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## Examining the Intersection of Self-control, Peer Association and Neutralization in Explaining Digital Piracy

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**Abstract:** *Digital piracy is becoming a common criminal behavior. However, criminologists do not have a firm understanding of how self-control, peer association, and neutralization come together to explain digital piracy. Using data from college students' responses to hypothetical scenarios, the present study determines if self-control, peer association, and neutralization interact to provide an explanation of the digital piracy in a manner that was previously unexplored. The findings from this study indicated that each type of measure individually provides an explanation of digital piracy, but also that peer association and neutralization interact together to explain the behavior. This contribution to the literature by validating the past hypothesis that neutralization does have a positive link to the commencement of digital piracy.*

**Keywords:** digital piracy, computer crime, neutralization, self-control

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## INTRODUCTION

Adler and Adler (2006) argued that the dramatic growth of the Internet has provided a haven for deviance and crime. For instance, individuals are able to find, copy,

and use intellectual property without providing payment (i.e., pirate intellectual property). One form of intellectual property piracy that is occurring more frequently is digital piracy. Digital piracy is defined as the illegal act of copying digital goods, software, digital documents, digital audio (including music and voice), and digital video

without explicit permission from and compensation to the copyright holder (Gopal et al. 2004; Higgins, Fell, and Wilson, 2006). We point out that digital piracy has been used in several ways. Some have focused on specific form of digital piracy (Gopal et al., 2004; Higgins, 2005), and others have used multiple forms of digital piracy (Higgins et al., 2006) under this definition. Thus, this definition of digital piracy is a broad and usable definition of the behavior. The easy accessibility of the Internet has facilitated an increase in digital piracy in recent years. Wall (2005) argued that the Internet enables individuals to commit criminal activity easily for four reasons: it allows anonymous communication; it is transnational; it has created a shift in thinking from the ownership of physical property to the ownership of ideas; and it is relatively easy. Additionally, Wall (2005) contends that the Internet facilitates piracy because it allows the offense to take place away from the copyright holder; it provides the offender with the perception that the act is victimless. However, this behavior is not victimless.

In the United States, intellectual property that includes digital media is protected by copyright laws. The illegal copying and distribution of copyrighted materials over the Internet was made a felony offense by The No Electronic Theft Act (17 U.S.C. §§ 506 & 507) (see Im and Koen 1990 for the complete details of this legislation). These pieces of legislation are instrumental in making digital piracy a crime.

Multiple studies have investigated predictors and preventative behaviors of piracy (Chiang and Assane 2002; Cronan and Al-Rafee 2008; Ramikrishna, Kini, and Vijayaraman 2001). For example, Liao, Lin, and Lin (2009) found that perceived prosecution risk and behavior control affected the user's intention to participate in digital piracy. However, some researchers have used criminological theories (i.e., neutralization, differential association and self-control) to gain an understanding of digital piracy (Higgins, Wolfe, and Marcum 2008; Hinduja 2007; Ingram and Hinduja 2008; Morris and Higgins 2009). These studies do not provide an understanding of how these three theories come together to explain digital piracy. Therefore, a gap is left in understanding the link between self-control and digital piracy in the literature, as well as other potential theoretical explanations of digital piracy.

The purpose of the present study is to gain a better understanding of the choice to participate in digital piracy by examining how neutralization, differential association, and self-control theory work together. Thus, the present study is important because it will assist in providing a unique understanding of digital piracy. To be clear, it will illuminate the different meanings of the connections between these three theories that have not been previously examined. The following text will provide a brief overview of the three theories utilized in this study

## NEUTRALIZATION THEORY

While some may not view digital piracy as a crime, it is illegal. One theoretical basis may provide some information concerning individual's perceptions of digital piracy -- neutralization theory. Sykes and Matza (1957) addressed the rationale as to why individuals' would seemingly shirk the idea of social constraints so that they may be able to commit deviant or criminal behavior. To be clear, the legal, moral, and ethical issues are not completely disavowed, but the individuals shortly relieves themselves from these dictates so that they may feel released to perform the behavior of interest. This means that the individual may use verbal or cognitive cues to convince himself or herself of the acceptability or the properness of the behavior regardless of society's view of the behavior. When this process takes place, the individual is then free to perform the behavior without acquiring a permanent deviant or criminal persona or identity. The persona or identity is not acquired because the individual has adequately neutralized the feelings of the dominant society toward the behavior. In short, because of neutralization, the typical social controls that inhibit deviant and criminal behavior are inoperable, and this allows the individual to feel free to violate the conventions of society (Sykes and Matza 1957). The neutralization process takes place using five main techniques.

The main techniques that are important in the neutralization process are as follows:

- Denial of responsibility (i.e., it is not my fault)
- Denial of injury (i.e., no harm resulted from my actions)
- Denial of victim (i.e., nobody got hurt)
- Condemning the condemners (i.e., how dare they judge me, when they are just as criminal or hypocritical)
- Appeal to a higher a loyalty (i.e., there is a greater or higher cause).

These techniques provide individuals with the information and the thought process necessary to garner freedom from conventional social constraints so that criminal and deviant activity may take place (Sykes and Matza 1957).

