.* Philadelphia: Lippencott.

Sutherland, E. H., & Cressey, D. R. (1978). *Criminology* (10th ed.). Philadelphia: Lippencott.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston: Pearson Education.

Taylor, P. (1999). *Hackers: Crime in the digital sublime*. London, England: Routledge.

TMZ. (2015). Nik Richie. *TMZ Celebs.* Retrieved from http://www.tmz.com/person/nik-richie/.

Topcu, C., & Erdur-Baker, O. (2010). The Revised Cyberbullying Inventory (RCBI): Validity and reliability studies. *Procedia: Social and Behavioral Sciences, 5,* 660–664.

Towberman, D. (1994). Psychosocial antecedents of chronic delinquency. In N. J. Pallone (Ed.), *Young victims, young offenders: Current issues in policy and treatment* (pp. 151-164). New York: Haworth.

Trickett, P. K., Everett, B. A., & Putnam, F. W. (1995, April). *Child rearing beliefs and practices of mothers of sexually abused girls.* Paper presented at the biennial conference of the Society for Research in Child Development, Indianapolis, IN.

Ttofi, M. M., Farrington, D. P., & Lösel, F. (2012). School bullying as a predictor of violence later in life: A systematic review and meta-analysis of prospective longitudinal studies. *Aggression and Violent Behavior, 17*, 405–418.

U.S. Census Bureau (2015). Current population survey (CPS), 2014 annual social and economic (ASEC) supplement, 2013 poverty table of contents, POV29. Years of school completed by poverty status, sex, age, nativity and citizenship. Retrieved from http://www.census.gov/hhes/www/cpstables/032014/pov/pov29_100.htm.

United States v. Lori Drew, 259 F.R.D. 449 (C.D. Cal. 2009).

U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD) (2013). "State Non-fiscal Survey of Public Elementary and Secondary Education," 1990-91 through 2011-12. Retrieved from http://nces.ed.gov/programs/digest/d13/tables/dt13_105.20.asp.

Vandebosch, H., & Van Cleemput, K. (2009). Cyberbullying among youngsters: Profiles of bullies and victims. *New Media & Society, 11*(8), 1349-1371.

Vandebosch, H., & Van Cleemput, K. (2008). Defining cyberbullying: A qualitative research into perceptions of youngsters. *CyberPsychology & Behavior, 11,* 499-503.

Varela, A., & Pritchard, M. E. (2011). Peer influence: Use of alcohol, tobacco and prescription medications. *Journal of American College Health, 59*(8), 751-756.

Vito, A. G., & Higgins, G. E. (2013). A research note on adolescent steroid use: An examination of social learning theory and self-control theory. *Deviant Behavior, 34*(12), 951-960.

Vold, G. B., Bernard, T. J., & Snipes, J. B. (1998). *Theoretical criminology.* New York: Oxford University Press.

Vossekuil, B., Frein, R. A., Reddy, M., Borum, R., & Modezeleski, W. (2002). The final report and findings of the Safe School Initiative: Implications for the prevention of school attacks in the United States. *United States Secret Service and United States Department of Education.* Retrieved from http://www.secretservice.gov/ntac/ssi_final_report.pdf.

Walker, C. M., Sockman, B., & Koehn, S. (2011). An exploratory study of cyberbullying with undergraduate university students. *Techtrends: Linking Research and Practice to Improve Learning.* 55(2): 31-38.

Wang J., Iannotti, R.J., Nansel, T.R. (2009). School bullying among adolescents in the United States: physical, verbal, relational, and cyber. *Journal of Adolescent Health, 45*, 368–375.

Warr, M. (1993). Age, peers, and delinquency. *Criminology, 31*(1), 17-40.

Warr, M. (2002). *Companions in crime: The social aspects of criminal conduct.* Cambridge, UK: Cambridge University Press.

Warr, M., & Stafford, M. (1991). Influence of delinquent peers: What they think or what they do? *Criminology, 29*(4), 851-866.

Wensley, K., & Campbell, M. A. (2012). Heterosexual and non-heterosexual young university students' involvement in traditional and cyber forms of bullying. *Cyberpsychology, Behavior, and Social Networking, 15*(2), 649-654.

West, D., & Farrington, D. P. (1973). *Who becomes delinquent?* London: Heinemann Educational Books.

White House. (2011). *Background on White House conference on bullying prevention*. Retrieved from http://www. whitehouse.gov/the-press-office/2011/03/10/backgroundwhite-house-conference-bullying-prevention.

White, S., Strom, G. A., Santilli, G., & Halpin, B. M. (1986). Interviewing young sexual abuse victims with anatomically correct dolls. *Child Abuse & Neglect, 10*(4), 519-529.

Widom, C. S. (1989). Does violence beget violence? A critical examination of the literature. *Psychological Bulletin, 106*, 3–28.

Wiesner, M., Capaldi, D. M., & Patterson, G. (2003). Development of antisocial behavior and crime across the life-span from a social interaction perspective: The coercion model. In R. L. Akers & G. F. Jensen (Eds.), *Social learning theory and the explanation of crime: Advances in criminological theory* (Vol. 11) (pp. 317–338). New Brunswick, NJ: Transaction.

Willard, N. (2004). I can't see you – you can't see me: How the use of information and communication technologies can impact responsible behavior. Retrieved from http://www.cyberbully.org/docs/disinhibition.pdf.

Willard, N. (2005). An educator's guide to cyberbullying and cyberthreats. Retrieved from http://new.csriu.org.cyberbully/docs/cbteducator.pdf.

Williams, K. R., & Guerra, N. G. (2007). Prevalence and predictors of internet bullying. *Journal of Adolescent Health, 41*, 14-21.

Williams, F. P., & McShane, M. D. (2010). *Criminological theory* (5th ed.). Upper Saddle River, NJ: Pearson.

Wolak, J., Mitchell, K. J., & Finkelhor, D. (2007). Does online harassment constitute bullying? An exploration of online harassment by known peers and online-only contacts. *Journal of Adolescent Health, 41*(6), 51-58.

Xiao, B. S., & Wong, Y. M. (2013). Cyber-Bullying among university students: An empirical Investigation from the Social Cognitive Perspective. *International Journal of Business and Information, 8*(1), 34-69.

Ybarra, M. L., Boyd, D., Korchmaros, J. D., & Oppenheim, J. (2012). Defining and measuring cyberbullying within the larger context of bullying victimization. *Journal of Adolescent Health, 51*(1), 53–58.

Ybarra, M. L., Diener-West, M., & Leaf, P. J. (2007). Examining the overlap in internet harassment and school bullying: Implications for school intervention. *Journal of Adolescent Health, 41*, S42–S50.

Ybarra, M. L., & Mitchell, J. K. (2004). Online aggressor/targets, aggressors and targets: A comparison of associated youth characteristics. *Journal of Child Psychology and Psychiatry, 45*, 1308-1316.

Ybarra, M. L., & Mitchell, K. J. (2007). Prevalence & frequency of Internet harassment instigation: Implications for adolescent health. *Journal of Adolescent Health, 41*(2), 189-195.

Young, J. R. (2008, November 20). JuicyCampus Is Blocked on 2 Campuses, and Gossipers on Another Face a Lawsuit. *The Chronicle of Higher Education.* Retrieved from http://chronicle.com/article/2-Universities-Say-No-to/1355/.

Yubero, S., Navarro, R., Elche, M., Larrañaga, & Ovejero, A. (2017). Cyberbullying victimization in higher education: An exploratory analysis of its association with social and emotional factors among Spanish students. *Computers in Human Behavior, 75,* 439-449.

Zalaquett, C. P., & Chatters, S. J. (2014, January-March). Cyberbullying in college: Frequency, characteristics, and practical implications. *SAGE Open,* 1-8.

Zeileis, A., Kleiber, C., & Jackman, S. (2008). Regression models for count data in R. *Journal of Statistical Software, 27*(8), 1-25.

Ziniti, C. (2012, April 26). A Dirty Job: TheDirty.com Cases Show the Limits of CDC Section 230. *Socially Aware.* Retrieved from http://www.sociallyawareblog.com/2012/04/26/a-dirty-job-thedirty-com-cases-show-the-limits-of-cda-section-230/.

Appendix A

Email Correspondence

Dear Professor _____,

My name is Kweilin Lucas and I am a doctoral candidate in the Department of Criminology and Criminal Justice. Your class, (course title), section (number), meeting on (days) from (time) to (time), has been randomly selected to participate in a student survey regarding cyber-bullying among college students. I would like to request your permission to administer the survey to your class at your convenience between the weeks of 8/29/16 and 10/14/16. The survey will take approximately 15-20 minutes to complete. You can find a copy of the IRB protocol attached to this email.

Dr. Shannon Phaneuf, Associate Professor in the Department of Criminology and Criminal Justice, is serving as my dissertation advisor. Dr. Phaneuf (spha@iup.edu) and I welcome any questions that you may have.

Please let me know if you are able to accommodate the survey administration and, if so, how many students that are enrolled in your class. Thank you for your time and consideration.

Appendix B

Informed Consent for Survey Instrument

Greetings,

Your class has been randomly selected to participate in an on-going research study being conducted at IUP. We are asking for your participation in order to help complete this study. The following information is provided in order to help you to make an informed decision about whether or not to participate. If you have any questions, please do not hesitate to ask. You are eligible to participate because you are a student enrolled at Indiana University of Pennsylvania. ***If you are under the age of 18, however, you are not permitted by law to complete this survey.***

If you are under the age of 18, please turn this survey over, without completing any questions, sit quietly and return the incomplete questionnaire to the survey administrator when they are collected. ***Additionally, if you have already completed this survey for another class, please do not complete it a second time.*** Simply sit quietly and return the incomplete questionnaire to the survey administrator when they are collected.

This study seeks to examine the prevalence of cyber-bullying on college campuses and how young adults are affected by the misuse of technology and social media. Participation will require approximately 15-20 minutes of your time.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time. If you choose to not participate, simply sit quietly and return the incomplete questionnaire to the survey administrator when they are collected. If you choose to participate, your identity will remain anonymous. Please do not include any identifying information (such as your name) on the survey other than what is asked in the survey. Your responses will be considered only in combination with those from other participants. The information obtained in the study may be published in peer-reviewed journals or presented at professional meetings but your identity will remain anonymous.

Thank you in advance for your assistance with this project. If you have any questions or comments please feel free to contact the principal investigator, Kweilin Lucas, or faculty sponsor, Dr. Shannon Phaneuf.

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The Indiana University of Pennsylvania Institutional Review Board has approved this project for the Protection of Human Subjects (Phone: 724-357-7730).

I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely anonymous and that I have the right to withdraw at any time. Providing responses implies my consent to participate.

_____ _____

Name Date

Appendix C

Survey Instrument

_____

Do not put your name on this survey. Please follow the directions under each section on the survey. Only select one response, unless noted otherwise. Answer each question regarding your experiences as a college student at Indiana University of Pennsylvania (IUP).

Thank you for participating in this study.

Section A – Demographic Information

The following questions pertain to your background information.
Please select the most appropriate response for each category listed below.

1. **What is your age?** _____

2. **What is your gender?** □ Male □ Female □ Transgender

3. **What is your class rank (as of Fall 2016) and how many credits have you completed?**
   □ Freshman _____ credits
   □ Sophomore _____ credits
   □ Junior _____ credits
   □ Senior _____ credits

4. **What is your race/ethnicity?**
   □ Black □ White □ Hispanic □ Other

5. **What is your sexual orientation?**
   □ Bisexual □ Heterosexual □ Homosexual □ Other

6. **What class-status best identifies your (step)parents/guardians? What is their estimated annual income?**
   _____-class $ _____ per year

Section B – Technology Use in Everyday Life

The following questions pertain to your own Internet and phone use.
Please answer all of the questions regarding your experiences as a college student at IUP.

7. **Do you regularly use a cell phone?** □ Yes □ No

8. **Does your cell phone have Internet access?** □ Yes □ No

9. **On average, how long do you spend *talking* on the phone *per day*?** _____ hours

10. **On average, how long do you spend *texting* on the phone *per day*?** _____ hours

11. **On average, how many text messages do you send/receive *per day*?** _____ messages

12. **Do you regularly use a computer?** □ Yes □ No

13. **On average, how long do you spend on the Internet per day (not including text messaging)?** _____ hours

14. For what activities do you use the Internet? (check all that apply)

	Yes	No
To look at websites	□	□
To chat with others (text)	□	□
To chat with others (video)	□	□
To send/receive emails	□	□
Schoolwork	□	□
To download music or movies	□	□
Photo-sharing	□	□
To play games	□	□
Online shopping	□	□
Other (please state): _____	□	□

15. What social media websites do you have an account or frequently visit?

	Yes	No
Instagram	□	□
Facebook	□	□
Snapchat	□	□
TheDirty.com	□	□
Twitter	□	□
Other (please state): _____	□	□

16. Are you familiar with the term *cyber-bullying*? □ Yes □ No

If yes, please briefly describe the behavior:

Section C – Awareness of Cyber-Bullying

The following questions pertain to *your* own experiences with cyber-bullying.
Using the definition below, please answer all of the questions regarding your experiences as a college student at IUP.

