Music Piracy among College Students:  
An Examination of Low Self-Control, Techniques of Neutralization, and Rational Choice

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ABSTRACT
Music piracy, which is often engaged in by college students, constitutes illegal behavior under the U.S. Copyright Act and, arguably, has a negative impact on the music industry. Based on prior research and a focus group conducted for this research, Gottfredson’s low self-control and Sykes and Matza’s techniques of neutralization along with the concept of drift, and rational choice theory have been proposed as appropriate theoretical models for exploring music piracy among college students. Based on a survey of 131 college students, it was found that slightly less than half were not willing to pay 99 cents to download a song. Ninety-four percent had illegally copied a CD and 86% had used a Peer-to-Peer (P2P) website to download music. Self-control was significantly related to whether one shared music on a P2P website in the previous six months. Those who engaged in P2P sharing were also significantly more likely than those who had not shared to support the three tested techniques of neutralization (denial of injury, denial of victim, and appeal to a higher loyalty). The implications of these results are discussed.

Keywords: Music Piracy, Low Self-Control, Techniques of Neutralization, Rational Choice

INTRODUCTION

Digital piracy, defined as the unauthorized copying of digital goods, software, digital documents, digital audio, digital video--for any reason other than backup without permission and compensation to the copyright holder, has increased dramatically in the past decade (Higgins, 2007a). For example, the International Federation of Phonographic Industries (IFPI) estimated that almost 40 billion songs were illegally downloaded in 2008, suggesting that approximately 95% of music tracks are downloaded without payment. Despite the increase of software and movie piracy, music piracy continues to have the greatest legal and scholarly emphasis placed upon
in recent years, sales of CDs have plummeted and the blame has been placed on the use of Peer-to-Peer (P2P) file sharing of songs by individuals (Gerlich, Turner, & Gopalan, 2007). Additionally, Chiu, Huang, and Lee (2005) reported that world sales of recorded music fell in 2002 by seven percent in value and by eight percent in the number of units.

The Internet facilitates music piracy because it allows the offense to take place away from the copyright holder, which provides the offender with the perception that the act is victimless (Wall, 2005). Furthermore, because of their living, social, and economic situation, college students have been identified as the main perpetrators of digital/music piracy (Chiang & Assane, 2008). Accordingly, much of the recent research on digital/music piracy has placed an emphasis on the usage by college students (Gerlich, Turner, & Gopalan, 2007; Higgins, 2007; Higgins, Fell, & Wilson, 2006; Higgins, et al., 2008; Ingram & Hinduja, 2008). Although prior research has established significant correlations between music piracy and college students, a paucity of explanations exist--particularly within the context of theoretical constructs.

For this study, three theories are examined in conjunction with college students’ music piracy: (1) Gottfredson and Hirschi’s (1990) self-control “General Theory of Crime”, (2) Sykes and Matza’s (1964) “Techniques of Neutralization” and concept of "drift", and (3) rational choice theory. Whereas self-control theory suggests a “tendency to avoid acts whose long-term costs exceed their monetary advantages” (Hirschi & Gottfredson, 1994, p. 3), neutralization suggests “a limbo between convention and crime responding in turn to the demands of each, flirting now with one, now the other, but postponing commitment, evading decision” (Matza, 1964, p. 28). Rational choice focuses on weighing the benefits with the risks for any given behavior.

**LITERATURE REVIEW**

**Music Piracy**

Music piracy is a concern for the music industry and law enforcement; the invention of the MP3 files have allowed music to be reduced in size, copied, and sent over an Internet connection. P2P sites, such as Limewire, offered simple ways for users to share their music collection online and compile massive music libraries virtually free of charge (Easley, 2005). The Internet is the primary tool to engage in music piracy by enabling individuals to easily commit criminal activity because it allows anonymous communication; music piracy is transnational and shifts in thinking from ownership of physical property to ownership of ideas (Wall, 2005). College students are the main perpetrators in digital and music piracy, which is not surprising given their routine use of computers, Internet, and technology for educational and personal activities (Higgins, 2007).

The music industry has reported record losses in revenue since the mainstream popularity of P2P and illegal downloading of music. The International Federation of Phonographic Industries (2009) has not only sustained massive revenue loss due to illegal downloading of music, but reveal that pirated CD sales now outnumber legitimate CD sales.
According to Business Software Alliance (2003), piracy had led to lost government revenues, lost jobs, and led to an estimated 11 million dollars in revenue loss. Bhattacharjee, Gopal, and Sanders (2003) reported that 14% of Internet users had downloaded music for free. Moreover, it has led to an estimated loss of $3.1 billion loss for the music industry. Digital/music piracy is also felt around the globe, with an estimated 40% of all CDs and cassettes sold around the world in 2001 were pirated copies (Chiou, et. al., 2005).