Overall, the support for neutralization theory is mixed (see Maruna and Copes 2005 for a meta-analysis of previous studies); however, the theory does have merit when explaining criminality. For example, Goode and Cruise (2006) used responses from 28 individuals to examine the role of neutralization and cracking (i.e., the illegal disabling parts of software that are undesirable to the user). The results of this indicate that crackers have different mean levels of the neutralization techniques. In fact, Hinduja (2007) used a sample of university students in the United States to show that neutralization was weakly

related to digital piracy. Hinduja (2007) argued that other measures were more salient and supported the view that neutralization had a weak link with crime, but was specific to digital piracy. The weak and mixed results indicate that additional studies are needed, and that these studies may need to take place in the area of digital piracy. Ingram and Hinduja (2008) used data from 2,032 college students to show that acceptance of the techniques that were associated with the denial of responsibility, denial of injury and victim, and the appeal to higher loyalties. Without directly testing group issues, they further suggested that their results showed that students are more concerned with group norms rather than legal norms or harm to others. Morris and Higgins (2009) used data from 585 college students attending multiple universities to show that neutralization has a small effect on digital piracy when controlling for other theoretical measures that include self-control and differential association. While the central parts of neutralization theory have been under scrutiny by researchers (Goode and Cruise 2006; Hinduja 2007; Ingram and Hinduja 2008; Morris and Higgins 2009), with respect to digital piracy, these authors have not delineated why neutralization may have a connection with other theoretical measures in the same behavioral context--piracy.

These above-mentioned studies do not address the interaction between neutralization and other theoretically relevant measures to explain digital piracy. Maruna and Copes (2005) assert that different types of people neutralize behaviors differently. It is possible that various learned behaviors and different levels of self-control could have an effect on the neutralization process. The present study assumes that the techniques of neutralization will interact with other measures that may explain digital piracy.

## **DIFFERENTIAL ASSOCIATION THEORY**

Sutherland (1947) argued that criminal behavior is learned through interaction and exposure to differential associations with individuals from a primary intimate group. Criminal behavior is learned through these associations. With regard to piracy, the actual learning that takes place is not only the mechanical techniques (i.e., how to illegally download music, software, or movies) of a crime, but also the internal techniques (i.e., the motives, drives, and rationales) that allow the individual to use the mechanical techniques. Crime is the result of an overwhelming excess of definitions (i.e., attitudes) that are favorable to performing the criminal behavior.

In Sutherland's version of differential association, important pieces that need to be considered are the frequency, duration, priority and the intensity of the associations. Akers (1998) argued that associations that are exposed first (priority), more frequently and for a longer time (duration), and with greater intensity

(importance) will have the greatest impact on the individual. Intimate groups are typically comprised of family and friends. Due to the priority, duration, and importance, these groups tend to have the greatest impact on the individual.

Definitions are also important for association theory. Definitions refer to an individual's attitudes toward a specific behavior including techniques, rationalizations, motivations, and drives (Sutherland 1947; Akers 1998). For Akers (1998), the definitions for criminal and deviant behavior do not require a total rejection of conforming values, and deviant definitions do not involve a complete set of counterculture values that motivate crime and deviant behavior. As Akers (1998: p. 37) put it, "[t]hey [referring to Sykes and Matza, 1957] left no doubt that techniques of neutralization are intended to be types of 'definitions favorable' to crime that were left unspecified in Sutherland's theory." Sykes and Matza (1957) argued that their theory was an extension and modification of differential association theory. This perspective is important because it addresses the issue of why some people violate the norms that they endorse.

Differential association has been applied to digital piracy. Specifically, researchers have shown that peer association has a link with software piracy, music piracy, and movie piracy (Higgins and Makin 2004; Higgins 2005; Higgins, Fell, and Wilson 2006; Hinduja 2007). While these studies are instructive, the studies do not take into account the possible connection that may exist with neutralization and digital piracy (Morris and Higgins, 2009) and that peer association alone may not provide the stimulus to engage in digital piracy. However, an abundance of peer associations that are linked to digital piracy may be energized in combination with the different neutralization measures. The present study assumes that peer association will have a positive influence on digital piracy. This influence will be exacerbated by or interact with, techniques of neutralization. If this is positive, then we will have supported Akers's (1998) view of the interplay between differential association and definitions.

## **SELF-CONTROL THEORY**

Gottfredson and Hirschi's (1990) version of self-control theory provides an important view of crime and deviance. They emphasize that the stable individual difference of low self-control provides a causal structure underlying deviance. In order to explain the stability of crime over time and the lack of specialization of crime, Gottfredson and Hirschi (1990) argued that crime is the result of low self-control. They argued that self-control was, "the tendency to avoid acts whose long-term costs exceed their momentary advantages" (Hirschi & Gottfredson 1994:3). Individuals with low self-control were characterized as: risk-taking, impulsive, lacking empathy, preferring simple and easy tasks, and preferring

physical tasks. These characteristics inhibit an individual's ability to accurately calculate the consequences of deviance. In this form, low self-control explains all forms of crime--acts of force or fraud that individuals' pursue in their own interest--and analogous acts. Further, low self-control originates in early socialization when parents are ineffective or inconsistent in their application of the parenting tasks. Therefore, neglecting, uncaring, and single parents are likely to fail to socialize their child to properly delay gratification, care about the feelings and desires of others, and properly control their impulses.