Definition of *cyber-bullying*:

Cyber-bullying is a new form of bullying which involves the use of e-mail, instant messaging, chat rooms, websites, mobile phones or other forms of information technology to deliberately harass, threaten, or intimidate someone. Cyber-bullying can include such acts as making threats, sending personal, racial or ethnic insults or repeatedly victimizing someone through electronic devices (Smith et al., 2008).

17. Since you have been at IUP, do you know *anyone at IUP*, not including yourself, who has been a victim of cyber-bullying?

□ Yes □ No **If *no*, skip to *Question 23***

18. If *yes*, how many times did the victimization occur?

Text messages	_____ # of times
Pictures/video clips	_____ # of times
Phone calls	_____ # of times
Emails	_____ # of times
Chat rooms	_____ # of times
Instant messages	_____ # of times
Social media sites (Facebook, Twitter, etc.)	_____ # of times
Applications (Instagram, Snapchat, etc.)	_____ # of times
Online gossip blogs (TheDirty.com, etc.)	_____ # of times
Other (please state): _____	_____ # of times

19. How many times have *you* been cyber-bullied since you have been at IUP? _____ times

20. When was the *most recent* incident?

□ Not applicable
□ Within the last week
□ Within the last month
□ This semester
□ Within the last school year
□ Over one school year ago
□ Other (please state): _____

21. How many times did the cyber-bullying occur?

Text messages	_____ # of times
Pictures/video clips	_____ # of times
Phone calls	_____ # of times
Emails	_____ # of times
Chat rooms	_____ # of times
Instant messages	_____ # of times
Social media sites (Facebook, Twitter, etc.)	_____ # of times
Applications (Instagram, Snapchat, etc.)	_____ # of times
Online gossip blogs (TheDirty.com, etc.)	_____ # of times
Other (please state): _____	_____ # of times

22. Did you know the perpetrator(s) of the cyber-bullying in any of the incidents?

□ Yes □ No

22a. If *yes*, what is your relationship to the perpetrator(s)? (check all that apply)

□ Another student
□ Co-worker
□ Family member/sibling
□ Close friend
□ Partner
□ Ex-partner
□ Other (please state): _____

22b. Is/Are the perpetrator(s) affiliated with IUP?

□ Yes □ No □ Not sure

23. Since you have been at IUP, how often have *you* experienced any of the following behaviors?

Someone has fought with you online using nasty or vulgar language. _____ # of times

Someone has repeatedly sent you nasty, mean, and insulting messages _____ # of times

Someone has spread gossip or rumors about you online with the intention of damaging your reputation. _____ # of times

Someone has pretended to be you online and has posted material to get you in trouble. _____ # of times

Someone has shared your secrets or embarrassing information or images of you online without your permission. _____ # of times

Someone has made threats of potential harm online in order to intimidate you. _____ # of times

Someone has intentionally and cruelly excluded you from an online group. _____ # of times

24. How did you feel when you were cyber-bullied?

	Not affected 1	**Somewhat affected 2**	**Affected 3**	**Severely affected 4**
Embarrassed	□	□	□	□
Worried/Anxious	□	□	□	□
Afraid/Scared	□	□	□	□
Angry	□	□	□	□
Self-conscious	□	□	□	□
Frustrated	□	□	□	□
Depressed/Sad	□	□	□	□
Stressed	□	□	□	□
Other (please state): _____	□	□	□	□

25. If you were cyber-bullied, have you experienced victimization before coming to college?

□ Yes, I was cyber-bullied as a student in _____ grade □ No

26. Did the college cyber-bullying victimization have any negative affect on your education?

□ Yes □ No

26a. If *yes,* what was affected? (check all that apply)

	Yes	No
Grades	□	□
Concentration	□	□
Attendance	□	□
Relationships with peers	□	□
Other (please state): _____	□	□

27. Did you tell anybody about the cyber-bullying victimization?

□ No, I did not tell anyone
□ Yes, I did tell someone

27a. If *yes,* whom did you tell about being cyber-bullied? (check all that apply)

	Yes	No
Co-worker	□	□
Sibling/family member	□	□
Parent/guardian	□	□
Police	□	□
Teacher/professor	□	□
Close friend	□	□
Ex-partner	□	□
Partner or spouse	□	□
Other (please state): _____	□	□

28. How was the incident resolved? (check all that apply)

	Yes	No
Nothing happened	□	□
A police report was filed	□	□
The university was notified	□	□
The cyber-bully was told to stop and did	□	□
The cyber-bully was told to stop and did not	□	□
Other (please state): _____	□	□

29. If the incident was resolved, how satisfied were you with the resolution? (briefly explain)

Section D – Observation of Cyber-Bullying

The following questions pertain to your own experiences with cyber-bullying.
Using the definition of cyber-bullying from Section C, please answer all of the questions regarding your experiences as a college student at IUP.

30. How many times have you witnessed cyber-bullying since you have been at IUP?

_____ # of times

31. When did the *most* recent incident occur?

- □ Not applicable
- □ Within the last week
- □ Within the last month
- □ This semester
- □ Within the last school year
- □ Over one school year ago
- □ Other (please state): _____

32. How many times did the observed cyber-bullying occur?

Text messages	_____ # of times
Pictures/video clips	_____ # of times
Phone calls	_____ # of times
Emails	_____ # of times
Chat rooms	_____ # of times
Instant messages	_____ # of times
Social media sites (Facebook, Twitter, etc.)	_____ # of times
Applications (Instagram, Snapchat, etc.)	_____ # of times
Online gossip blogs (TheDirty.com, etc.)	_____ # of times
Other (please state): _____	_____ # of times

33. Since you have been at IUP, how many times have you witnessed any of the following behaviors?

Someone fighting with another person online using nasty or vulgar language.	_____ # of times
Someone repeatedly sending someone else nasty, mean, and insulting messages.	_____ # of times
Someone spreading gossip or rumors about someone else online with the intention of damaging their reputation.	_____ # of times
Someone pretending to be someone else online and posting material to get them in trouble.	_____ # of times
Someone sharing someone else's secrets or embarrassing information of them online without their permission.	_____ # of times
Someone making threats of potential harm online to intimidate another individual.	_____ # of times
Someone intentionally and cruelly excluding someone from an online group.	_____ # of times

34. How did you feel when you witnessed the cyber-bullying?

	Not affected 1	Somewhat affected 2	Affected 3	Severely affected 4
Embarrassed	□	□	□	□
Worried/Anxious	□	□	□	□
Afraid/Scared	□	□	□	□
Angry	□	□	□	□
Self-conscious	□	□	□	□
Frustrated	□	□	□	□
Depressed/Sad	□	□	□	□
Stressed	□	□	□	□
Other (please state):____	□	□	□	□

35. Did you make an attempt to stop the behavior?

□ Yes □ No

35a. If *yes,* what did you do? If *no*, why didn't you intervene? (briefly explain)

Section E – Cyber-Bullying Behaviors

The following questions pertain to *your* own experiences with cyber-bullying.
Using the definition of cyber-bullying from Section C, please answer all of the questions regarding your experiences as a college student at IUP.

36. How many times have you cyber-bullied someone since you have been at IUP?

_____ # of times

37. When was the *most recent* incident?

□ Not applicable
□ Within the last week
□ Within the last month
□ This semester
□ Within the last school year
□ Over one school year ago
□ Other (please state): _____

38. How many times did the cyber-bullying occur?

Text messages	_____ # of times
Pictures/video clips	_____ # of times
Phone calls	_____ # of times
Emails	_____ # of times
Chat rooms	_____ # of times
Instant messages	_____ # of times
Social media sites (Facebook, Twitter, etc.)	_____ # of times
Applications (Instagram, Snapchat, etc.)	_____ # of times
Online gossip blogs (TheDirty.com, etc.)	_____ # of times
Other (please state): _____	_____ # of times

39. How many times have *you* have done any of the following to someone else since you have been at IUP?

Fought with another person online using nasty or vulgar language.	_____ # of times
Repeatedly sent someone else nasty, mean, and insulting messages.	_____ # of times
Spread gossip or rumors about someone else online with the intention of damaging their reputation.	_____ # of times
Pretended to be someone else online and posted material to get them in trouble.	_____ # of times
Shared someone else's secrets or embarrassing information or images of them online without their permission.	_____ # of times
Made threats of potential harm online in order to intimidate another individual.	_____ # of times
Intentionally and cruelly excluded someone from an online group.	_____ # of times

40. Who were you targeting?

- □ Another student
- □ Co-worker
- □ Sibling/family (other than parent/guardian)
- □ Parent/guardian
- □ Campus official
- □ Teacher/professor
- □ Close friend
- □ Ex-partner
- □ Partner or spouse
- □ Other (please state): _____

41. Why did you engage in this behavior? (briefly explain)

42. What is the general attitude of your *family members* toward cyber-bullying?

1	2	3	4
□	□	□	□
Strongly Disapprove	Disapprove	Approve	Strongly Agree

43. To the best of your knowledge, how often do your *family members* usually cyber-bully others?

1	2	3	4
□	□	□	□
Never	Rarely	Sometimes	All the time

44. What is the general attitude of your *close friends* toward cyber-bullying?

1	2	3	4
□	□	□	□
Strongly Disapprove	Disapprove	Approve	Strongly approve

45. To the best of your knowledge, how often do your *close friends* usually cyber-bully others?

1	2	3	4
□	□	□	□
Never	Rarely	Sometimes	All the time

46. How much have you learned about cyber-bullying from each of the following:

a. Family

□	□	□	□
Learned nothing	Learned a few things	Learned a lot	Learned everything
1	2	3	4

b. Close friends

□	□	□	□
Learned nothing	Learned a few things	Learned a lot	Learned everything
1	2	3	4

c. Other students

□	□	□	□
Learned nothing	Learned a few things	Learned a lot	Learned everything
1	2	3	4

d. Books or magazines

□	□	□	□
Learned nothing	Learned a few things	Learned a lot	Learned everything
1	2	3	4

e. Television and movies

□	□	□	□
Learned nothing	Learned a few things	Learned a lot	Learned everything
1	2	3	4

f. Websites

□	□	□	□
Learned nothing	Learned a few things	Learned a lot	Learned everything
1	2	3	4

g. Other (please state): _____

□	□	□	□
Learned nothing	Learned a few things	Learned a lot	Learned everything
1	2	3	4

47. What is the most likely reaction of your *parent(s)/step-parent(s)/guardian(s)* to your cyber-bullying?

□	□	□	□	□
Disapprove and discourage CB	Disapprove but do nothing about it	No reaction	Approve but do nothing to encourage it	Approve and encourage CB
1	2	3	4	5

48. What is the most likely reaction of your *closest friend* to your cyber-bullying?

□	□	□	□	□
Disapprove and discourage CB	Disapprove but do nothing about it	No reaction	Approve but do nothing to encourage it	Approve and encourage CB
1	2	3	4	5

49. What is the most likely reaction of *others your own age* to your cyber-bullying?

□	□	□	□	□
Disapprove and discourage CB	Disapprove but do nothing about it	No reaction	Approve but do nothing to encourage it	Approve and encourage CB
1	2	3	4	5

50. Have you ever felt peer pressure to cyber-bully another person since you have been in college?

□ Yes □ No

51. Have you ever cyber-bullied another person in order to avoid rejection from your peers since you have been in college?

□ Yes □ No

52. The university's policies addressing cyber-bullying are too severe.

□ Agree □ Disagree

53. As a college student, how concerned are you about being caught cyber-bullying someone else?

□ Concerned □ Not concerned

54. Do you find cyber-bullying to be enjoyable?

□ Yes □ No

55. If another IUP student engaged in cyber-bullying and was discovered doing so, what if any discipline, do you think should follow?

56. Are services are available to you as an IUP student if you were to experience cyber-bullying victimization?

□ Yes □ No □ Not sure

57. If you were to experience cyber-bullying victimization, what would you do? (briefly explain)

For the following group of questions, select the degree to which *you* agree with the statement ranging from 1 (strongly disagree) to 5 (strongly agree).

---

58. Cyber-bullying doesn't hurt anyone.

□	□	□	□	□
Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1	2	3	4	5

59. It is alright to cyber-bully someone if you can get away with it.

□	□	□	□	□
Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1	2	3	4	5

60. I have a lot of respect for someone who cyber-bullies another person.

□	□	□	□	□
Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1	2	3	4	5

61. People who experience cyber-bullying deserve to be victimized.

□	□	□	□	□
Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1	2	3	4	5

62. Cyber-bullying is morally wrong.

□	□	□	□	□
Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1	2	3	4	5

Section F – Comments

Do you have any thoughts about cyber-bullying that you want to share? (Please write here)

Do you have any comments or suggestions to improve this survey? (Please write here)

THIS IS THE END OF THE SURVEY.