Illegal downloading of music presents a variety of legal problems. For example, the Recording Industry Association of America (RIAA) has filed lawsuits against thousands of persons who have allegedly shared files illegally. In late 2005, the RIAA sued 745 individuals for illegal file sharing across 17 different college campuses. Since 2003, thousand of “John Doe” lawsuits, as well as hundreds of “named suits” have been filed (RIAA, 2004). The lawsuits filed by the RIAA that were intended to offset the number of songs illegally downloaded through the Internet have not been successful; P2P file sharing continues at a high rate (Gerlich, et al., 2007; Karagiannis, Broido, Brownee, Claffy, & Faloutsos, 2004).

In the United States, copyright laws protect intellectual property, which includes digital media. The Copyright Act of 1976 paved the way for current copyright laws, which made copyright violations a federal misdemeanor (Im & Koen, 1990). The Piracy and Counterfeiting Amendments Act made mass copyright violations of movies and music a felony. In 1992, The Copyright Felony Act made the reproduction of software and copyright violations a felony. The Electronic Theft Act made the illegal copying and distribution of copyrighted materials over the Internet a felony offense (Im & Koen, 1990). The effects of digital piracy are felt across the globe; the World Intellectual Property Organization has created several treaties to strengthen existing copyright laws; these include The Performers and Production of Phonograms Treaty and The Databases Treaty.

Despite the overwhelming evidence of the negative effects of digital and music piracy, some research suggest that the music industry has more to gain than lose from embracing many of the innovations it is trying to stop (Easley, 2005). Easley (2005, p. 163) argued that by fighting music piracy, “the music industry may be holding back the evolution of the music industry towards an untimely beneficial embrace of the possibilities inherent in electronic distribution of music.” Music piracy may play a role in forcing record labels to adopt Internet technologies, to create richer and more fully featured websites, and to experiment with electronic forms of distribution. Also music piracy is a massive free viral marketing campaign. For example, less well-known music bands have profited off the mass distribution of their music across the country. In addition, it has been argued that a trade-off exists between protection of intellectual property and ultimate profitability (Shapiro & Varian, 1999). In other words, “If you lose a little of your property when you sell it or rent it, that’s just a cost of doing
business, along with depreciation, inventory losses, and obsolescence” (Shapiro & Varian, 1999, p. 97).

Theoretical Explanations

Gottfredson and Hirschi’s Low Self-Control

Gottfredson and Hirschi (1990) define crime as acts of force or fraud undertaken in the pursuit of self-interest and base their theory on the assumption that crime is the source of immediate gratification. In their view, crime requires little effort or planning and provides only minimal, short-term gratification with few long-term benefits to the offender. Poor child rearing is the source of low self-control, and the responsibility of correctly training the child is determined by the parents or guardian. Low self-control, therefore, develops in early childhood when parents are unsuccessful in their ability to properly raise their child; examples of this are neglect, under-caring, or simply having a single-parent household. Low self-control is a personality trait that remains relatively stable over the course of one’s life. Behaviors that are deviant but not criminal, such as smoking, excessive drinking, driving fast, gambling, unprotected sexual relationships, are similar to criminal acts because these activities are also gratifying. Gottfredson and Hirschi suggest that low self-control is the source of crime and criminal activity and that a person with low self-control is less likely to resist the easy, immediate gratification that crime and deviant behaviors provide. Persons with low self-control have the following characteristics: (1) respond to tangible stimuli in their immediate environment, (2) lack diligence, tenacity, persistence, (3) generally are thrill-seekers, (4) prefer physical activity, (5) possess self-centered qualities, and (6) have minimal tolerance for frustration (Gottfredson & Hirschi, 1990).

Many theorists and critics do not agree with Gottfredson and Hirschi’s micro-level theory of crime. For example, Sellers (1999) argue that the immediately gratifying nature of crime is at odds with the real characteristics of certain types of crime. “White collar crime requires a more complex macro-social explanation than self-control theory can offer” (Sellers, 1999, p. 376) and that employees of businesses who break the law require disciplined persons who have high levels of self-control. Barlow (1991) argues that Gottfredson and Hirschi do not introduce the opportunity of crime and they do not provide a specific type of social or cultural setting that would experience high or low rates of crime. Gottfredson and Hirschi do elaborate on parenting management and delinquency, but avoid structural factors of the family, such as family size and social economic status. Poverty, social disorganization, large family size, all has effects on parental management, crime, and delinquency (Barlow, 1991). Many inner city black communities are plagued with these types of structural conditions; Gottfredson and Hirschi also neglect such conditions in General Theory of Crime. Barlow (1991, p. 241) stated Gottfredson and Hirschi are presenting two distinct theories “since the crime part of the theory applies to differences among acts and the criminality part to differences among individuals.” Additionally, Gottfredson
and Hirschi never provide a definition or specify a basis for distinguishing degrees of self-control.