While under scrutiny from several researchers, Gottfredson and Hirschi's theory has generated a moderate amount of empirical support for criminal and deviant behaviors (Pratt & Cullen 2000). Nevertheless, while several studies have examined the effects of self-control on crime and deviance, one issue has consistently arisen in the literature. Researchers should be clear about how the measurement of self-control can influence the interpretation of the link between self-control and crime. For instance, as in the tradition of Grasmick et al. (1993), when researchers treat self-control as a personality trait, they are focusing on the characteristics that Gottfredson and Hirschi presented to indicate those with low self-control. Focusing on these characteristics does not allow researchers to gain an appreciation of the process of self-control that may be at work during the decision-making process. The characteristics can be applied to digital piracy to help outline this issue. For instance, those with low self-control are not likely to wait to purchase a copy of the digital media, care about the copyright agreement that is attached to the digital media or believe that no one is being harmed. Further, these individuals may be attracted to the thrill, ease and simplicity of performing digital piracy. Those with low self-control would be likely to perform digital piracy. To date, the empirical research shows some support for this view (Higgins 2005; Higgins, Fell, and Wilson 2006). Therefore, in the present study, it is expected that the personality view of self-control will have a link with digital piracy.

Alternative conceptualizations and measurements of self-control are important to the literature as well. One alternative conceptualization takes the focus away from the characteristics and from viewing self-control as a personality trait or a predisposition for crime. In Hirschi's (2004) view, the personality use of self-control is: 1) a search for the motives of crime and delinquency that are counter to their original theory; 2) a use that shows little value in the explanation of crime; 3) not an explanation of how self-control operates but intimates that an individual will become criminal because they are who they are; and 4) a measure that does not infer more is better. Thus, Hirschi (2004) sees self-control not as a personality trait or predisposition for crime, but self-control is the tendency to consider the full range of potential costs of a particular act.

Under this view, self-control is a set of inhibitions that individuals carry with them wherever they go. This removes the focus from long-term costs, and it allows any set of costs to be inhibitors while placing an emphasis on the contemporaneous nature of the inhibitions. In other words, individuals are consistently considering the inhibitions for a behavior while in a situation. Thus, crime and delinquent acts are self-perpetuating, but they are possible due to the absence of an enduring tendency to avoid them (i.e., the inability to see the full range of the inhibitions).

Typical inhibitions that an individual considers are consonant with the bonds from social control theory (i.e., commitment, involvement, belief, and attachment) and provide a target for dishonor if a transgression is perpetrated. Because an individual becomes criminal or delinquent when they feel relatively free from intimate attachments, aspirations and moral beliefs, a noncriminal or non-deviant individual is exercising self-control by recognizing and adhering to inhibitions so they do not dishonor those that are admired. Therefore, self-control is akin to a self-imposed physical restraint on behavior.

Hirschi (2004) tested this view by using data from the Richmond Youth Survey. To capture the new conceptualization, he used nine items that capture a variety of social bonds (i.e., attachment, commitment, and belief).<sup>1</sup> He shows that his conceptualization of self-control has a negative link with delinquency. This is supportive of the re-conceptualization of self-control, which states that individuals add up the negative costs of an act and behave in accord. The important issue with this study was Hirschi's (2004) measures. His use of nine items that reflect social bonds is consistent with his view that self-control and social control are one in the same.

Piquero and Bouffard (2007) used data from college students to examine the re-conceptualization of self-control. They interpreted Hirschi (2004) to be more from the rational choice tradition rather than the social bonding tradition. Their approach to operationalizing self-control was to ask students to provide a list of seven "bad things" that could possibly occur involving drunk driving and sexual aggression, and the percentage of the likelihood of these "bad things" occurring. The product of these responses was added together and higher scores on the measure indicated more inhibitions. Piquero and Bouffard (2007) also included the developed by Grasmick et al. (1993). In comparison, the "bad things" measure of self-control has a stronger link with drunk driving and sexual aggression than the Grasmick et al. scale.

These two studies show that Hirschi's (2004) conceptualization of self-control may have importance for criminology. This view can be applied to digital piracy. Individuals are likely to perform digital piracy when they feel relatively free of their attachments, their aspirations, and moral beliefs. When individuals feel that they are anonymously using the Internet and they are not likely to

be detected performing digital piracy by someone that they admire or that digital piracy is not immoral, they are likely to perform the behavior. Moreover, some may aspire to perform digital piracy because obtaining the digital media may provide a source of relaxation that is desirable. Thus, there is not any self-restraint from performing digital piracy.

A more recent study performed by Higgins, Wolfe and Marcum (2008) examined the connection between three different measures of self-control and digital piracy, including Piquero and Bouffard's (2007) self-generated inhibitions measure. Through the analysis of data obtained through survey to college-level students, Higgins et al. (2008) found that level of self-control does in fact affect the likelihood of commission of digital piracy. This supported past research, as Higgins (2005) and Higgins et al. (2006) also showed that self-control had a link with digital piracy. Therefore, the present study hypothesizes that the way Piquero and Bouffard (2007) uses inhibitions and Hirschi (2004) uses social bonds to capture self-control will have negative links with digital piracy.