THANK YOU FOR YOUR PARTICIPATION IN THIS STUDY.

You have now completed the questionnaire. All of your responses are confidential, so please do not discuss the answers you have written with anyone else. There is a help sheet attached to the back of this questionnaire, please keep it and read it in your own time or pass it to someone who might need it.

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PLEASE KEEP THIS SHEET

If you have a problem with any of the issues relating to cyber-bullying mentioned in this questionnaire, please talk to someone who will be able to help you.
There are trained professionals who can listen and offer advice. Information about local resources are listed below:

The Counseling Center
Indiana University of Pennsylvania
Suites on Maple East, G31, 901 Maple Street
Indiana, PA 15705
724-357-2621

Indiana Regional Medical Center
835 Hospital Road
Indiana, PA 15701
724-357-7000

IUP Campus Police
University Towers, 850 Maple Street
Indiana, PA 15705
724-357-2141

Indiana Borough Police
80 North 8th Street, #104
Indiana, PA 15701
724-349-2121

Appendix D

Descriptive Statistics for the Regression Assumptions for the Sample

Measure	Skew	Kurtosis	Kolmogorov-Smirnov	df
Demographic Variables				
Gender	.31	-1.71	.370	295
Age	6.82	69.57	.264	296
Race/Ethnicity	1.87	6.45	.460	296
SES	-.13	1.27	.398	268
Sexual Orientation	2.71	15.82	.496	286
Class Rank	.01	-1.42	.214	296
Control Variable				
Prior Victimization	1.52	.34	.492	258
Social Learning Variables				
Differential Association	.83	.16	.238	285
Imitation	.32	.28	.079	289
Differential Reinforcement	1.32	2.24	.180	273
Definitions	1.46	2.11	.286	278
Dependent Variables				
CB Victimization	6.11	40.88	.388	270
CB Perpetration	13.81	204.47	.449	248
CB Observation	4.82	28.48	.340	254

Note. Ns ranged from 248 to 296. None of the variables of interest yielded statistically significant Kolmogorov-Smirnov results.