**Sykes and Matza: Techniques of Neutralization**

Similar to Gottfredson and Hirschi, David Matza (1964) and Gresham Sykes’ (1957) work provide an alternative view of crime and deviance, with the primary difference rooted in “soft rather than hard determinism” (1964, p. 27). For Gottfredson and Hirschi, their General Theory of Crime, as well as the accompanying element of social control, is rooted in “hard determinism”, as it attempts to explain all individual differences in the likelihood of committing crime indicates such a determinant measure. Sykes (1957) and Matza’s (1964) original research; however, attempted to explain how juveniles commit “softly determinant”, delinquent acts through the process of “drift.” Matza (1964, p. 29) explained drift as, “an actor neither compelled nor committed to deeds nor freely choosing them; neither different in any simple [n]or fundamental sense from the law abiding, nor the same; conforming to certain traditions in American life while partially unreceptive to other more conventional traditions.” Additionally, Matza (1964, p. 29) stated that drift stood “midway between freedom and control.” Matza suggested that average individuals, guided by underlying influences, would merely “drift” in and out of delinquency through a process that was not seen as a predictor of predictable, frequent, or consistent delinquency. In explaining the underlying influences, Sykes returned to his earlier work with Gresham Sykes (1957) on “neutralization theory.”

According to Akers and Sellers (2008, p. 127), techniques of neutralization “are justifications and excuses for committing delinquent acts, which are essentially inappropriate extensions of commonly accepted rationalizations found in the general culture.” The process of neutralization, therefore, allows for one’s removal of personal responsibility conformity, Sykes and Matza (1957) presented five types of justifications: (1) denial of victim, (2) denial of responsibility, (3) denial of injury, (4) condemnation of the condemners, and (5) an appeal to higher loyalties. Each of these techniques provides the momentary release needed to “drift” in and out of normal moral constraints.

Overall, the research on both “drift” and “techniques of neutralization” have been mixed--offering weak to moderate results (Agnew, 1994; Austin, 1977); however, research on software and music piracy suggests that the behavior is fundamentally condoned by participants (Kini, Ramakrishna, & Vijayaraman , 2004; Peace, Galleta, & Thong, 2003; Morris & Higgins, 2008). Furthermore, prior research suggests that neutralization and deviance may demonstrate a curvilinear relationship (Copes & Williams, 2007; Maruna & Copes, 2005). The result of a curvilinear relationship would presume that individuals that utilize “techniques of neutralization” are not completely committed to conventional or delinquent behaviors.

**Rational Choice Theory**
The use of rational choice theory in the study of criminology is most often associated with the fundamental contention that criminal behavior is decided through the maximization of profits or gains and the lessening of losses (Piquero & Tibbitts, 1996). Prior research suggests that three consistent elements of rational choice theory are situated within rational choice theory (Cornish & Clarke, 1986; Simpson, Piquero, & Paternoster, 2002). First, the decision to commit a crime is fundamentally rational and is rooted in the belief that the criminal act would be of benefit. The eventual determination of criminal behavior would be the weighing of costs versus benefits, with a greater value in benefits. Second, the information associated with crime accompanies correlative and varying rational choices and is specific to particular sets of crime-types. A crime-specific focus allows for changeable information to be associated to differing crimes. Finally, the decision to offend is influenced by both the decision for involvement in criminal behavior and the immediacy of participation in the criminal event. The short and long-term characteristics that shape criminal behavior decision-making provide consistent context throughout rational choice opportunities. A critical factor of rational choice is that a crime specific focus is required, meaning that different crimes evolve in different ways as each crime occurs in a different context (Cornish & Clarke, 1986). Cornish and Clarke emphasize that to ignore such differences can lead to an inability to intervene.

Studies have examined the rational choice decision-making for a variety of offenses (Hickman & Piquero, 2002; Jacobs, 1999) to largely mixed results. One challenge to finding more consistent correlations between crime and rational choice theory are the specific, theoretical constraints that must be met. For example, Carroll and Weaver’s (1986) work with shoplifters indicated a significant, rational processing leading up to the criminal act; however, paid little attention to criminal event rationale such as arrests or detainment.

