



General Strain, Self-Control, and Music Piracy

Sameer Hinduja¹

Florida Atlantic University, USA

Abstract

Digital piracy involves the copying of digital goods, software, digital documents, digital music), and digital videos without the express permission of the copyright holder; it is either a civil or criminal offense in many national jurisdictions. The purpose of the current work is to examine the connection between music piracy and the criminological paradigms of general strain theory (1992) and self-control theory (1990), which have been identified as moderate predictors for a variety of individual forms of wrongdoing. Using data from a sample of university undergraduate students in the US, it was found that strain does not have a direct effect on music piracy, but that self-control is a salient predictor. Specifically, behavioral (rather than attitudinal) measures of self-control were found relevant to the dependent measure. Apart from testing the extensibility of these two major theories of crime, it is hoped that the present study will cumulatively advance society's understanding of the causative elements of online intellectual property theft specifically, and--to some degree--Internet-based criminality in general. Also, such derived knowledge should inform decision making related to policy and programming strategies that can be implemented to respond to this form of wrongdoing in the most advantageous manner.

Keywords: piracy; intellectual property theft; crime; copyright; self-control; strain.

Introduction

Concomitant with the rapid global advance into an information-based society and economy, intellectual property has been afforded an increasingly immeasurable value. The crucial role it plays in the stability, vitality, and growth of private sector companies, public sector organizations, and even individual lives demands that it is secured and precluded from misappropriation. However, the phenomenon of digital piracy has been prevalent since the days of dial-up modems and online bulletin boards, and it continues to be relevant to industry and society today. Gopal, Sanders, Bhattacharjee, Agrawal, and Wagner (2004) define it as the illegal act of copying digital goods, software, digital documents, digital music, and digital videos for any non-archival reason without express permission and compensation to the copyright holder. Of course, the ubiquity of Internet-enabled computers and other electronic devices has made this activity easy, simple, and relatively anonymous to perform (Wall, 2005).

Industry reports show that music piracy costs in excess of \$54.8 billion, including \$16.3 billion in earnings to U.S. workers and \$2.6 billion in tax revenue (Siwek, 2007). These numbers may be trending upward; the International Federation of the Phonographic

¹Associate Professor, Department of Criminology and Criminal Justice, Florida Atlantic University, 5353 Parkside Drive, Jupiter, FL 33458-2906, USA. Email: hinduja@fau.edu

Industry (2008) indicated that the amount of participants in the phenomenon rose 35% between 2003 and 2007.

Several studies have attempted to use sociological and criminological theory to shed light on why individuals engage in digital intellectual property theft. For instance, researchers have shown that those who have socially learned how to pirate music are more likely to do so (Akers, 2009; Higgins, Wilson, & Fell, 2007; Hinduja & Ingram, 2008, 2009; Skinner & Fream, 1997). Others have demonstrated that low self-control is moderately correlated with the phenomenon at hand (Higgins, Fell, & Wilson, 2006; Higgins & Makin, 2004; Higgins & Wilson, 2006; Higgins, Wolfe, & Marcum, 2008a, 2008b). In addition, research has shown mixed support for the view that individuals justify and neutralize their behavior prior to participation (Higgins et al., 2008a; Hinduja, 2007; Ingram & Hinduja, 2008; Morris & Higgins, 2009).

The purpose of the present study is to further illuminate digital piracy using general strain theory (GST) and self-control theory (SCT). While other studies have used self-control theory, learning theory and neutralization theory as explanatory frameworks, to this author's knowledge no study has jointly examined the comparative effects of GST and SCT. Ideally, the current work will discern the most salient predictors of music piracy and contribute to the literature base of formal inquiries into novel types of deviance engendered by computers and the Internet.