Appendix E

Histograms and Boxplots

Figure 1. Histogram for Variable Measuring Age

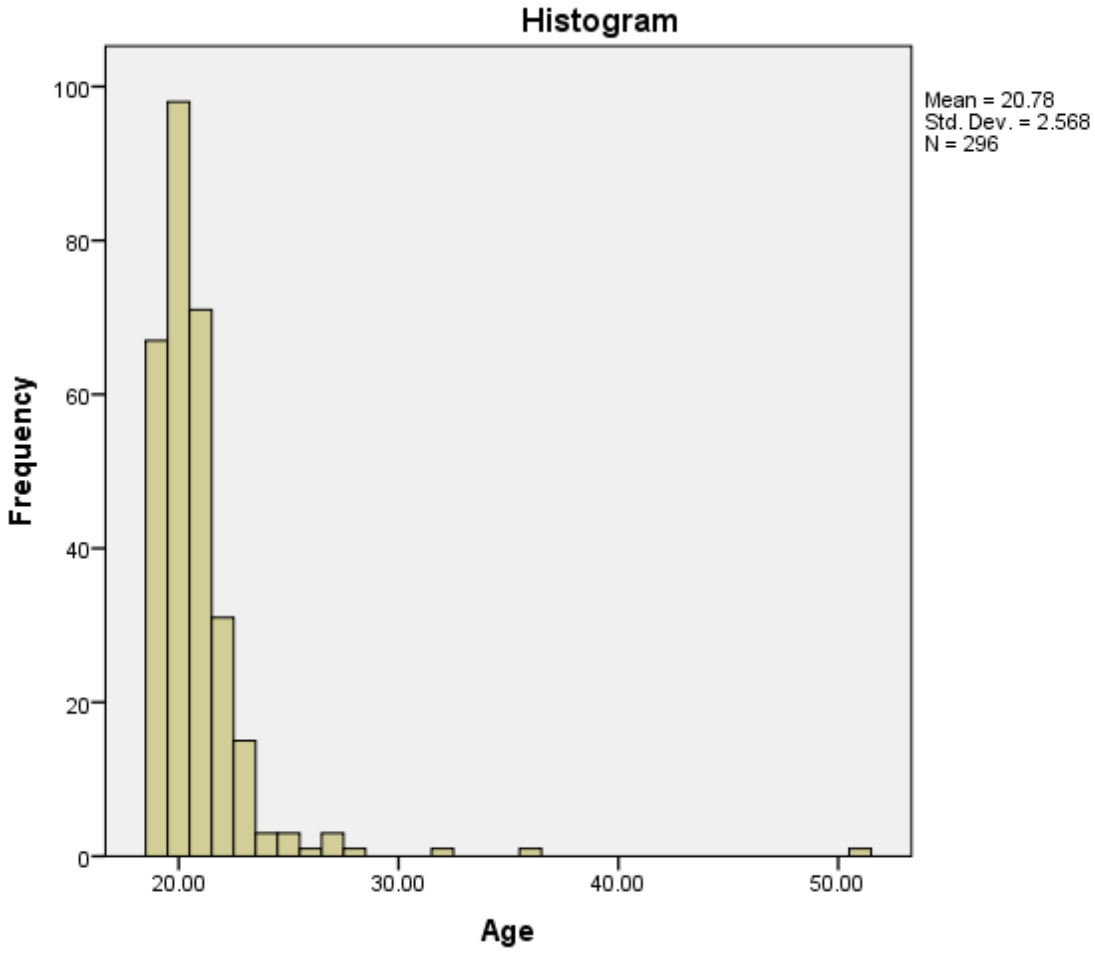


Figure 2. Boxplot for Variable Measuring Age

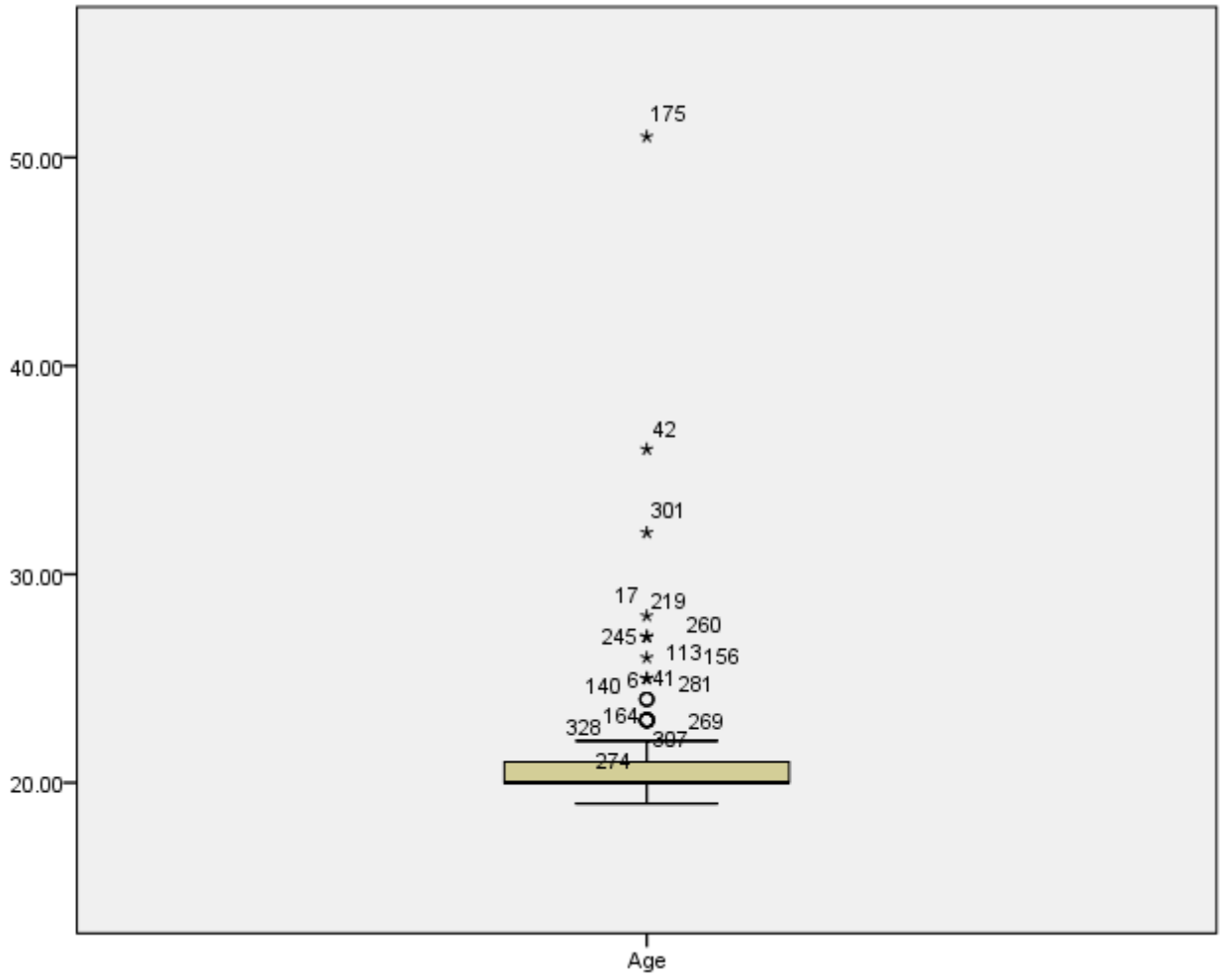


Figure 3. Histogram for Variable Measuring Gender

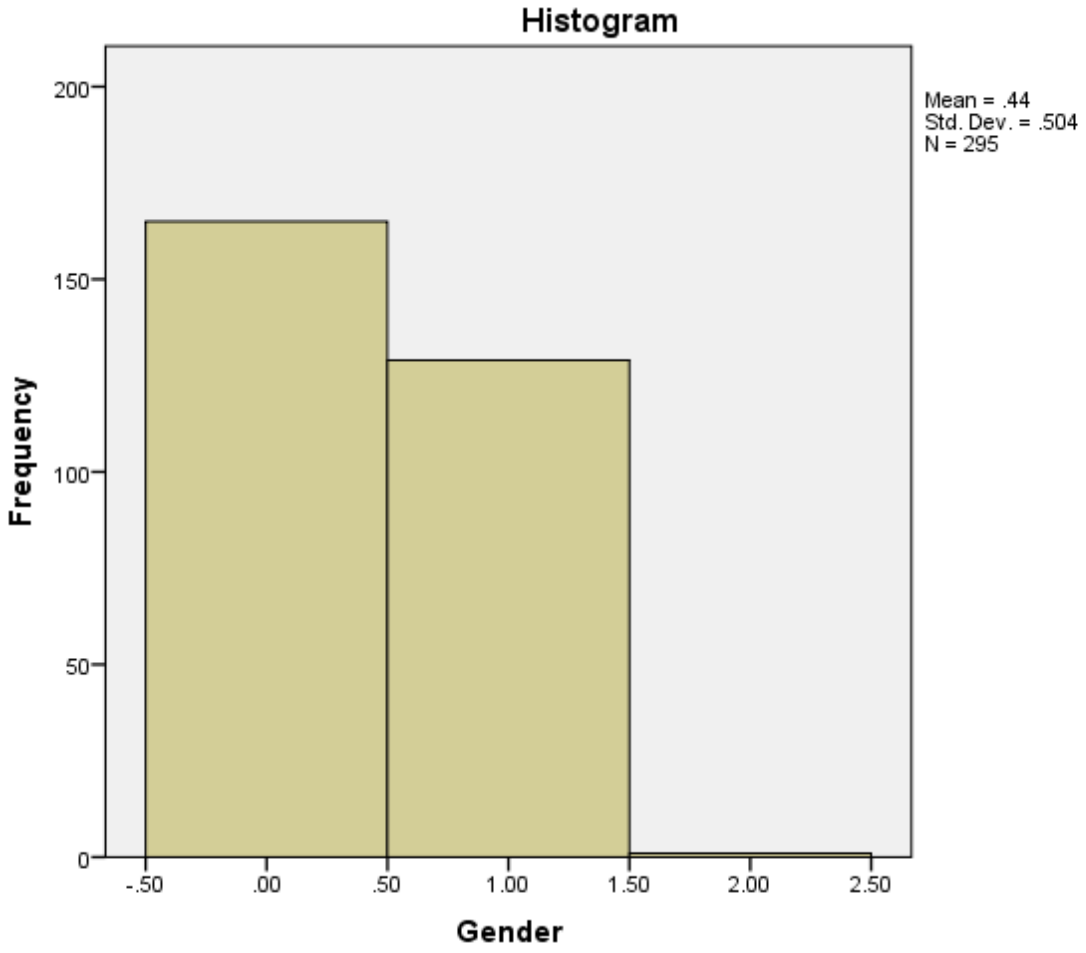


Figure 4. Boxplot for Variable Measuring Gender

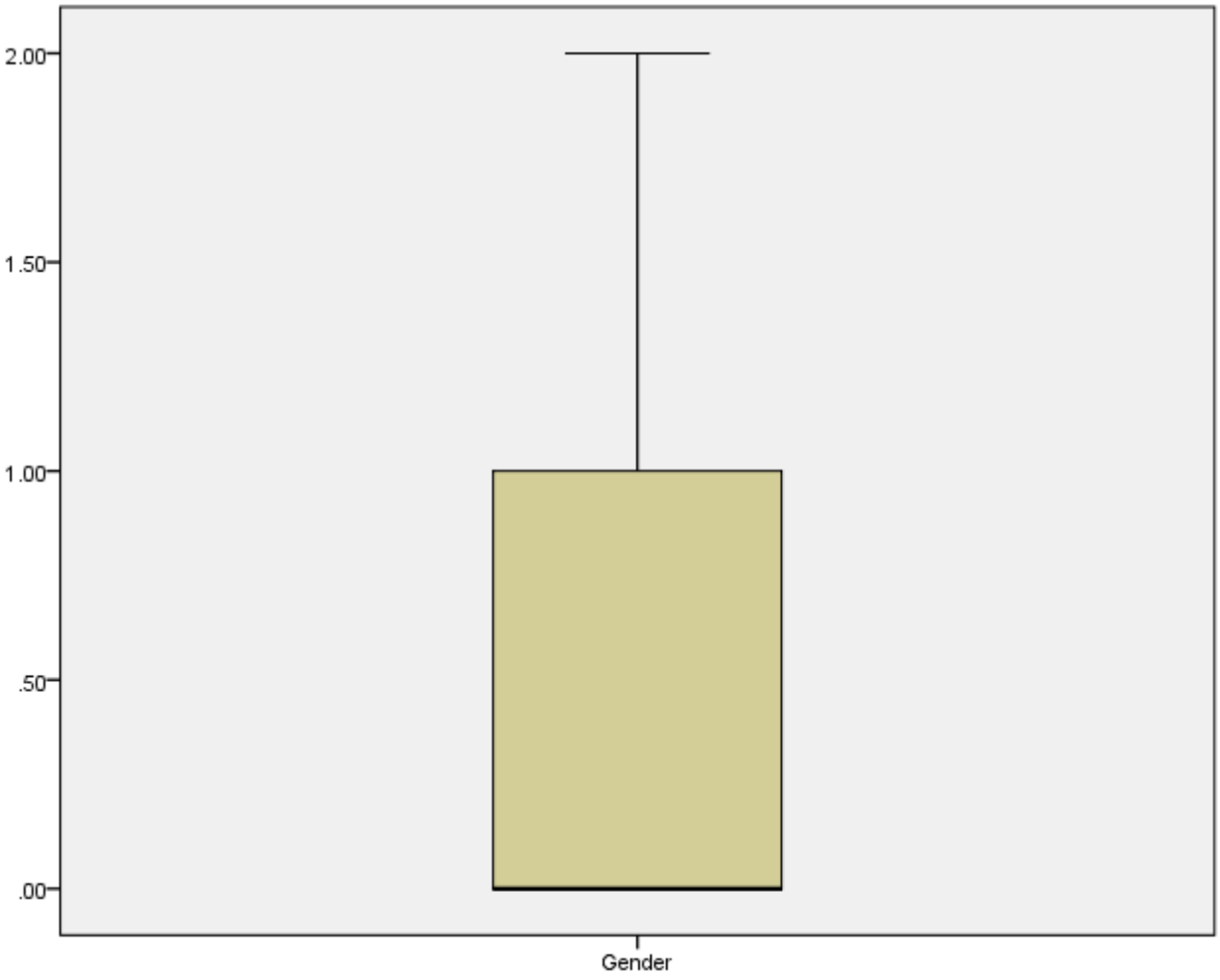


Figure 5. Histogram for Variable Measuring Race/Ethnicity

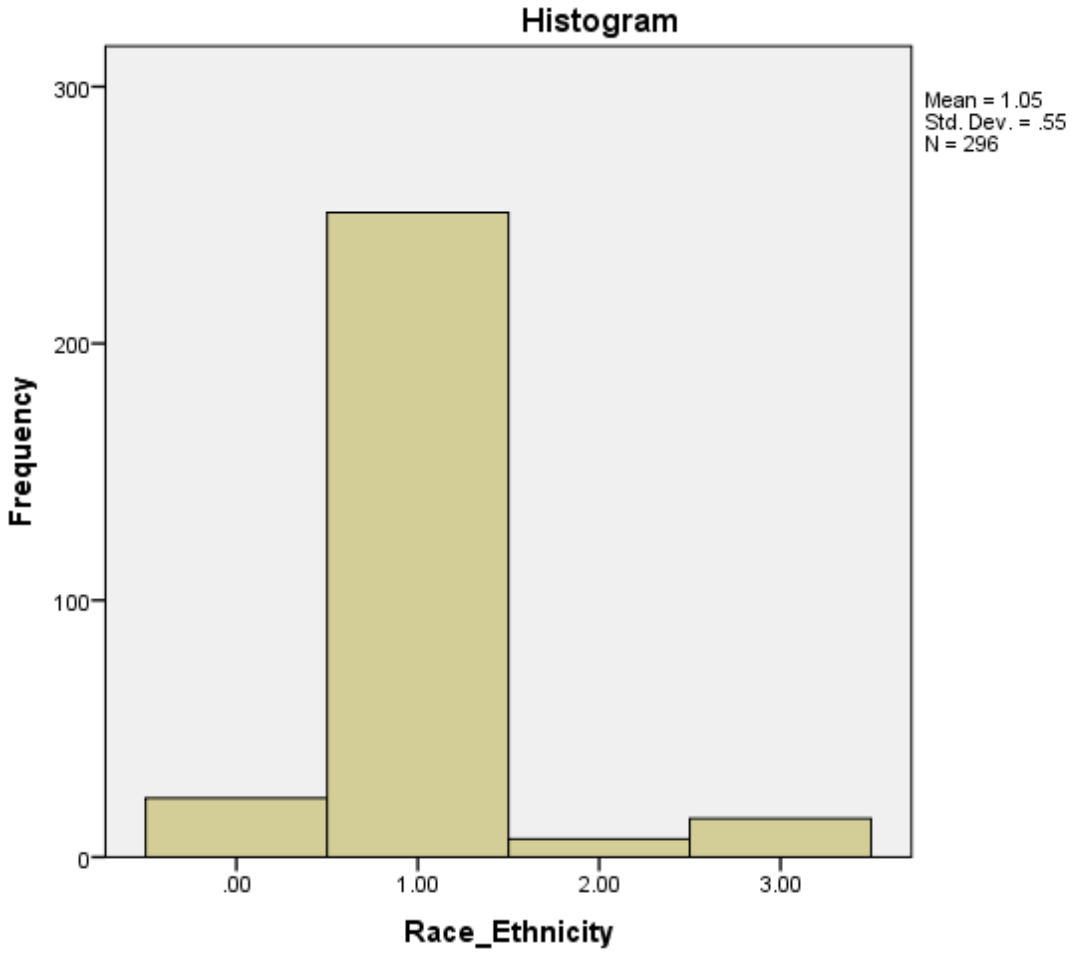


Figure 6. Boxplot for Variable Measuring Race/Ethnicity

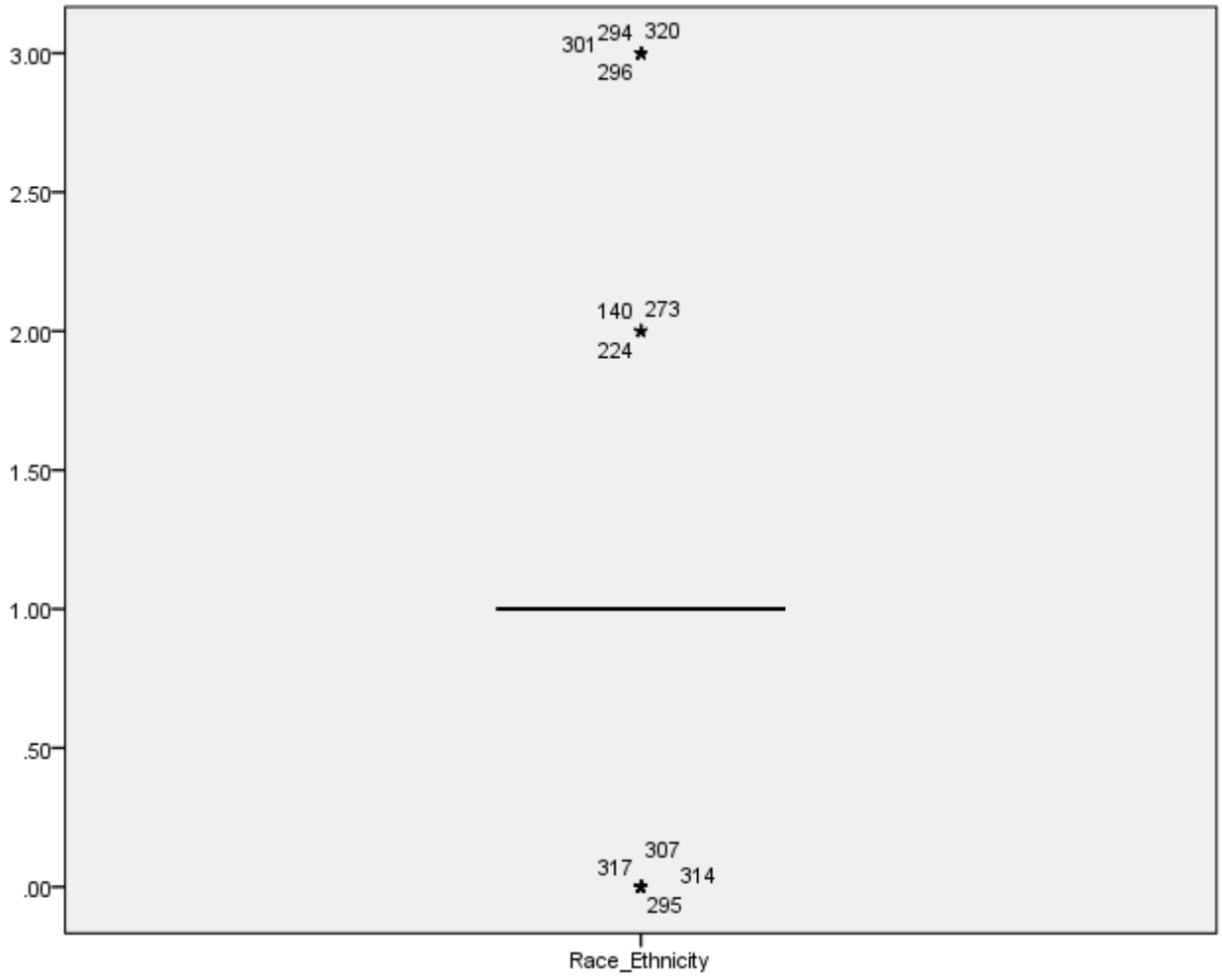


Figure 7. Histogram for Variable Measuring Sexual Orientation

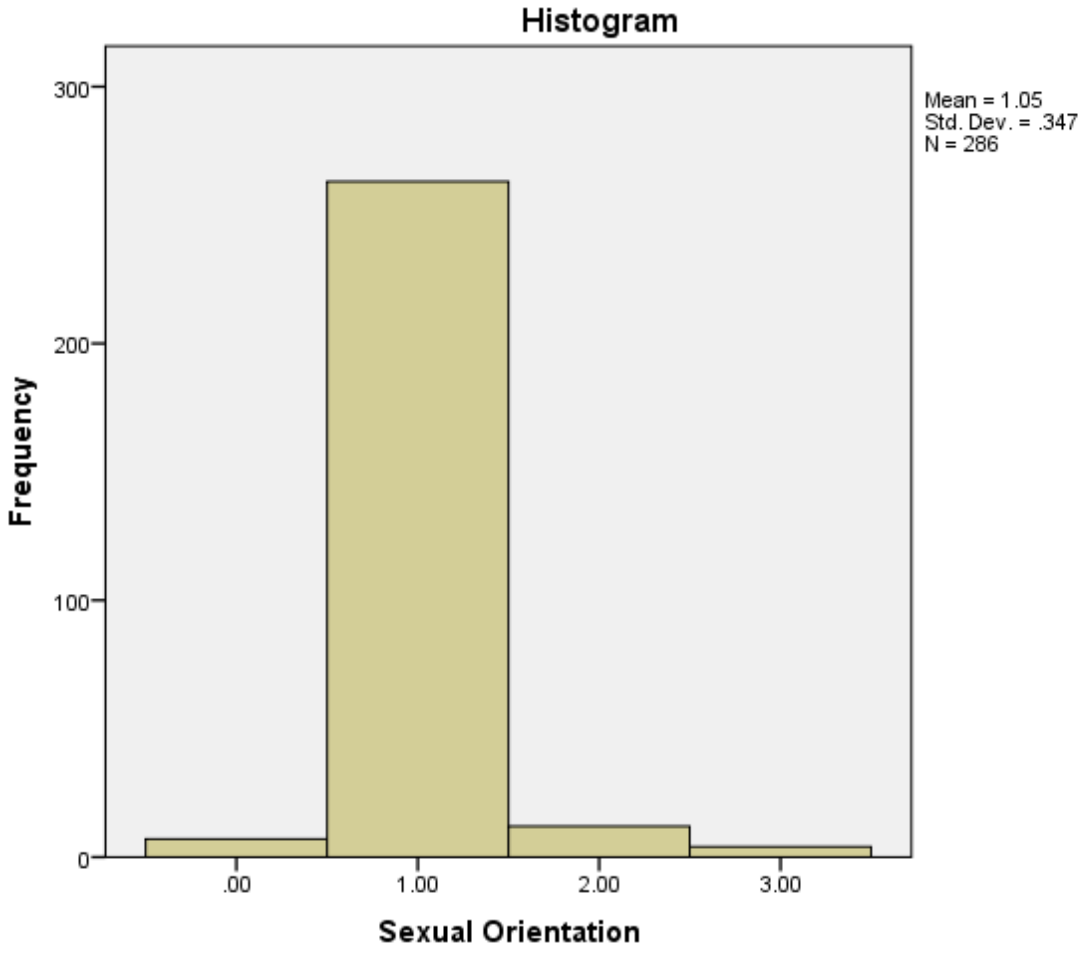


Figure 8. Boxplot for Variable Measuring Sexual Orientation

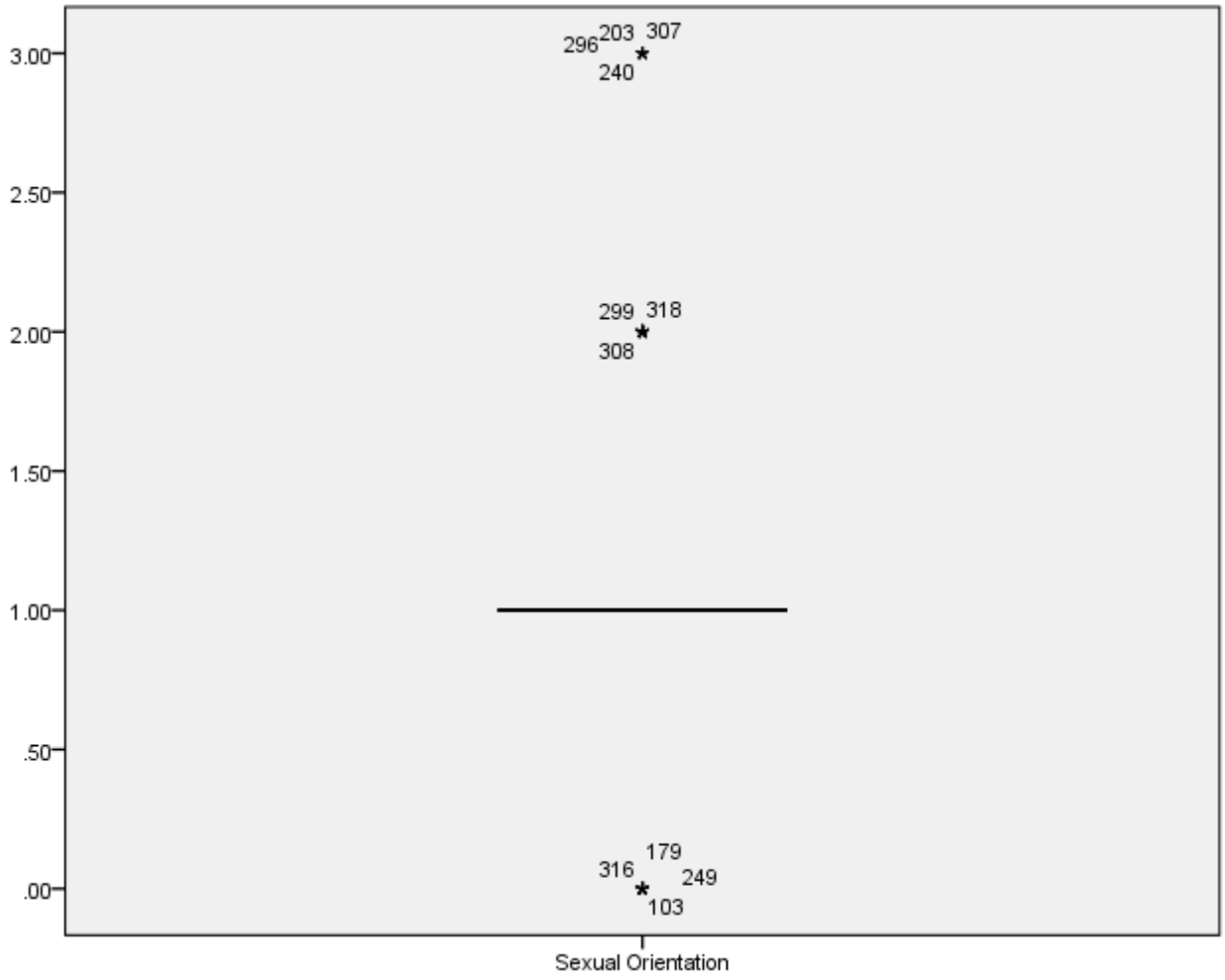