**Theory-Guided Research on Digital Piracy**

Researchers have found it beneficial to apply various theoretical approaches to explain the causes of digital piracy (see generally: Higgins, 2007; Higgins, et al., 2008; Moore & McMullan, 2009). These studies have relied upon self-control theory, (Higgins, 2007; Higgins, et al., 2008), techniques of neutralization (Moore & McMullan, 2009), and rational choice (in conjunction with self-control) (Higgins, 2007).

In regard to techniques of neutralization, Higgins, et al. (2008) examined a group of approximately 200 ($n = 292, 202, 213,$ and $185$) college students each week over a four-week period assessing their intent to pirate music as well as their neutralizations of such behavior. Utilizing Latent Trajectories Models analysis, it was found that changes of neutralization had a direct influence on change in music piracy behaviors, at least initially. Thus, students will "take a 'holiday' from social controls to allow themselves to pirate music without developing a pirating identity" (p. 334). Furthermore, in a qualitative assessment of techniques of neutralization and digital piracy, it was found that all of a
sample of 45 students supported at least one technique of neutralization (Moore & McMullan 2009).

Higgins (2007) applied a model developed by Piquero and Tibbets (1996) to further explore music piracy. The model was originally developed to examine the effects (indirect and direct) of low self-control and other situational factors when one chooses to commit an offense. The results of 382 surveys administered to college students showed that low self-control has an indirect and direct effect on music piracy. The relationship, however, was not simplistic by any means; the study showed that situational factors also affected piracy. The authors also showed that rational choice, in conjunction with low self-control, are suitable for explaining digital piracy.

Thus, current research shows that criminological theory, specifically low self-control, techniques of neutralization, and rational choice can be useful to exploring an explanation for the mechanisms responsible for music piracy to occur. It has also been found that using more than one theory can be useful as it explores different facets of the process involved in one engaging in music piracy. Current research, however, is relatively limited--more research is needed to replicate the application of low self-control and techniques of neutralization. Prior research, therefore, shows deterministic theories, such as low self-control and techniques of neutralization as well as rational choice can be applied to explain music piracy. On the one hand, a General Theory of Crime is rooted in hard determinism. This presumes that a college student entering into the delinquent act of music piracy is predicatively and consistently delinquent in other forms and was inexorable according to a particular upbringing. On the other hand, drift and techniques of neutralization are rooted in soft determinism. This presumes that a college student entering into the delinquent act of music piracy not only does so temporarily and independently, but also in a manner inconsistent with future delinquency possibilities. Rational choice also appears to address a crucial aspect of music piracy: although the environment may be conducive to engaging in music piracy, the individual must make the decision to actually engage in this behavior.

METHODS

The purpose of this study is threefold: (1) to assess the attitudes and music downloading behaviors among a group of undergraduate students; (2) to assess how some of theoretical constructs of low self-control and drift/neutralization are correlated to illegal music downloading; and (3) to examine sanctions that may affect one's decision to commit music piracy in relationship to his/her level of self-control. The last purpose, therefore, focuses on rational choice (i.e., examining change in attitude based on increasing potential sanctions). To collect this information, a survey was administered to a convenience sample of college students in Texas.

Focus Group, Pilot Test, and Survey

This research was conducted in three stages. First, a focus group was assembled for the purpose of developing
and refining questions. A small group of students were asked to discuss the issue of music piracy, what their thoughts were regarding it, whether they engage in it and whether it should be legal/illegal and why. One trained individual led the group and asked follow-up questions and to expand on areas that were of interest to the project.

Second, after a survey was created, a group of 15 graduate students were asked to pilot the test. They were asked to read each question and ask the surveyor any questions about the clarity of the questions along with their general reaction of the survey. This led to a refined survey.

Third, a small group of trained surveyors administered the final survey to a convenience sample. The interviewers were given a set number of surveys to distribute to students on campus. Thus, a convenience sample was utilized; the students administered the surveys in central locations on campus and to their classmates. The survey was anonymous and voluntary participation was required. After each participant was read the informed consent and agreed to participate, the subject completed the survey and placed it in an envelope. Permission was given by the Institutional Review Board to conduct this research.

Measurement of Key Concepts

Music Piracy

Music piracy was measured by asking students if they had engaged in any of the following behaviors to obtain digital music: a peer-to-peer sharing site, file sharing, CD burning, or any other unauthorized/nonpaid source. During the pilot test it was noted that when students engage in music piracy they are aware of what it is and what they doing; students commented when they see the question, they understood what it was intending to measure.

Attitude and Behavior Regarding Music Piracy

Students were asked several questions regarding their attitude and behaviors of music piracy. For example, they were asked whether they believed downloading music from an unauthorized source was equivalent to stealing or if it was "unethical." They were also asked if they would pay 99 cents to download a song. In regard to other behavior, they were asked if they owned an MP3 player (or IPod, Zune, etc.), how many songs they downloaded, how many of those were downloaded through an unauthorized source, if they had "burned" (i.e., copied) a CD to distribute, whether they had ever shared music through a P2P website, and whether they shared music through a P2P website in the previous six months.