This study begins with a review of extant literature to demonstrate the pertinence of each theoretical framework to traditional forms of crime. Their analogous relevance to the nontraditional crime of digital music piracy will then be posited to depict how the applicability of the theories can be extended. A quantitative analysis through the use of a survey instrument is subsequently conducted on data collected from a sample of university students to more accurately assess the individual and interactive applicability of general strain theory and self-control theory on participation in the behavior and to provide statistical findings that can be used to shape policy and other productive implementations to combat online intellectual property theft on the Internet. These suggested measures will then be discussed in detail, with the intention of framing ideas into feasible practices that can accommodate the benefits of the new digital economy, the music industry, and the perpetually growing wired world.

Strain Theory

Since its initial promulgation by Robert Merton (1938, 1968), the concept of strain has been refined by a host of prominent sociological and criminological scholars including Cohen (1955), Cloward and Ohlin (1963), Agnew (1985, 1989, 1992), and Messner and Rosenfeld (1994). Agnew's conceptualization has received the most attention and empirical examination in recent years and has been proffered as a general theory capable of explaining all types of deviance and criminality. It attempts to understand the detrimental effect that immediate social and environmental pressures can have on a person, as manifested through the affective vehicles of anger and frustration.

In his General Strain Theory (GST), Agnew (1992) vocalized three primary types of strain that may affect an individual: the threatened or actual failure to achieve positively valued goals; the threatened or actual removal of positively valued stimuli; and the threatened or actual presence of negatively valued stimuli. The first type is exemplified by the notions of classic strain theory through its focus on the disjunction between aspirations and expectations/achievements—or, the ideal and the real. Also implicated are idealized

conceptions of fair, equitable outcomes with those that actually occur. That is, certain emotive responses often result from an individual's failure to live up to certain expectations or from experiences of perceivably unjust outcomes, which arguably lead to deviant methods of coping or compensating.

The second type of strain regards the removal of certain positives in a person's life, such as healthy friendships, relationships, or environments (e.g., involving home, school, or work). For instance, stressful life events have the tendency to incite feelings of pain, anger, and frustration (and arguably subsequent criminality) as the strained individual attempts to prevent or come to terms with circumstance.

The third type of strain is the presence of irritating, frustrating, angering, painful, or otherwise noxious factors in a person's life. These may stem from social, environmental, or relational influences, and delinquency might ensue as the individual attempts to manage, curtail, or eradicate its effect. To reiterate, Agnew expands the concept of strain to include not only the thwarting of goal attainment, but also the removal of conducive entities and the introduction and persistence of detrimental entities in one's life.

According to GST, strain does not directly cause crime. Rather, Agnew (1992) argued that experiencing strain first produces negative emotions such as anger and frustration, and that crime is one adaptation or coping mechanism that strained individuals may use in response to those negative emotions. Therefore, not all youth who experience strain commit crime—only those who become angry or frustrated as a result of the strain (as those feelings create pressure for corrective action, potentially in the form of wrongdoing) (Agnew, 2006a). In the relatively short amount of time that GST has been a mainstream theory; a solid body of evidence has accumulated for its support and relevance (Agnew, 1992, 2006b; Agnew & White, 1992; Aseltine, Gore, & Gordon, 2000; Mazerolle, Burton, Cullen, Evans, & Payne, 2000; Mazerolle & Piquero, 1997; Paternoster & Mazerolle, 1994; Piquero & Sealock, 2000).

General Strain Theory applied to Music Piracy

As anger and frustration are the two primary emotional outcomes resulting from strain, the extant literature has largely explored the path from anger to crime and delinquency. When considering the subject matter at hand, frustration seems to be much more relevant as a causal element. Individuals who are strained in certain ways may attempt to cope with the resultant affective state by participating in online intellectual property theft. On its surface, the relationship between stress-inducing stimuli and this specific type of deviant behavior appears to be a stretch. However, Agnew's first type of strain—the threatened or actual failure to achieve positively valued goals—may be relevant. Specifically, strain in the form of financial, age, mobility, and parental restrictions on music, and in the form of a perceived necessity to achieve a certain status level amongst peers or family members, may cause some to unlawfully obtain and transfer copyrighted music from online sources. Further elaboration of these points is necessary before proceeding.