While these studies are instructive, these studies do not take into account the connection between self-control and neutralization to explain digital piracy. The findings of the present study could validate the results of Higgins et al. (2008), but also add to the literature by including the examination of neutralization. These studies do not provide an understanding of how neutralization may moderate the link that self-control has with digital piracy.

Hirschi's (2004) reconceptualization of self-control theory has importance for the use of neutralization. That is, Hirschi's (2004) bringing self-control back to a sense of social control lays the foundation for integration. In Hirschi's (1969, 2002) social control theory, he argued that individuals free from attachments, aspirations, and moral beliefs are more likely to be criminal or delinquent. To clarify, Hirschi used the techniques of neutralization as the conceptualization and operationalization of his beliefs concept. He used this to explain how an individual may believe that an action is morally wrong and still commit it. Hirschi argued that an individual might perform an immoral action and endorse the techniques of neutralization because their beliefs in the conventional behavior are so weakly held. Since self-control is an individual propensity that is developed early in life that is essentially social control, neutralization may be an exacerbating set of measures that can provide an understanding of digital piracy. If this is the case, then the self-control and neutralization come from similar conceptual pools. Further, positive results would suggest that Hirschi is correct that self-control and social control is the same thing, especially if neutralizations are part of the belief component of control theory. Thus, a gap in the digital piracy literature exists in the area that may be explained by this combination of measures.

## THE PRESENT STUDY

Recognizing that neutralization may have a link with different forms of other theoretical measures, the present study examines the additive and the moderating link that neutralization has with digital piracy, self-control, and peer association. Linking neutralizations and self-control to explain criminal behavior has been utilized multiple times in the past. However, this study will contribute to the literature by examining the potential interaction effects between the three measures, especially the changes in the levels self-control.

This effort represents the first systematic study that examines the additive and moderating role of neutralization. Regarding the study of digital piracy, this is the first systematic study to our knowledge that examines the link between neutralization as an additive and moderating measure to understand digital piracy. Concerning the study of peer association, the present study represents the first effort to understand the moderating role that neutralization has to understand digital piracy. Further, this study is the first to examine the moderating link that neutralization has with self-control to understand digital piracy.

## METHODS

### Procedures and Sampling

This study used a self-report questionnaire administered to college students at three universities in the southeastern United States. Upon Institutional Review Board and Human Subject Protection review, data were collected during the 2006 fall semester. The survey was handed out to required general education courses open to all majors and courses only open to justice administration majors (dependent upon the availability at each institution). Professors of the surveyed classes had given prior permission for the study to take place during class. Students present in class on the day that the questionnaire was administered took part in the study. A cover letter explained the purpose of the study, the voluntary nature of the study, and that responses would be completely anonymous and confidential. The researchers also verbally stressed these rights to the students as the survey was being handed out. Following these procedures, approximately 358 surveys were collected as part of the sample with 10 individuals refusing to participate.

Some may criticize the use of a college student sample because of its lack of generalizability. Self-control theory is a general theory that has been thought to explain all crime all of the time, no matter the sample. Consequently, issues of generalizability are minimized in the present study (Love 2006). Further, Payne and Chappell (2008) reviewed a number of studies using college student

samples and concluded that criminologists have learned, or confirmed, a great deal from using students as research samples. This suggests that the generalizability to other samples outside of college students may be limited, but the use of college student samples does not limit the potential of what may be learned.

The research also shows that college students, as a group, are the most likely to engage in digital piracy (Higgins et al. 2006; Hinduja 2003; Hollinger 1988; Husted 2000). College students have regular access to computers, yet are less controlled by vigorous rule enforcement on campuses (Hinduja 2003). Additionally, college students are more likely to engage in digital piracy due to insufficient financial funds to acquire digital media through legitimate means. Therefore, the current study has sampled those individuals most likely to engage in digital piracy: college students.

## Measures

**Dependent Measure.** Consistent with previous research utilizing self-control measures (Higgins et al. 2006; Piquero and Bouffard 2007; Piquero & Tibbetts 1996), the dependent measure in the present study was the response to a hypothetical scenario. A pilot study was used to obtain the scenario. Thirty students, in a liberal arts course open to all students at the university (who did not take part in the final study) were asked to write three realistic scenarios about downloading a CD from the Internet. This resulted in 80 scenarios. After the lead author reviewed the scenarios, two other faculty members, not involved with this study, reviewed the scenarios reducing the number to 10 scenarios. Twenty students, in a different liberal arts course open to all students at the university, were asked rate each scenario to determine how realistic nature using a scale that was anchored as not realistic 0 to completely realistic 100. The scenario that was used in this research was rated an average of 97 percent realistic across the twenty students (see Appendix A for the scenario).