Low Self-Control

Grasmick, Tittle, Bursik, and Arneklev's (1993) scale was included to measure low self-control. It is a 24-item Likert scale where low scores indicate lower self-control. The responses included four items: strongly agree, agree, disagree, and strongly disagree. Those who score higher on the scale have low self-control. The score has shown to have relatively high levels of internal consistency (see Higgins, 2007).

Techniques of Neutralization/Drift

To develop the survey questions regarding techniques of neutralization, a group of college students were asked to participate in a focus group. As part of the discussion, students were asked about their rationale for downloading music through unauthorized sources. The students indicated several
reasons: (1) sometimes they would buy the artist's album at regular sale price after "sampling" it or previewing it through an unauthorized source (i.e., not paying for it), (2) some artists actually benefit from the unauthorized downloading, and (3) it doesn't really harm the music industry. Thus, their explanations revolve around the lack of harm (i.e., denial of injury), lack of victim (denial of victim), and benefiting the artists (appeal to a higher loyalty). Based on these results, questions were developed regarding these three areas.

Rational Choice Theory

The students' attitudes favorable to illegal downloading of music, questions were developed from the focus group. Three specific questions regarding possible legal consequences: students were asked (1) if they were concerned about the possible legal consequences of downloading music through an unauthorized source without paying for it (agree, neither agree/disagree, disagree), (2) if they would continue to download music through an unauthorized source if they knew someone personally was caught and punished for engaging in the same behavior, and (3) if they would still download music from an unauthorized source if they knew if was clearly a crime.

Analytical Strategy

To assess the effect of sanctions on one's decision to commit music piracy, the attitudes and music downloading behaviors among a group of undergraduate students descriptive statistics are reported for each of these variables. Also, comparisons are made between those who had and had not shared music though a P2P website in the previous six months.

To examine whether level of self-control correlates with sharing music online through a P2P website, logistic regression is employed. The dependent variable is identified as the question "Have you shared music online through a P2P network in the past six months?" (yes/no). The individual self-control score was entered as an independent variable along with race, sex, and age as control variables.

Based on this, several questions were developed for the survey based on these categories. These questions are assessed by correlating them individually with whether the student downloaded music through an unauthorized source in the previous six months. Here, a Phi coefficient is utilized, given that the categories are categorical. This will allow a test of significance and an indication of the strength of the relationship.

Last, to assess sanctions that may affect one's decision to commit music piracy (in relationship to his/her level of self-control the set of questions were analyzed by correlating them individually with their self-control score. The self-control score was collapsed into two categories: high and low. Those with low self-control were those who fell above the median score and those with high self-control fell at and below the median score.

Participants

1 This method has been used in previous research (see Gibson, Schreck, & Miller, 2004).
A total of 131 surveys were collected. Beyond their participant’s affiliation with the university, there were no additional demographics or characteristics required for inclusion in the project. Approximately half of the sample was male (see Table 1). The majority of the students were Caucasian (60.8%); however, minorities—particularly Hispanics and African Americans were well represented. The participants ranged in age from 17 to 38, with an average age of 22.3 (SD = 3.187). More than three-fourths of the sample were upper classmen.

Table 1. See appendix

RESULTS
Attitudes/Behaviors of Music Piracy

The students were asked a variety of questions regarding their attitude and actual behaviors toward music piracy. In regard to their attitude, approximately half of the 131 surveyed students (n = 61; 47%) agreed that the would be willing to pay 99 cents to download a song from the Internet; 13% (n = 17) neither agreed/disagreed, while 41% (n = 53) disagreed—they are not willing to pay 99 cents to download a song from the Internet. When asked if downloading music from an unauthorized source (i.e., source where music is not paid for), the majority (n = 61; 47%) neither agreed/disagreed, while 34% (n = 44) disagreed—indicating they believed music piracy was unethical. Only 20% (n = 26) believed it was ethical to engage in music piracy (i.e., download from an unauthorized source). When asked if they believe music piracy is considered stealing, the largest percentage (n = 50; 38%) disagreed. Thus, they did not believe music piracy is a form of stealing. Thirty-three percent (n = 44) neither agreed/disagreed while only 29% (n = 38) agreed that downloading music without paying for it is considered stealing.