Some individuals are not able to purchase the desirable commodity of music CDs with abandon, simply because of their price. This point is more pronounced among children, teenagers, and college students, whose fiscal resources are generally minimal due to the fact that they have not yet acquired a well-paying job. The desire to possess and listen to certain songs and artists, and the inability to purchase them either because they are not affordable or because they cannot take precedent over bills, payments, and other imperative destinations for one's dollar, results in a conflict that must be resolved. To note,

however, even those who do make a comparatively large amount of money are still inclined to participate in the wrongdoing, as though the fact that they *could* easily afford purchasing the CD is irrelevant². Seemingly, the appeal of obtaining something for nothing is too strong to resist for some.

The strained individual can commit larceny by pilfering a coveted music album from a retail establishment but runs the risk of detection, apprehension, and punishment. Pirating digital music, however, provides the conflicted person with another choice that is similarly illegal but socially acceptable, collectively embraced, and difficult to monitor, curtail, or thwart. As a result, the dissonance stemming from the inclination to possess and the incapacity or disinclination to pay can be overcome through the discovery and download of the desired music from file exchange programs, chat rooms devoted to the dissemination and exchange of MP3s, bulletin boards and newsgroups created for the same purpose, websites, file servers, and even from others via instant messaging programs.

Age, mobility, and parental restrictions also may contribute to the strainful circumstance. Some music albums have explicit content or lyrics and are branded with a sticker or logo that indicates to sales clerks that purchases must be made by an adult or with an adult present. The desire among those underage to obtain and listen to this type of questionable music may induce some amount of strain. Also, children and teenagers who are not yet able to drive or who do not have access to a vehicle may not be able to venture to stores to purchase certain coveted music; the lack of mobility inherent in such a scenario may hasten strain. Limitations set by parents on the types of music that their children may listen to can also lead to strain, particularly if that type of music is popular and culturally embraced by their children's peer group. Aspirations for peer acceptance, social status, and even the simple desire to possess (or at least be familiar with) the music of certain genres, artists, or bands--coupled with the inability to do so because of parental restrictions--may activate strainful feelings³.

The significance and acuteness, then, of such uncomfortable stimuli may be reduced through participation in music piracy. What is essential, however, is the presence of negative affect stemming from the strain. In these cases, it would be frustration and aggravation resulting from thwarted ambitions for a desired product that consequently lead to music piracy.

Self-Control Theory

Self-control theory was articulated in its most developed form by Michael Gottfredson and Travis Hirschi in their 1990 work *A General Theory of Crime*. The scholars define crimes as "acts of force or fraud undertaken in the pursuit of self-interest" (1990:15). In their view, criminal acts generally provide only immediate and short-term rewards, are easy and simple to enact, are exciting, require little skill or planning, impose pain on others, and can relieve frustration temporarily (Gottfredson & Hirschi, 1990). By extension, the argument made is that all types of wrongdoing can be explained by low self-control and the opportunity structure surrounding the act.

² Please see some white-collar crime research examples (e.g., Benson, 1985; Benson & Moore, 1992; Coleman, 1989; Rosoff, Pontell, & Tillman, 2002) for evidence toward this end.

³ Agnew & White (1992) employed a one-item measure of "clothing strain," where individuals indicated whether their parents were able to purchase for them the types of clothing they desired. It was not, however, significantly related to delinquency or drug use in their study. Nevertheless, this parallels the same type of strain that an inability to purchase socially desirable music might effectuate.