Figure 9. Histogram for Variable Measuring Socioeconomic Status

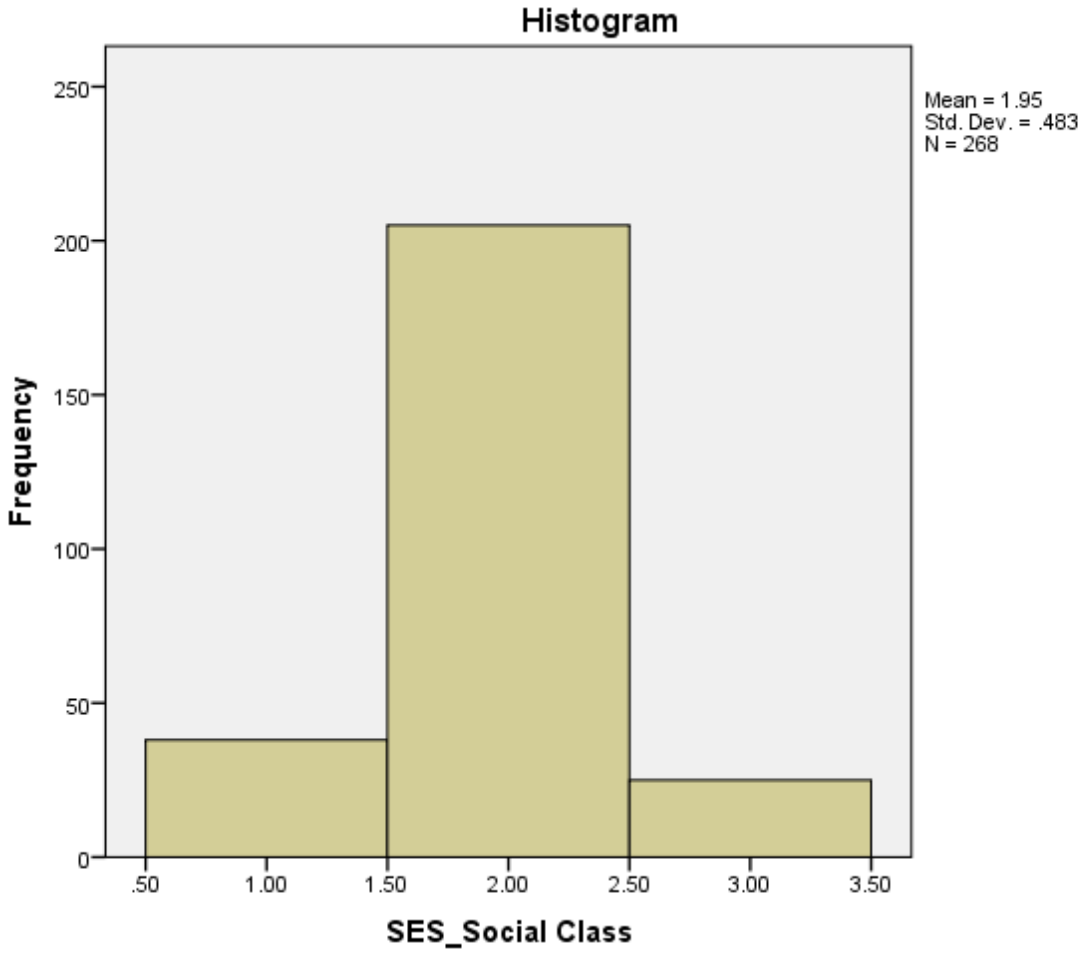


Figure 10. Boxplot for Variable Measuring Socioeconomic Status

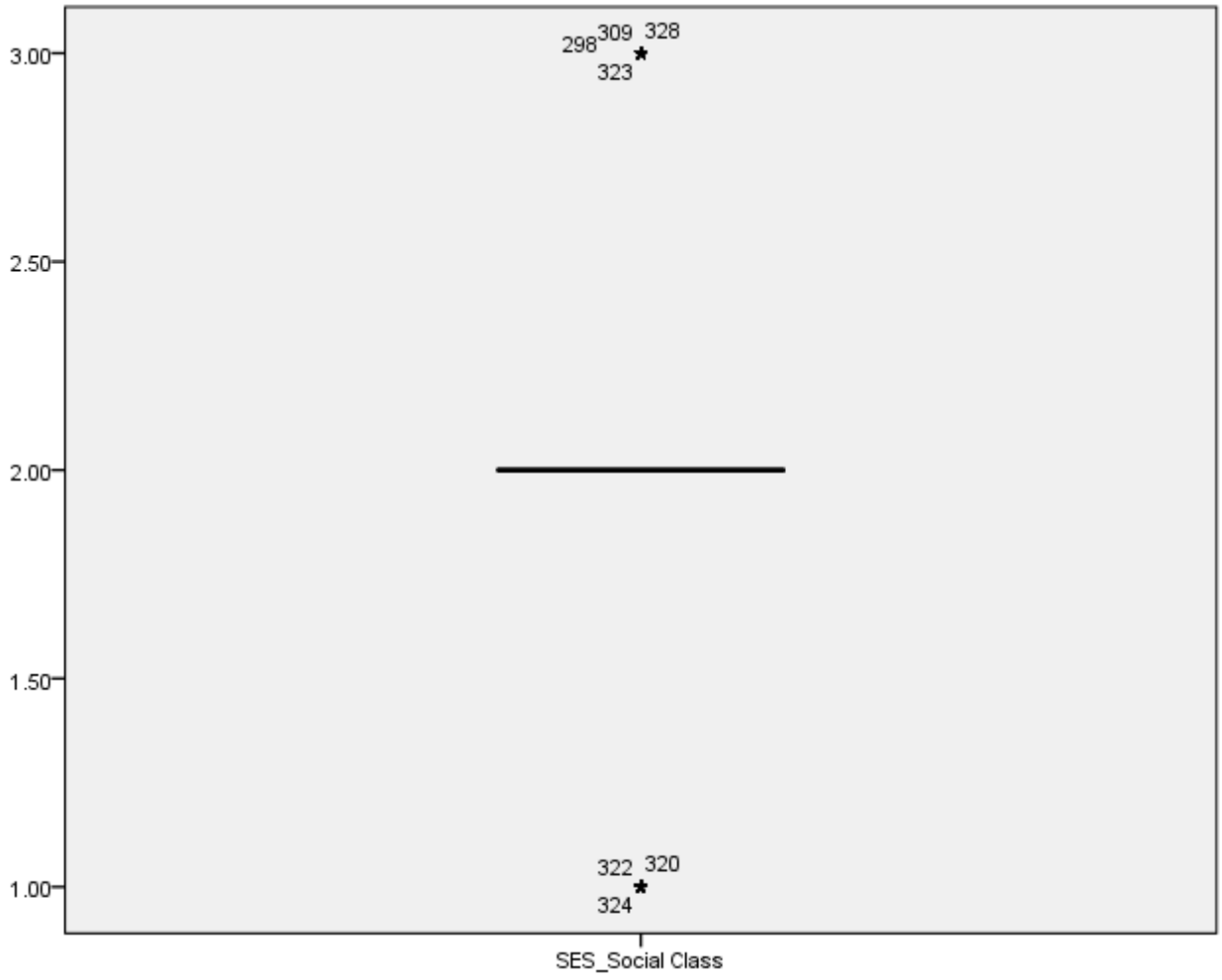


Figure 11. Histogram for Variable Measuring Prior Victimization

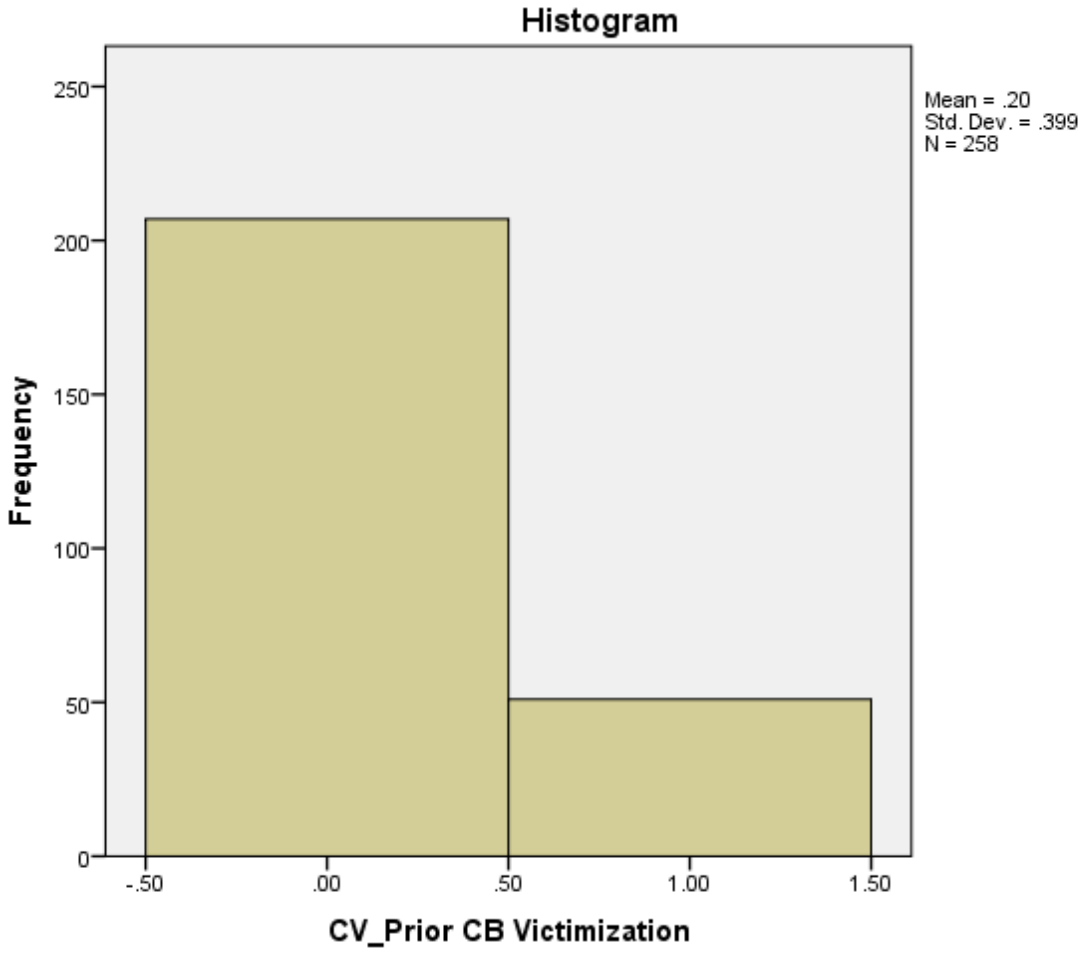


Figure 12. Boxplot for Variable Measuring Prior Victimization

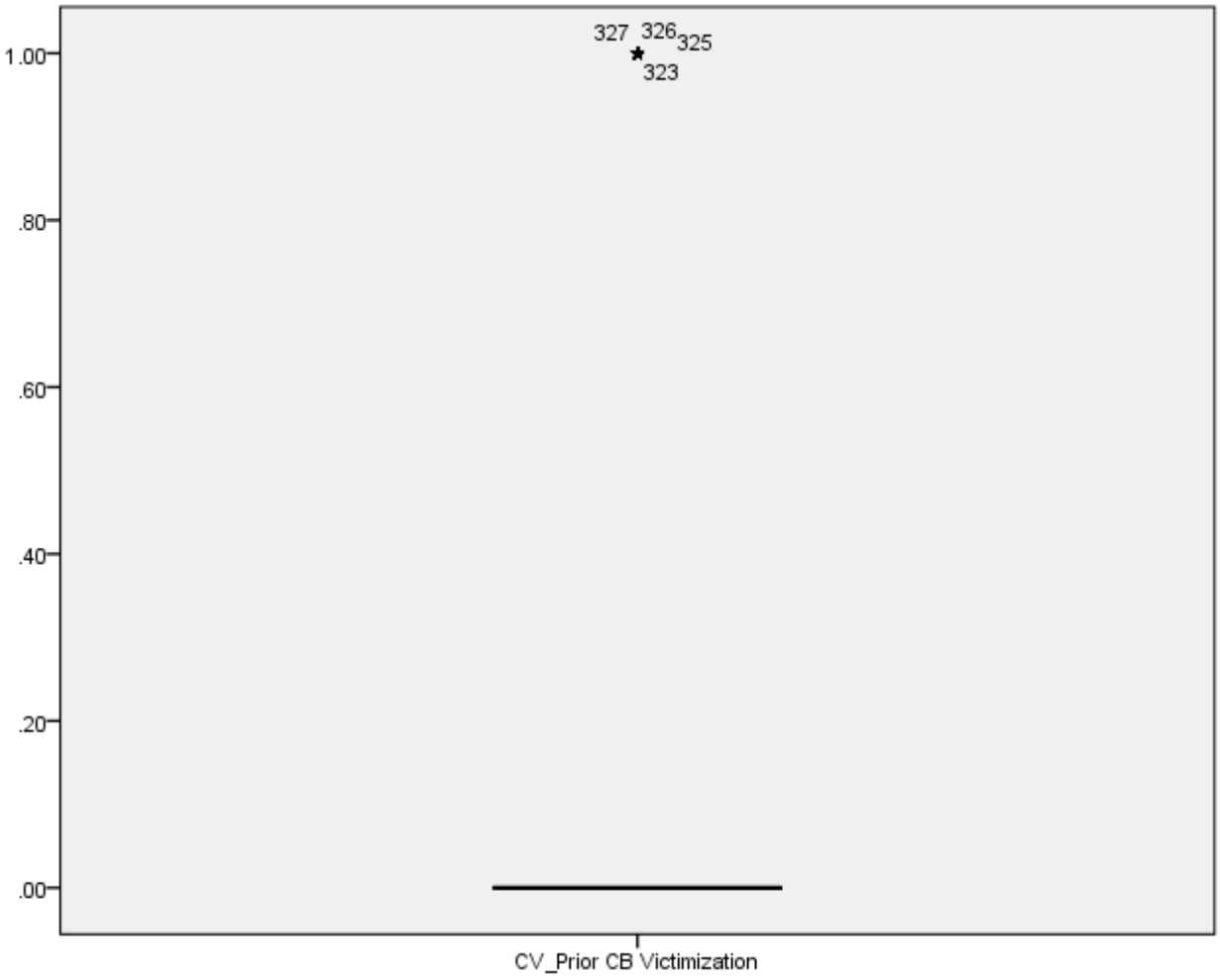


Figure 13. Histogram for Variable Measuring Differential Association

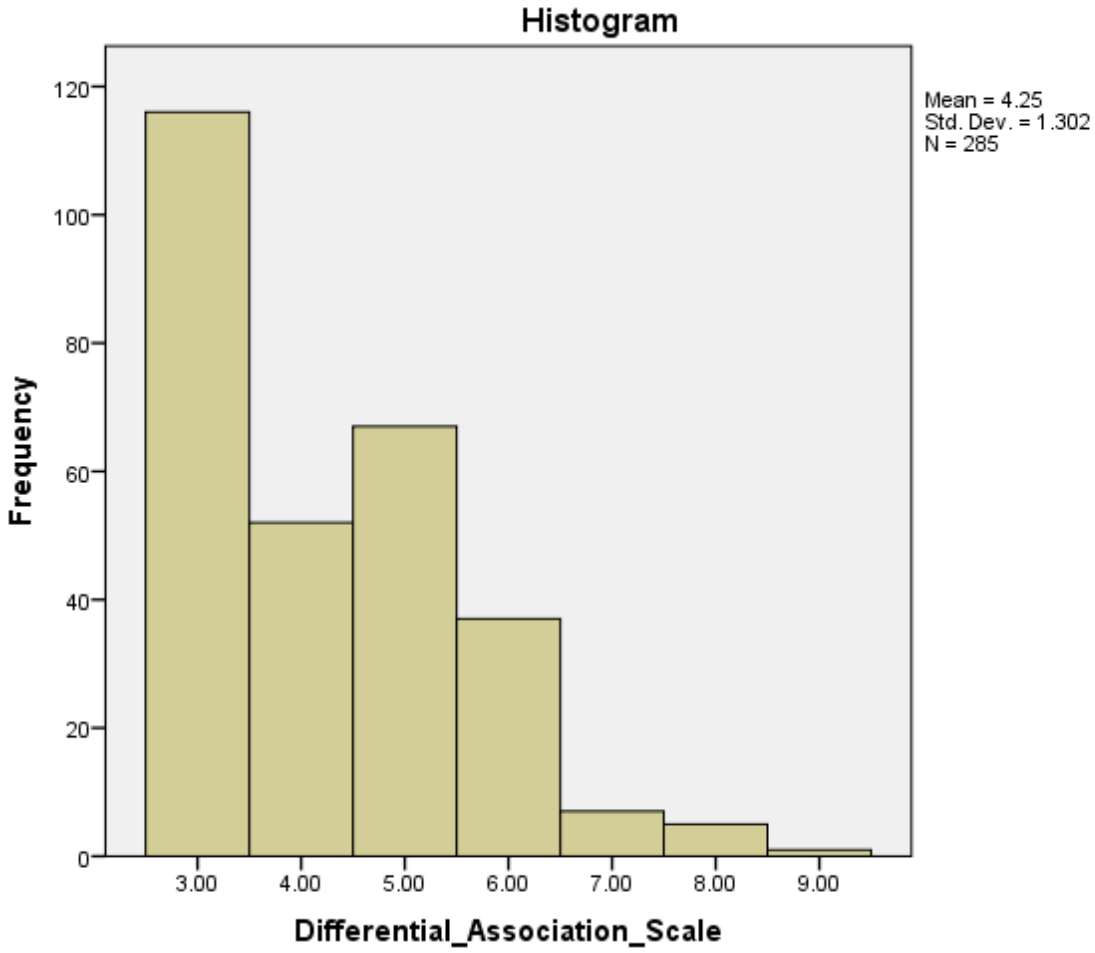


Figure 14. Boxplot for Variable Measuring Differential Association

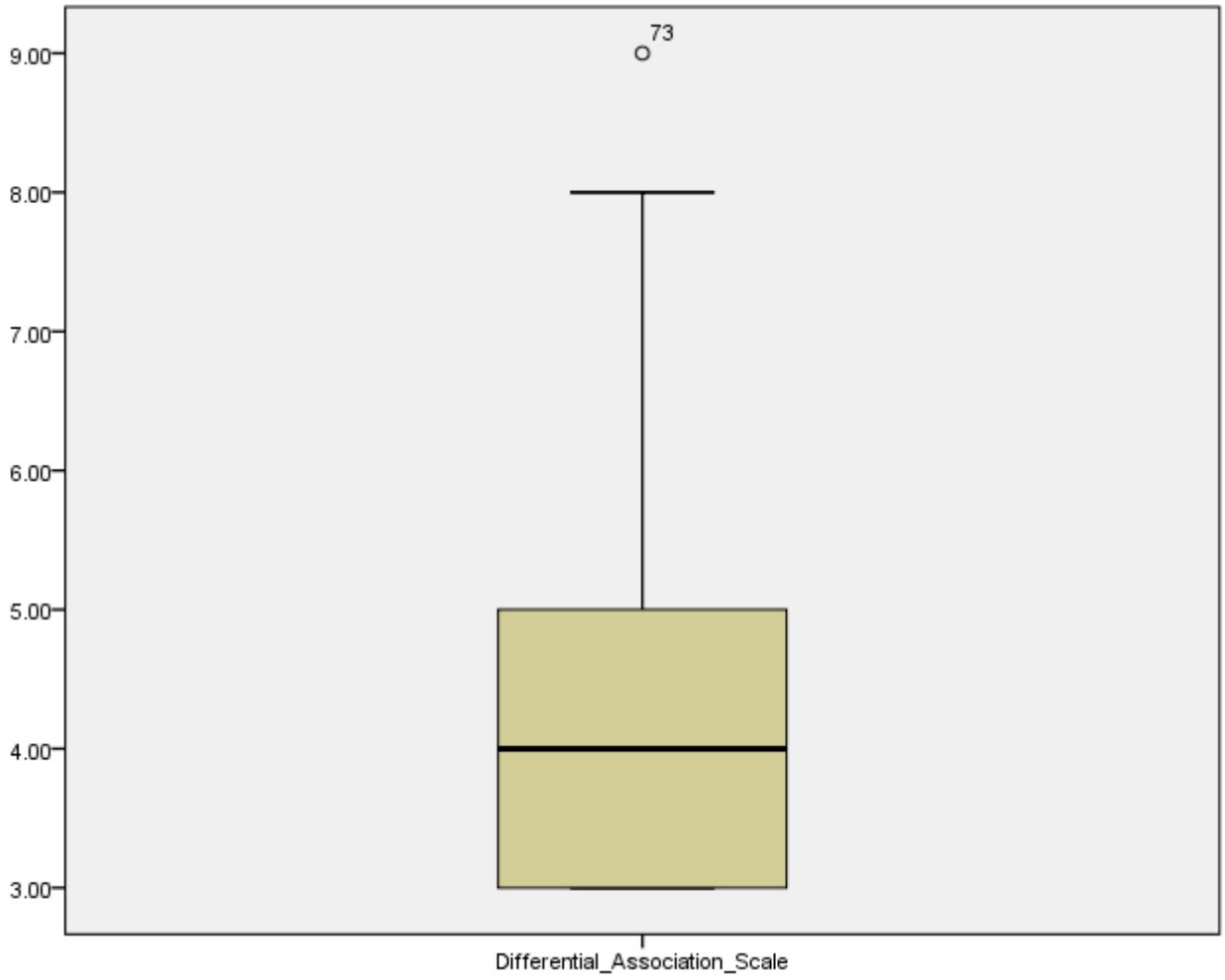


Figure 15. Histogram for Variable Measuring Imitation

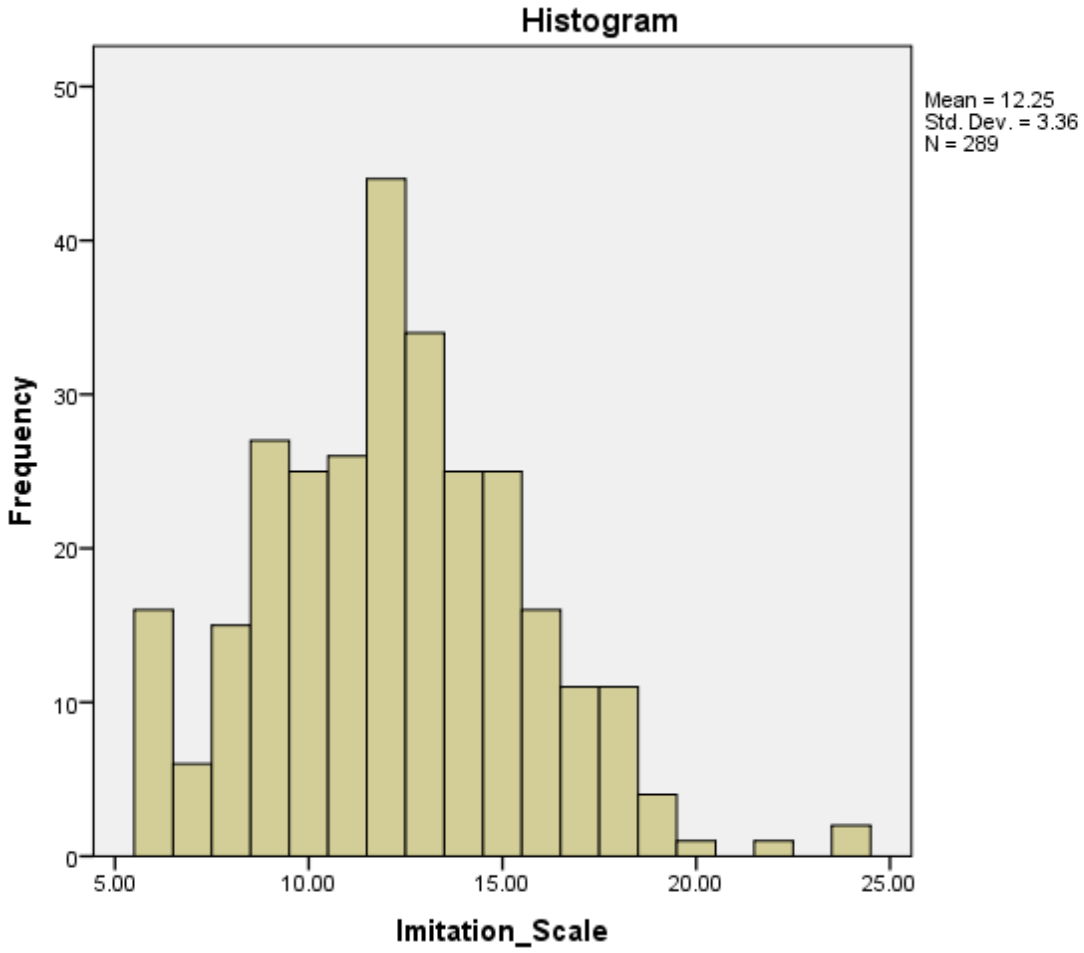


Figure 16. Boxplot for Variable Measuring Imitation

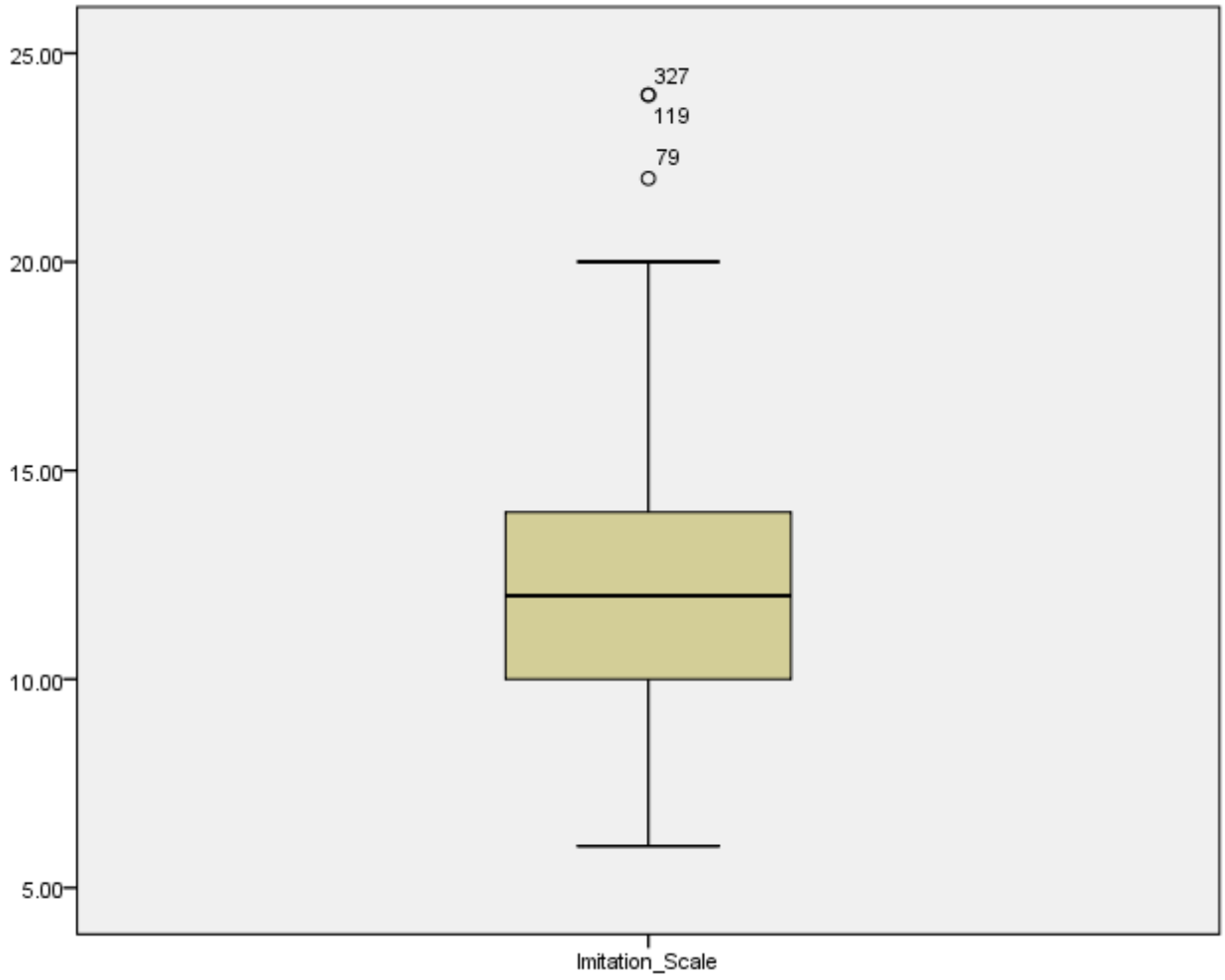