Eighty-six percent (n = 113) indicated they owned a portable music system (e.g., MP3 player, iPod, Zune, etc.). Approximately one-third of those (n = 37; 33%) had 17 to 400 songs on their portable music system. Another one-third (n = 30; 28%) had 500 to 800 songs. The last one-third (n = 46; 40%) had 900 to 3,120 songs. The average number of songs one had on their portable music system was 1,969 (SD = 4,484). A common form of music piracy is simply copying (or "burning") a CD on to a blank CD and distribute. In fact, when asked about burning a CD, 94% (n = 123) indicated they had done this previously. Furthermore, 86% (n = 112) indicated they had shared music through a P2P website; 69% (n = 90) indicated they had done so in the previous six months.

In a comparison of those who indicated they had shared music through a P2P website to those who had not, it was found, male students were significantly more likely than female students to report they had shared music through a P2P website (82% compared to 56%); however, the correlation was relatively weak (Phi = .275, p < .05). In regard to race/ethnicity, significant differences were found. Eight-eight percent of African American and 71% of Caucasian students had shared music through a P2P website compared to 61% of the Hispanic students and none of the students who indicated
an "other" race/ethnicity. Again, the difference among the categories was relatively weak ($Phi = .29, p \leq .01$). No significant correlations were found for year in college and whether the students had shared music through a P2P website ($Phi = .208, p > .05$). Also, there were no significant mean differences between age and whether the students had shared through a P2P website ($\bar{x}$ of students who had shared = 22.2 compared to $\bar{x}$ of students who had not shared = 22.5, $t = - .463, p < .05$).

When students were given six options to choose from to describe their typical music downloading habits, the largest percentage, 37% ($n = 46$), indicated they use P2P websites; however, the next largest percentage, 25% ($n = 31$), indicated they use pay sites (such as ITunes, Rhapsody, etc.). Another 24% ($n = 30$) indicated they use a variety of sources: pay sites, P2P, out-of-country where one does not pay, etc.). Eight percent ($n = 10$) indicated they do not download music online. Four percent ($n = 5$) use out-of-country sites where one does not pay (also a form of music piracy). Three percent ($n = 4$) rely primarily on sites where artists post their songs for free (where there is no copyright infringement)$^2$.

**Self-Control and Music Piracy**

To examine factors that correlate with music piracy, descriptive statistics and chi-square analysis were utilized. As shown in Table 2, a large percentage of those with low self-control were more likely than those with high self-control to report behaviors and attitudes supportive of music piracy. More specifically, those with low self-control were significantly more likely than those with high self-control to have borrowed a CD to burn to his/her computer, downloaded (ever or in the previous six months) a song using via P2P network, and would still download music if he/she knew it was a crime. Those with low self-control were also significantly less likely than those with high self-control to pay 99 cents for a song and less likely to believe paying for music harmed the music industry.

**Table 2: See appendix**

Furthermore, to examine factors that correlate with music piracy, the question asking whether students had shared music through a P2P website in the previous six months was relied upon. Given that 69% had indicated they had done this, it would allow comparisons between student who had and had not done this. Whether they had shared music through a P2P website in the past six months (yes/no) was the dependent variable. The independent variables included sex, race, age (as control variables) and low self-control score. A logistic regression model was chosen. The variables were entered into the model by using Forward: Likelihood Ratio, meaning the model was data-driven--including only the variables that significantly increased the predictive effect of the model.

The results of the model showed that self-control was a significant factor predicting whether one reported engaging in music piracy in the previous six months ($\beta_R = .917; p < .005$; see Table 3). Thus, the lower one's self control, the more likely

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$^2$ Five participants did not answer this question.
they were to have shared music through a P2P website recently (previous six months).

The resulting model yielded appropriate scores for goodness of fit. For example, the likelihood ratio of the final model yielded a chi-square of 4.6 (d.f. = 7, p < .05)$^3$, indicating the data adequately fit the model. Also the classification model of the initial model revealed a hit ratio of 69% while the final model yielded a hit ratio of 75%. Thus, after including the independent variables noted in Table 3, the ability to correctly predict cases increased substantially. Post-hoc analysis, which included a test of correlation ($\Phi$ coefficient) between whether the students had downloaded from a P2P website in the previous six months and their self-control category (either low self control or high self control). The results showed a significant correlation ($p \leq .001$), yet the strength was relatively weak ($\Phi = -.285$).

Table 3: See appendix

Techniques of Neutralization/Drift and Music Piracy

It was hypothesized that those who engaged in music piracy were more likely than those who had not engaged in music piracy to affirm statements regarding denial of injury, denial of victim, and appealing to a higher loyalty. The largest portion, 57%, of those who had engaged in music piracy in the previous six months agreed that they would download the artists’ music after sampling; thus, those who engaged in music piracy recently were more likely to rationalize a lack of victim or harm; however, a larger percentage (73%), of those who had not engaged in music piracy recently indicated they would also download the artists' music after sampling. The difference between those who had and had not engaged in music piracy recently, however, was only marginally significant ($\Phi = - .152$, $p = .08$).