The underlying premise is as follows: all people are intrinsically motivated to break the rules of society, but differences exist in people's innate ability to suppress or restrain urges and drives and in their needs for excitement, risk taking, and immediate gratification (Lanier & Henry, 1998). Because of deficiencies and weaknesses in their intrinsic personality and character, then, individuals with low self-control are more likely to engage in crime to accomplish a goal or to resolve a conflict in the most expeditious and effortless manner. Gottfredson and Hirschi (1990) assert that those persons who demonstrate difficulty in (or apathy toward) accomplishing long-term goals or maintaining long-term relationships and those who engage in extreme and decadent activities (such as smoking, drinking, and promiscuity) are also predisposed towards illegal behavior. Nonetheless, most people do not break the rules because they have been effectively socialized accordingly by various institutions. Some, however, have either been inadequately socialized or not socialized at all (i.e., through poor or ineffective parenting practices), and this lack of constraining values frees them to commit crime (Lanier & Henry, 1998).

There have been a multitude of tests examining the linkage between low self-control and criminal acts, operationalizing its six delimited facets: impulsivity, simple tasks, risk seeking, physical activities, self-centeredness, and temper (Gottfredson & Hirschi, 1990, p. 89). Many of these inquiries have found support for the general theory. Moreover, the promulgation of the theory has been applied to a variety of crimes, ranging from unwise behaviors (e.g., Arneklev, Grasmick, Tittle, & Bursik, 1993) to general law violations. A substantial body of research has shown that low self-control is consistently and moderately related to various forms of crime and deviance (see Pratt & Cullen's (2000) meta-analysis for a review), which make it a good fit for inclusion as a predictor.

Self-Control Theory applied to Music Piracy

Individuals with low self-control, when presented with the opportunity to obtain high-fidelity commercially-produced songs over the Internet through a few "point-and-click" maneuvers of their mouse, will not be able to bridle their inclinations and will download such files and thereby engage in the wrongdoing. College students have the opportunity to access the Internet either through a personally-owned computer or a university-owned machine, install file exchange programs, and participate in unregulated data transfers (often over high-speed connections) at either no cost on campus or at an affordable cost at an off-campus location (such as their home). Indeed, with the continued reduction in computer and connectivity prices, the development and propagation of advanced physical media (such as fiber-optic lines) for data transfers, new technology involving file compression, smaller packet sizes, and quicker routing, the opportunity for those interested to have access to and use the Internet will continue to grow. Suffice it to say that the opportunity is there and will be in increasing fashion.

The differentiating variable, then, is self-control. Reflexive responses to immediate stimuli (such as the availability of pirated music), rather than careful reasoning as to the acceptability, wisdom, and ramifications of certain actions, would seemingly occur amongst those with underdeveloped amounts of self-control. Indeed, typical college students are already arguably at an age where self-control is not foremost on their mind, particularly if they have recently left the "nest" and are living outside the regular supervision of parental authorities for the first time. Persons at this age also tend to experiment a great deal, perhaps in search of themselves or their own identity. Internal pressure now makes it more plausible, appealing, and even desirable to participate in a host

of questionable activities that previously would have been impossible or unacceptable. Accordingly, low self-control might be more frequently found among undergraduate students than among children or full-fledged adults.

A growing body of research has identified an inverse relationship between self-control and music piracy (Higgins, 2005, 2007; Higgins et al., 2006; Higgins & Makin, 2004; Higgins & Wilson, 2006; Higgins et al., 2007; Higgins et al., 2008b; Hinduja & Ingram, 2008). However, no studies have assessed this relationship while controlling for the ostensible relevance of GST. The current work seeks to accomplish this goal.

Methodology

Sampling and Procedures

The subject population of the current study is undergraduate students at a large public university in the Midwest region of the United States. The empirical validity of many criminological theories have been tested through the use of data collected from samples of college and university students; indeed, this is a widely prevalent and acceptable method (Mazerolle & Piquero, 1998; Nagin & Paternoster, 1993). Most students have high-speed access in their residence hall rooms through cable modems or DSL connectivity in their off-campus homes. Students are required to use the Internet for a variety of academic reasons that include research, correspondence, and various scholarly projects. Further, the Internet has become an invaluable medium for meeting social and personal needs. In other words, the Internet has become a central piece of most students' lives.