The scenario is:

“A popular CD has just been released to music stores nationwide. All of your friends have heard the CD and told you that it is great and that you have to get it! Unfortunately, every time that you try to go to get the CD, you cannot because it is always sold out. However, a friend tells you about an on-line web-site that has posted an underground copy of the entire CD. The site will only allow visitors to download the CD, before the visitors can listen to it. You really want to the CD, but there is a 100 percent chance of getting caught. However, there is a 50 percent chance of downloading a virus when the CD is downloaded and there is a 100 chance that the music quality will be low.” I would perform this behavior...

Respondents marked their level of likelihood to perform the behavior on an 11-point scale that ranged from

*not likely* (0) to *100% intention* (10). The scores ranged from 0 to 10. An individual's intention of performing the act was indicated by higher scores reflecting greater intentions.

**Self-Generated Inhibitions.** Some researchers have contended that the used of hypothetical scenarios may not accurately reflect a person's real-world decision-making process, as they are artificially articulated by the researcher (Bouffard 2002). In particular, Bouffard (2002) argues that the use of hypothetical scenarios may lead to priming of the respondents' answers and create methodological problems. To remedy these problems, Piquero and Bouffard (2007) suggest the use of subject-generated consequences to measure self-control. The present study has utilized this contemporary view of self-control using this methodology by presenting respondents with a table in order for them to develop their own measures of deterrence.

For the scenario (going to the underground web site to download the CD respondents were asked to list five “bad things” that might occur if one were to engage in the act and, then on the corresponding side of the table, to indicate the importance (0%-100%) of each of the “bad things” when they make the decision to perform the act. Piquero and Bouffard (2007) argued that those with longer lists the inhibitions, or potential costs, are more salient (i.e., consistent with Hirschi's 2004 re-conceptualization), whereas those with low self-control ignore the costs of the behavior which is consistent with Gottfredson and Hirschi's (1990) contention. Further, this method allows researchers to collect inhibition information from the scenarios without priming the individual or limiting their responses to items that had been preselected for them. The respondents' self-generated responses were used to gauge the individual's level of self-control. According to Piquero and Bouffard (2007), the use of self-generated responses will better capture an individual's true inhibitions and more accurately capture self-control. Factor analysis using a Varimax rotation and Scree test indicated that these inhibitions formed a uni-dimensional measure with adequate levels of internal consistency (.70)

**Associating with Peers.** While Hirschi (2004) argued that associating with delinquent or criminal peers is a form of inhibitions, the present study uses the measure to account for differential association in the context of Akers's (1998) theory. Consistent with previous research (Higgins et al. 2006), the present study used six items to capture the students perceptions of the number of male and female friends that download music (see Appendix A for specific items). The students responded using the answer choices (1 = none, 2 = 1-2, 3 = 3-4, 4 = 5 or more). The scores ranged from 5 to 24. Factor analysis using a varimax rotation and a scree test shows that the scale was uni-dimensional. Cronbach's alpha analysis indicates that the scale is internally consistent (.95).

**Techniques of Neutralization.** To maintain the crime free image, individuals invoke several different techniques to neutralize their behavior. The original theory of neutralization was developed to explain juvenile delinquency, so our measures of neutralization were operationalized to capture the same general concepts put forth by Sykes and Matza (1957) and used by Piquero, Tibbetts, and Blankenship (2005). To that end, 4 items were used to capture neutralization. All of the response categories for each of the items ranged from 1 (strongly disagree) to 4 (strongly agree). Higher scores on the items indicated stronger levels of neutralization and should be related to higher intention levels of digital piracy.

The techniques of neutralization used in the survey are: "the entertainment industry exaggerates the impact of not paying for downloading music from internet", "profit is emphasized above everything else in the entertainment industry", "the government overly regulates downloading music", and "it is ok to download music without paying for it because CDs nowadays don't have good songs" (see Appendix A for the specific items).

**Control measures.** The respondents were asked their age (an open-ended question), sex (1= male, 0= female), and race (0= non-white, 1= white).

## RESULTS

Table 1 presents the means, standard deviations, and bivariate correlations for the variables in the present study. Forty percent (40%) of the respondents indicated they were likely to download the music as described in the scenario. Diagnostics of this measure did not indicate an overly skewed or kurtotic distribution of this measure. The average student downloaded nearly 2 times in the past two weeks. The average score of the Piquero and Bouffard (2007) measure indicated low levels of self-control. These findings indicate some disjuncture in the self-control measures. Neutralization measures indicated that the students did not neutralize digital piracy. The students averaged moderate levels of association with downloading peers (14.98 of a possible 24). The majority of the respondents were female, and the average age was around 21 years old.

The bivariate correlations indicate that all of the measures had predicted effects related to intention to download a CD. All of the neutralization measures had a correlation with the intention to download a CD in the predicted direction. For instance, the industry exaggerates the impact ( $r=0.17$ ), profit is emphasized ( $r=0.15$ ), government overly regulates the industry ( $r=0.17$ ), ok to download ( $r=0.34$ ). This finding is consistent with the research on neutralization (Piquero et al. 2005; Hinduja 2006). Peer association had a correlation with intention to download a CD ( $r=0.34$ ) that is consistent with previous research (Higgins 2005). Further, self-control had a

negative correlation with intention to download a CD ( $r=-0.14$ ). Notably, the largest correlation between the measures was .45, indicating the multicollinearity was not a problem with these data, but further tests of multicollinearity were performed in the regression analysis.