Additionally, the largest portion, 39%, of those who had engaged in music piracy recently compared to 25% of those who had not engaged in music piracy recently, believed piracy does not harm the music industry ($\Phi = .216$; $p < .05$); thus, those who had engaged in music piracy were significantly more likely to deny harm for the music industry. Also, those who had not engaged in music piracy recently were more likely than those had engaged in music piracy recently to agree that music piracy has a negative effect on the artists' profits (55% compared to 42%), yet the difference was not significant ($\Phi = .128$, $p > .05$). Thus, the techniques of neutralization that the students revealed were focused more so on the music industry, but not on harm caused to the artist.

Effect of Sanctions (Rational Choice) in Relationship to Self-Control

The students who had high self-control were more likely than those with low self-control (43% compared to 29%) to indicate they were concerned about possible legal consequences from engaging in music piracy; however, the difference was not significant ($\Phi = .18$, $p > .05$). Also, those

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$^3$ A non-significant effect is desired here.
with high self-control were less likely than those with low self-control to indicate they would continue engaging in music piracy if he or she knew someone personally who had been caught and punished for this (20% compared to 36%); however, the difference was only marginally significant \( \Phi = .199, p = .08 \). Those with high self-control were also less likely than those with low self-control (23% compared to 41%) to indicate they would continue engaging in music piracy if they knew it was clearly a crime. The difference between the two groups (high and low self-control), however, was marginally significant \( \Phi = .190, p = .09 \).

**DISCUSSION AND CONCLUSION**

This study applied a deductive and inductive method to assess music piracy explanations. Deductively, we searched existing theoretical frameworks that had been applied to music piracy. Low self-control, techniques of neutralization along with drift, and rational choice have been applied with moderate support to explain music piracy (Higgins 2007; Higgins et al. 2008; Moore and McMullan 2009). Inductively, we asked a group of college students through a focus group for explanations of engaging in music piracy. Here, students gave specific details that related directly to techniques of neutralization and rational choice theory. Specific to techniques of neutralization, students gave reasons for engaging in music piracy that related to denial of injury, denial of victim, and appealing to a higher loyalty. This allowed us to test techniques of neutralization and specific rationales the students applied specifically to music piracy.

The purpose of this study was to add to the paucity of research on college students’ engaging in music piracy as well as to build on previous research efforts to apply a theoretical framework to this type of crime. This, essentially, will build to our understanding of music piracy as well as to the applicability of these theories to a type a crime that is committed by a large percentage of college students. The findings will apply low self-control to another group of students, indicating a measure of reliability. It will also test another aspect of techniques of neutralization: techniques that specifically relate to music piracy. Furthermore, specific rational choice aspects that relate to music piracy, which include potential legal sanctions are explored.

This research confirmed that the majority of students have engaged in music piracy; it is not a rare phenomenon. The results from this study, however, indicate not all students are consistently engaging in music piracy. For example, although 86% had engaged in P2P sharing, only 69% had done so in the previous six months. This may indicate that students drift in and out of this type of behavior.

This study confirmed that students with low self-control are more likely than those with high self-control to engage in music piracy. However, it is by no means a perfect indicator. Many students with high self-control also engage in music piracy. Higgins (2007) found support that rational choice is a mediator between low self control and music piracy—meaning one with low self control, when placed in a particular situation...
or having some other characteristics (e.g., lack of value), is more likely to engage in music piracy. This research builds on his research by showing that low self-control is only one factor and other factors, such as perceived sanctions, can affect whether one commits music piracy. In general, a large portion of students do not believe music piracy is unethical and it is not equivalent to stealing.

Drawing upon both a deterministic (self-control, techniques of neutralization, and drift) and free will framework, there appears to be factors from the environment and one’s individual choices at play when one engages in music piracy. The environment is rich for music piracy: use of computers and Internet on a daily basis, prevalence of a portable music device, ability to download music through a P2P website, etc. Also, at some point, each student weighs the benefits and the risks. Given the overall lack of consequences (i.e., few are prosecuted for such offenses), which leads to music piracy.

This research, however, is not without its limit. Many of the findings revealed only marginal significance; perhaps with a larger and cross-national sample, the study can provide more definitive relationships. Larger samples also allows for more sophisticated analyses that can also test mediating/moderating effects to map out a better flow of how all of the variables affect one another. Also, this research did not test all of the techniques of neutralization and did not fully test rational choice theory. Only a few aspects of each were included. Future research should include additional measures of each of the theories. Aside from these limitations, this study shows that applying deterministic and free will to music piracy provides insight into music piracy.