Figure 17. Histogram for Variable Measuring Differential Reinforcement

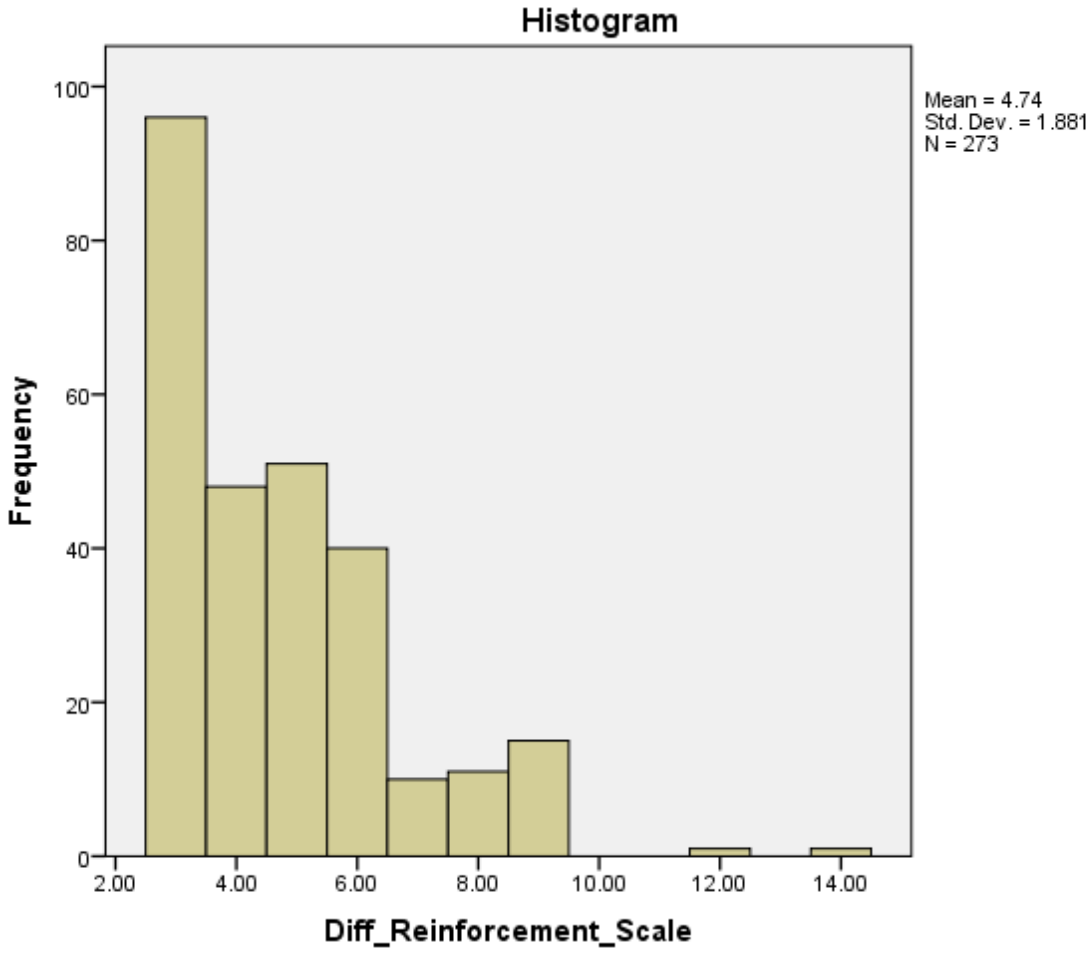


Figure 18. Boxplot for Variable Measuring Differential Reinforcement

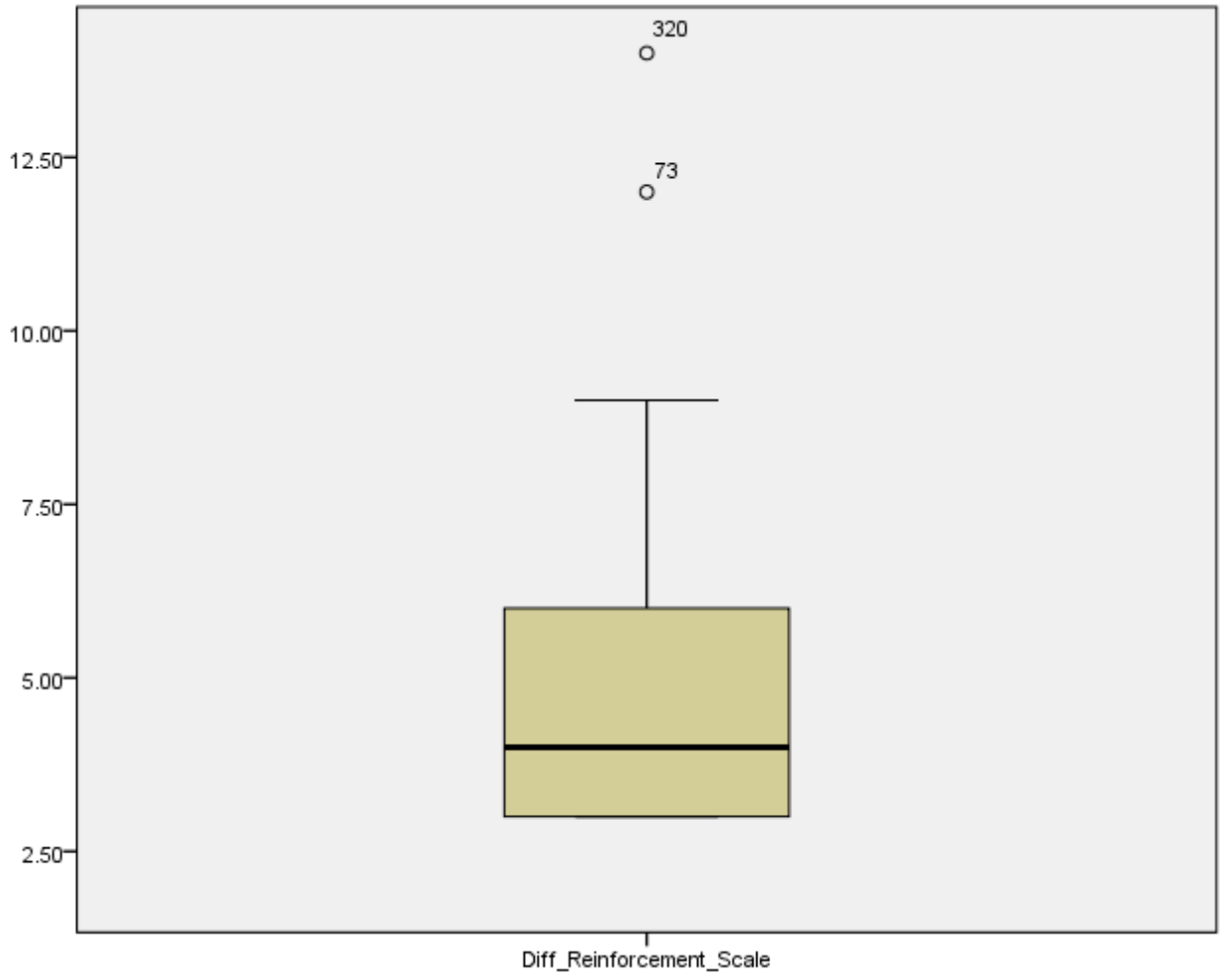


Figure 19. Histogram for Variable Measuring Definitions

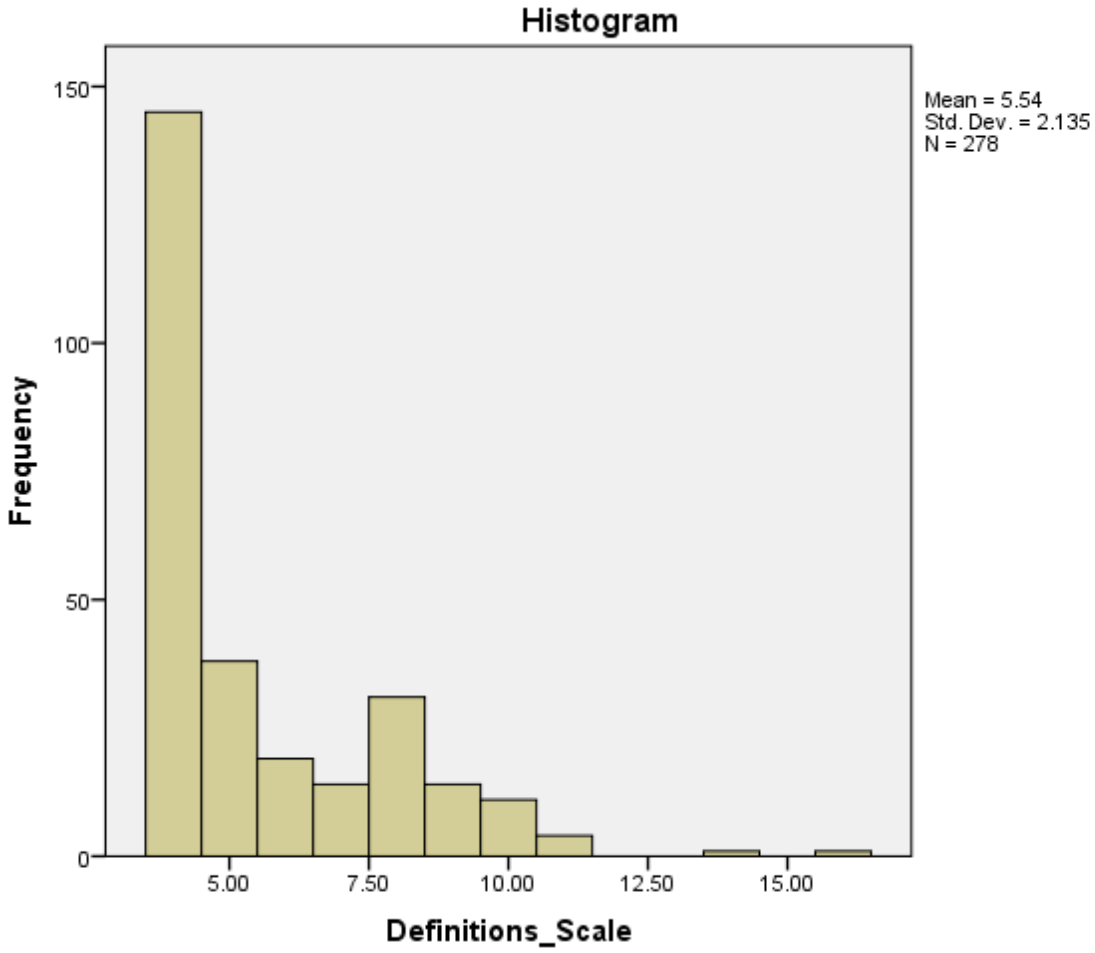
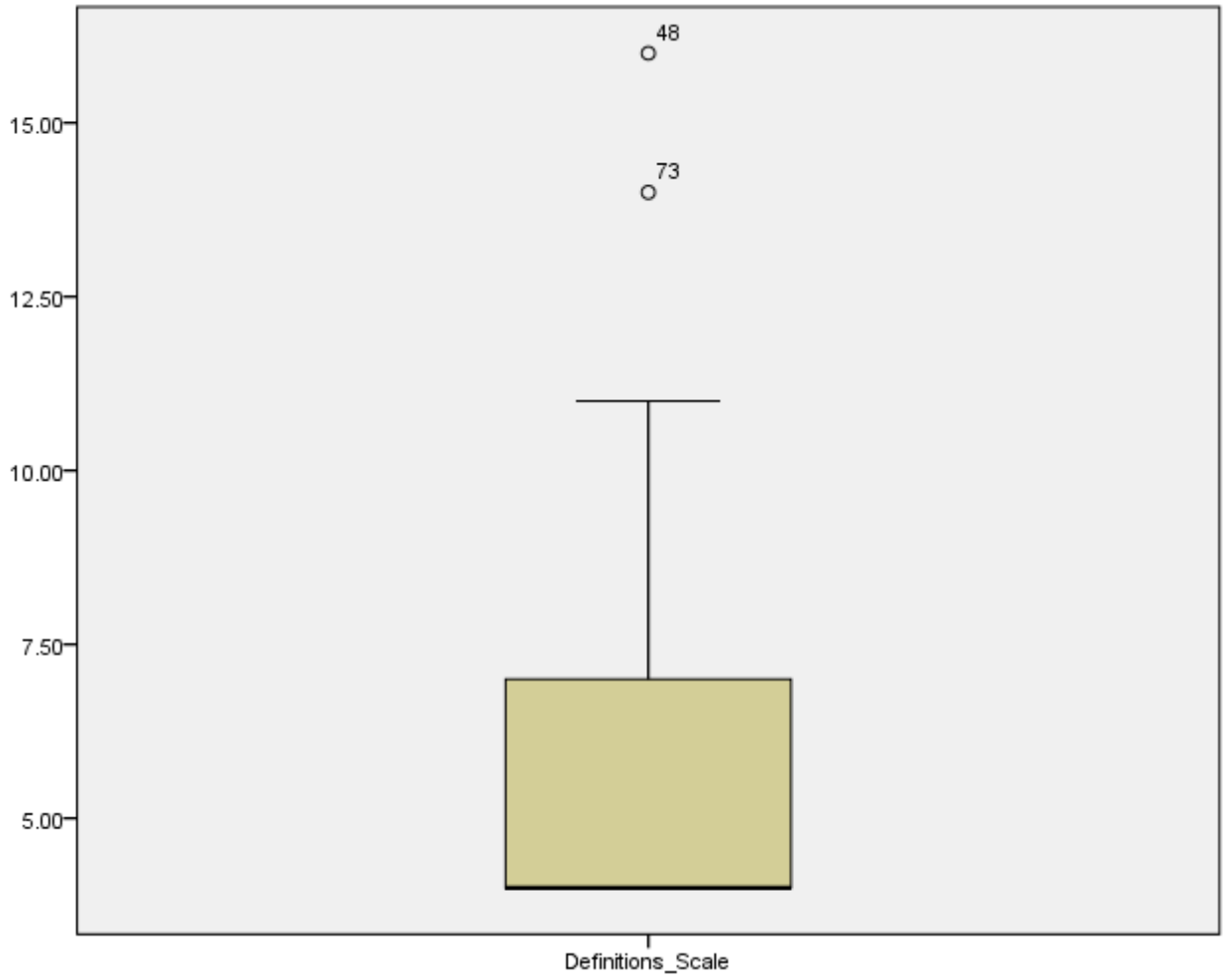


Figure 20. Boxplot for Variable Measuring Definitions



Appendix F

Comparison of Models by Log-Likelihood

Model Type	Dependent Variable	Log-Likelihood	df
Logistic Regression	Victimization Dichotomized	-147.82	9
	Observation Dichotomized	-147.24	9
	Perpetration Dichotomized	-61.03	9
Poisson Regression	Victimization Count	-1058.84	9
	Observation Count	-2852.49	9
	Perpetration Count	-244.90	9
Negative Binomial Regression	Victimization Count	-377.24	10
	Observation Count	-602.30	10