Table 2 presents the regression analysis that used intention to download music as the dependent measure. The measures of neutralization, peer association, self-control, and demographics (i.e., sex, age, and race) are used to understand the additive influence on intention to download music.

In Table 2, the results show that "ok to download" ( $b=1.11$ ,  $B=0.24$ ), downloading peers ( $b=0.15$ ,  $B=0.24$ ), and self-control ( $b=-0.01$ ,  $B=-0.12$ ) were significant in understanding intention to download, or willingness to commit the act of digital piracy. Similar to Hinduja (2006), significant neutralization showed that relief from society's values is possible and important in digital piracy. Associating with downloading peers indicated support for Akers's (1998) view that differential association was an important measure in understanding criminal behavior. In this study, the behavior was digital piracy. The results of model 1 indicate support for self-control theory.

Multicollinearity is examined in all of these regression models using the variance inflation factor (VIF). Field (2000) indicated that a VIF below 4.00 indicates that multicollinearity is not present in the data. All of the VIF coefficients across model 1 are below 2, indicating that multicollinearity is not a problem in this model.

Table 3 presents a split regression model that contains the neutralization measures, self-control, peer association, and demographics (sex, age, and race). The regression model was split by disagree and agree for "ok to download". This will allow for a closer inspection of the interaction issues that may be present with this particular measure. For the "disagree" and the "agree" models, the results indicated that peer association (disagree model: [ $b=0.15$ ,  $B=0.26$ ], agree model [ $b=0.13$ ,  $B=0.23$ ]), in combination neutralization, increased an individual's intentions to download a CD. Importantly, the VIF coefficients indicated that multicollinearity was not a problem in these data because they are all below 2.00.<sup>2</sup>

## DISCUSSION

The goal of this study was to provide a better understanding of digital piracy, specifically music piracy. In pursuit of the goal and purpose, the present study hypothesized the following findings: self-control would have a negative link with digital piracy; peer association would have a positive link with digital piracy; techniques of neutralization would have a positive link with digital piracy; and, techniques of neutralization would interact

Table 1. *Bivariate Correlations of Measures (n=300)*

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Intention to Download	4.38	3.72	1.00									
2. Industry Exaggerates Impact	2.56	0.86	0.17**	1.00								
3. Profit Emphasized	3.12	0.76	0.15**	0.45**	1.00							
4. Gov. Overly Regulates	2.39	0.78	0.17**	0.45**	0.18**	1.00						
5. OK to Download	2.27	0.80	0.34**	0.36**	0.17**	0.34**	1.00					
6. Peers	14.98	6.15	0.34**	0.14**	0.16**	0.15**	0.25**	1.00				
7. Self-Control	31.97	43.56	-0.14**	-0.01	-0.15**	0.01	-0.08	-0.07	1.00			
8. Sex	0.40	0.49	0.05	0.04	0.03	-0.00	0.07	0.12*	-0.16**	1.00		
9. Age	21	2.76	-0.13*	0.03	0.02	-0.01	0.01	-0.24**	-0.04	0.04	1.00	
10. Race	0.70	0.46	-0.09	0.11	0.21**	-0.02	-0.02	-0.01	-0.07	0.03	0.06	1.00

\* Correlation is significant at the 0.05 level.  
 \*\* Correlation is significant at the 0.01 level.

Table 2. *Additive Regression Model: Neutralization, Peers, Self-Control, and Demographics (n=300)\*\*\**

	<i>b</i>	<i>SE</i>	<i>b/SE</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>
1. <i>Industry Exaggerates Impact</i>	0.12	0.29	0.43	0.03	0.62	1.60
2. <i>Profit Emphasized</i>	0.43	0.30	1.44	0.09	0.76	1.31
3. <i>Gov. Overly Regulates</i>	0.13	0.29	0.44	0.03	0.75	1.34
4. <i>OK to Download</i>	1.11**	0.28	4.04	0.24	0.77	1.29
5. <i>Peers</i>	0.15**	0.03	4.34	0.24	0.86	1.17
<i>R<sup>2</sup></i>	0.20					
6. <i>Self-Control</i>	-0.01*	0.00	-2.16	-0.12	0.93	1.07
7. <i>Sex</i>	0.06	0.40	0.16	0.01	0.95	1.06
8. <i>Age</i>	-0.07	0.07	-0.93	-0.05	0.93	1.08
9. <i>Race</i>	-0.75	0.43	-1.76	-0.09	0.94	1.06

\* Denotes statistical significance at the .05 level.  
 \*\* Denotes statistical significance at the .01 level.  
 \*\*\* Sample size is reduced due to missing cases.