REFERENCES


BIOGRAPHICAL SKETCHES

**Donna M. Vandiver, Ph.D.** is an Associate Professor in the Department of Criminal Justice, Texas State University, San Marcos. Her research focuses on technology related issues in crime and justice, sex offenders, and human rights issues. She has published articles related to these topics in *Violence in Victims, Sexual Abuse: A Journal of Research and Treatment, and International Journal of of Offender Therapy and Comparative Criminology.*

**Scott Wm. Bowman, Ph.D.** is an Assistant Professor in the Department of Criminal Justice, Texas State University -- San Marcos. He received his Ph.D. in Justice Studies from Arizona State University. His research focuses on the intersectionalities of race and class, the influences of race and class on criminal behavior, and juvenile justice and positive youth development.

**Armando Vega** graduated from Texas State University, San Marcos in May, 2009 with a Masters degree in Criminal Justice. He is currently a Community Supervision Officer for Hays County Supervision and Corrections Department. His research interests include student-based research surveys and community re-entry programs.
APPENDIX

Table 1. Demographics and Background Characteristics of Sample

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>65</td>
<td>49.6%</td>
</tr>
<tr>
<td>Female</td>
<td>66</td>
<td>50.4%</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>79</td>
<td>60.8%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>31</td>
<td>23.8%</td>
</tr>
<tr>
<td>African-American</td>
<td>17</td>
<td>13.1%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.3%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17-20</td>
<td>35</td>
<td>26.7%</td>
</tr>
<tr>
<td>21</td>
<td>25</td>
<td>19.1%</td>
</tr>
<tr>
<td>22-23</td>
<td>39</td>
<td>29.7%</td>
</tr>
<tr>
<td>27-38</td>
<td>32</td>
<td>24.6%</td>
</tr>
<tr>
<td><strong>Year in College</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seniors</td>
<td>71</td>
<td>54.2%</td>
</tr>
<tr>
<td>Juniors</td>
<td>43</td>
<td>32.8%</td>
</tr>
<tr>
<td>Sophomore</td>
<td>12</td>
<td>9.2%</td>
</tr>
<tr>
<td>Freshman</td>
<td>5</td>
<td>3.8%</td>
</tr>
</tbody>
</table>
Table 2: Music Piracy and Low Self-Control

<table>
<thead>
<tr>
<th>Percentage of students who:</th>
<th>Total who Agreed/Reported Yes</th>
<th>Percentage with Low Self-Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are willing to pay .99 for a song*</td>
<td>47% (n = 61)</td>
<td>43% (n = 26)</td>
</tr>
<tr>
<td>Do not consider downloading music from an unauthorized source stealing</td>
<td>29% (n = 38)</td>
<td>40% (n = 15)</td>
</tr>
<tr>
<td>Borrowed a CD to “burn” to his/her computer*</td>
<td>94% (n = 122)</td>
<td>56% (n = 68)</td>
</tr>
<tr>
<td>Ever downloaded a song using a P2P network*</td>
<td>86% (n = 112)</td>
<td>61% (n = 68)</td>
</tr>
<tr>
<td>Downloaded a song using a P2P network in the previous six months*</td>
<td>69% (n = 90)</td>
<td>63% (n = 57)</td>
</tr>
<tr>
<td>Would still download music from unauthorized source if he/she knew it was clearly a crime*</td>
<td>33% (n = 42)</td>
<td>67% (n = 28)</td>
</tr>
<tr>
<td>Believe downloading music without paying for it harms the music industry*</td>
<td>42% (n = 54)</td>
<td>44% (n = 24)</td>
</tr>
</tbody>
</table>
Table 3: Predictors of Students Who Shared Music via P2P in Previous Six Months

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta_R$</th>
<th>S. E.</th>
<th>Wald</th>
<th>d.f.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race: Caucasian</td>
<td>-21.9</td>
<td>22954.3</td>
<td>.00</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Race: African American</td>
<td>-23.1</td>
<td>22954.3</td>
<td>.00</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Race: Hispanic</td>
<td>-21.4</td>
<td>22954.3</td>
<td>.00</td>
<td>1</td>
<td>.999</td>
</tr>
<tr>
<td>Self-Control Score***</td>
<td>-.087</td>
<td>.025</td>
<td>11.6</td>
<td>1</td>
<td>.917</td>
</tr>
<tr>
<td>Constant</td>
<td>24.0</td>
<td>22954.3</td>
<td>.00</td>
<td>1</td>
<td>2.73</td>
</tr>
</tbody>
</table>