	Perpetration Count	-126.03	10
Zero-Inflated Negative Binomial Regression	Victimization Count	-373.20	19
	Observation Count	-591.80	19
	Perpetration Count	-116.20	19
Zero-Inflated Poisson Hurdle	Victimization Count	-639.80	18
	Observation Count	-1833.00	18
	Perpetration Count	-132.50	18
Poisson Hurdle	Victimization Count	-639.50	18
	Observation Count	-1833.00	18
	Perpetration Count	-132.60	18
Negative Binomial Hurdle	Victimization Count	-372.80	19
	Observation Count	-590.10	19
	Perpetration Count	-115.80	19

Note. The variable for sexual orientation and the control variable (prior victimization) are not included in the models.

Appendix G

Comparison of Models by Log-Likelihood With Control Variable

Model Type	Dependent Variable	Log-Likelihood	df
Logistic Regression	Victimization Dichotomized	-130.66	10
	Observation Dichotomized	-132.34	10
	Perpetration Dichotomized	-58.63	10
Poisson Regression	Victimization Count	-973.73	10
	Observation Count	-2604.64	10
	Perpetration Count	-234.35	10
Negative Binomial Regression	Victimization Count	-348.41	11
	Observation Count	-543.26	11
	Perpetration Count	-120.64	11
Zero-Inflated Negative Binomial Regression	Victimization Count	-343.20	21
	Observation Count	-533.20	21
	Perpetration Count	-110.20	21
Zero-Inflated Poisson Hurdle	Victimization Count	-609.60	20
	Observation Count	-1687.00	20
	Perpetration Count	-128.50	20
Poisson Hurdle	Victimization Count	-609.20	20
	Observation Count	-1687.00	20
	Perpetration Count	-127.80	20
Negative Binomial Hurdle	Victimization Count	-342.40	21
	Observation Count	-532.80	21
	Perpetration Count	-110.40	21

Note. The variable for sexual orientation was not included in the models.