Table 3. *Split Regression Model: Neutralization, Peers, Self-Control, and Demographics (n=300)\*\*\**

	Not OK to Download						OK to Download					
	<i>b</i>	<i>SE</i>	<i>b/SE</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>	<i>b</i>	<i>SE</i>	<i>b/SE</i>	<i>Beta</i>	<i>Tolerance</i>	<i>VIF</i>
1. <i>Industry Exaggerates Impact</i>	-0.11	0.36	-0.29	-0.02	0.68	1.47	0.68	0.51	1.34	0.17	0.611.65	
2. <i>Profit Emphasized</i>	0.45	0.36	1.23	0.09	0.83	1.21	0.09	0.57	0.16	0.02	0.611.63	
3. <i>Gov. Overly Regulates</i>	0.33	0.41	0.81	0.06	0.74	1.35	0.07	0.41	0.16	0.02	0.851.18	
4. <i>Peers</i>	0.15**	0.04	3.72	0.26	0.89	1.13	0.13	0.06	2.20	0.23	0.851.18	
<i>R</i> <sup>2</sup>	0.16						0.10					
5. <i>Self-Control</i>	-0.01	0.01	-1.85	-0.13	0.90	1.12	-0.01	0.01	-0.61	-0.06	0.941.07	
6. <i>Sex</i>	0.26	0.51	0.51	0.04	0.93	1.08	-0.43	0.68	-0.64	-0.07	0.911.11	
7. <i>Age</i>	-0.17	0.09	-1.89	-0.13	0.94	1.07	0.09	0.14	0.66	0.07	0.831.21	
8. <i>Race</i>	-0.76	0.54	-1.40	-0.10	0.95	1.06	-0.32	0.75	-0.43	-0.05	0.831.20	

\* Denotes statistical significance at the .05 level.  
 \*\* Denotes statistical significance at the .01 level.  
 \*\*\*Sample size is reduced due to missing case.

with self-control and peer association to explain digital piracy.

The results from the study indicated support for Gottfredson and Hirschi's (1990) and Hirschi's (2004) revised version of self-control theory. That is, the study showed that self-control did have a negative link with digital piracy. The results indicated that individuals who are able to see the consequences of their actions are not as likely to commit digital piracy. This result is consistent with and validates previous research connecting self-control to digital piracy (Higgins et al. 2006; Higgins et al. 2008). While these results were supportive of self-control theory, other theoretical concepts were also supported which reduces the veracity of self-control in understanding digital piracy. This is in reference to Gottfredson and Hirschi's (1990) comments that self-control is the sole individuals propensity to understand criminal behavior. The data in the present study are unable to support this hypothesis. Although this is not supportive of Gottfredson and Hirschi's (1990) view, the result is consistent with other studies (Pratt and Cullen 2000; Higgins et al. 2006). This latter interpretation suggests that the connection

between digital piracy and self-control is weak. On one hand, the weak connection may be a product of low public instances of deterrents; thus, the salience of the inhibitions may not be at the forefront of the individual's minds. On the other hand, individuals with self-control deficiencies may perform digital piracy because of they are uninterested in waiting and traveling to the store to purchase the digital media.

The results also indicated that associating with digital pirating peers has a positive influence on digital piracy. These results suggest that the association with digital pirating peers may be part of a group process. To be clear, this does not imply that digital piracy takes place in a physical group. While not addressed in the present study, it is possible that piracy is taking place in a digital form of a group. Furthermore, we believe that it is possible that this result indicates that discussions (i.e., communications) of the activity have taken place and that the positive result reflects the influence of these discussions. This result is consistent with the results of previous studies (Higgins et al. 2006).

The results indicate partial support for the role of neutralization as a correlate of digital piracy. The only measure of neutralization we found to have a link with digital piracy was the view that it was "ok" to download music. Maruna and Copes (2005) argued that some individuals may use a different number of neutralizations and specific techniques. To us, our result suggests that the rationale of digital piracy being "ok" is relevant to the importance of the decision-making process. This result indicated that the individual who believes that digital piracy is "ok" will mitigate the possible criminal identity that comes with the crime. Thus, the view that neutralizations are relevant in understanding digital piracy is only partially supported. This provides a more thorough understanding of the connection of neutralization with digital piracy, a hypothesis that has been questionable at best in the current empirical literature.

While the view of the downloading digital piracy is "ok" in promoting digital piracy, the non-significant results deserve some attention as well. The non-significant results indicated that not all parts of neutralization might be relevant, which is consistent with previous research in the area using neutralizations (Hinduja 2007; Morris and Higgins 2009). Based on the operationalization of digital piracy in the present study, it could be that the individuals do not see the broader picture of the digital media industry. That is, the individual does not take into account the roles of government or the parts of the digital piracy industry when making the decision to pirate digital media.<sup>3</sup> This is an area of concern, as these are the entities that are harmed the most from the proliferation of this particular activity as noted above. Maruna and Copes (2005) argued that some offenses are more suitable for neutralization. The complete use of all of the neutralizations that Sykes and Matza (1957) presented may be better suited to explain certain types of crimes than other. It could be that digital piracy is a behavior that does not mesh well with neutralization theory.

We also performed an interaction analysis on our data. The interaction considered the influence of "ok" to download on all of the other measures in the study. By splitting the sample, we showed that this measure interacted with the peer association. The results indicated that neutralization and peer association interact to explain digital piracy. We believe that this is an indication of support for the view that neutralization is an exacerbating factor with peer association to explain digital piracy.

The theoretical implications of this study are substantial. First, our results suggest that Akers's (1998) claim that neutralization is a portion of definitions in differential association theory is supported. This means that neutralizations are part of the larger social learning theory process that assists individuals in taking a moral holiday to commit digital piracy. We interpret this to mean that some individuals are likely to commit digital piracy because of their association with digital pirating

peers (in combination with neutralization). While we did not address this in our study, we suspect that the association with digital pirating peers is not specific to the "off-line" environment. In fact, Warr (2002) argued that virtual peers would have particular importance in the shaping of definitions. We suggest that future researchers investigate this avenue further.

Second, the integrative clarity of Hirschi's (1969, 2002, and 2004) arguments of self-control and neutralizations are not as clear. For instance, our results are supportive for Hirschi's (1969, 2002) contention that neutralization may be a portion of social control; however, the measure of neutralization does not interact with the measure of self-control used in this study. This is pregnant with possible interpretations. The measurement of self-control in this study may be culprit for the non-significant link with neutralizations. With the measurement of self-control being about the salient measures, neutralizations may be less salient. Another way to view this result is that Hirschi's (2004) version of self-control cannot be successfully integrated with neutralization in the context of digital piracy. We use caution when making this claim because of the limits of our data. Overall, our results do not necessarily provide support for integrating self-control with neutralizations.

While this study advances our understanding of digital piracy, the study has a few noted limits. The study could receive criticism as it used industry and government related measures of neutralization, as the measures could be focused more on the individual rather than at the macro level. Because Maruna and Copes (2005) argued that different offenses may require different neutralizations, open-ended methodologies (i.e., qualitative research or subject-generated responses) neutralizations may be necessary to adequately capture this concept. Nevertheless, our measures were adapted from previous research as valid measures of neutralizations and therefore should be viewed as credible. Furthermore, the study made use of cross-sectional data. Longitudinal data could be used in the future to address changes in the theoretical measures and the digital piracy.

The most notable limitation is the sample group. College students, the group most likely to participate in digital piracy, were questioned in this study. It could be argued that this limit the generalizability of the findings to only college students. However, multiple studies (Chiang and Assane 2002; Ramikrishna, Kini, and Vijayaraman 2001) utilize college student samples, indicating a value in these results. These findings are still important as it demonstrates the thought process used when committing digital piracy, a process that most likely is not only used by young adults but also others who commit this type of crime.

Despite the limits, the present study provides information about the intersection of self-control, peer association, neutralization, and digital piracy. The results

indicate that neutralization does have a positive link with digital piracy, but self-control and peer association also have links with digital piracy. Further, the study shows that neutralization interacts with peer association to help better understand digital piracy. Studies that use more the one location that are longitudinal and that use different measures of neutralization will help us understand digital piracy. For now, the present study shows us that individuals' illegally download digital data based on peer associations and neutralization processes, but higher levels of self-control can help reduce instances of the behavior.

## Endnotes

<sup>1</sup> Hirschi (2004) argued that his measure does not include a measure of involvement. He goes on to suggest that involvement could be used in this study and other studies.

<sup>2</sup> Per the request of an astute reviewer, we attempted a three-way interaction between self-control, differential association, and neutralization using two methods. The first method is that we used split ordinary least squares regressions. The second method was to mean center each measure, multiply them together, and use it as a covariate in the ordinary least squares regression. For each analysis, including our original analysis, we performed simulation analysis to understand the statistical power. The simulation consisted of using our original estimates (i.e., slope and standard errors) as the population parameters. We then performed 1000 replications of each model using the same distribution of each measure in the models. The results for each model in our original analysis had adequate levels of statistical power. However, when we attempted the additional models suggested by the reviewer, we did not have sufficient statistical power to have confidence in the results of these models. The results of these analyses are available on request.

<sup>3</sup> As one reviewer pointed out, it could be that most respondents have these negative thoughts about the music industry and government (not just pirates); thus, the neutralization measures do not have a link with digital piracy.

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## APPENDIX A: SURVEY ITEMS

### Scenario

A popular CD has just been released to music stores nationwide. All of your friends have heard the CD and told you that it is great and that you have to get it! Unfortunately, every time that you try to go to get the CD, you cannot because it is always sold out. However, a friend tells you about an on-line web-site that has posted an underground copy of the entire CD. The site will only allow visitors to download the CD, before the visitors can listen to it. You really want the CD, but there is a 100 percent chance of getting caught. However, there is a 50 percent chance of downloading a virus when the CD is downloaded and there is a 100 chance that the music quality will be low.

### Digital Pirating Peers

How many of your male friends that you have known the longest download music from the Internet without paying for it, excluding iTunes, in the last 12 months?

How many of your best male friends download music from the Internet without paying for it, excluding iTunes, in the last 12 months?

How many of your male friends that you are around the most download music from the Internet without paying for it, excluding iTunes, in the last 12 months?

How many of your female friends that you have known the longest download music from the Internet without paying for it, excluding iTunes, in the last 12 months?

How many of your best female friends download music from the Internet without paying for it, excluding iTunes, in the last 12 months?

### Neutralizations

The entertainment industry exaggerates the impact of not paying for downloading music from internet.

Profit is emphasized above everything else in the entertainment industry.

The government overly regulates downloading music.

It is "ok" to download music without paying for it because CDs nowadays don't have good songs.

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