The sampling frame for this study came from a list of classes. To generate the sample, several stages were used. First, a list of the 15 colleges was obtained, as well as a list of departments and schools inside each college. Second, two or three majors inside each college were selected so that specific classes to survey could be identified. Third, an effort was made to randomly select one or two lower-level and one or two upper-level classes in these majors through the use of the university's online course catalog. Fourth, a comprehensive list of these potential classes to survey was then created, and emails were sent to each respective professor or instructor. Fifth, in these emails, a description of the project was given, along with a link to a web page where the survey instrument might be viewed. Sixth, a request was then made for approximately 20 minutes at the beginning or end of their class period so that the surveys could be administered. These procedures resulted in a final sample size of 2,032 students from 16 classes that were quite varied in their discipline and subject matter.

Measures

Strain Measure: First, six questions intended to measure strain life experiences were given, which stem from Brody's (2001) empirical test of Agnew's (1992) GST. These items asked respondents to reflect on the last six months and indicate whether they had received a bad grade in a class, broken up with an intimate partner, experienced weight gain or loss, been fired or laid off from a job, had money problems (i.e., had difficulty paying tuition, rent, bills), or been a victim of a crime. Possible responses were "true" or "false." Higher scores indicated more experiences of strain over the past six months. Factor analysis showed that only three of these items (i.e., broke up with an intimate partner, experienced weight gain or loss, and had money problems) coalesced into a single factor. Factor scores of this measure indicated a unidimensional measure with all of the factor loadings for these items above .50.

Self-Control Measures: A serious debate in the self-control literature is currently occurring to determine the most appropriate way to measuring self-control. Hirschi and Gottfredson (1993) argued that behavioral measures were ideal, but Grasmick et al. (1993) argued that attitudinal measures were best to capture the crux of the theory. It is outside the scope of this paper to delve into this issue; the author has chosen to use both measurement approaches in the current work.

Specifically, six items from the 24-item Grasmick et al. (1993) scale that captured at least one of the six characteristics of self-control outlined by Gottfredson and Hirschi (1990) were included. This decision stemmed from its extensive empirical utilization and agreed-on appropriateness in the previously reviewed studies. The variables included “I often do what brings me pleasure here and now” (to measure impulsivity); “When things get complicated, I tend to quit or withdraw” (simple tasks); “I find no excitement in doing things I might get in trouble for” (risk seeking); “I try to look out for others first, even if it means making things difficult for myself” (self-centeredness); “I don’t lose my temper very easily” (temper); and “I feel better when I am on the move rather than sitting and thinking” (inclination towards physical activities).

In the present study, these are considered “attitudinal” measures of self-control. The respondents indicated their level of agreement to these items using a 5-point Likert-type scale (i.e., strongly disagree to strongly agree). Higher scores on the scale represented lower levels of self-control. Factor analysis of the items revealed that three items (i.e., When things get complicated, I tend to quit or withdraw; I try to look out for others first, even if it means making things difficult for myself; and I feel better when I am on the move rather than sitting and thinking) better represented the theoretical construct, and all had factor loadings above .50.

Furthermore, five items measuring various types of anti-normative conduct that range in severity were used. Their purpose was to provide a rough sketch of a behavioral measure of self-control (Cochran, Wood, Sellers, Wilkerson, & Chamlin, 1996; Paternoster & Brame, 1998, 2000; Tremblay, Boulerice, Arseneault, & Niscale, 1995). They included whether the respondent had skipped more than 10 class periods in the past year; lied to a professor/instructor either via email, telephone, or in person at least once in the past year; plagiarized on a school assignment at least once in the past year; drank alcohol before he or she turned 21; or driven a vehicle while under the influence of alcohol at least once in the past year. The respondents indicated their participation in these behaviors using a two-point measure (i.e., 0 = false and 1 = true). Higher scores on this measure indicated lower levels of self-control. Four items created this measure (i.e., skipped more than 10 class periods in the past year; lied to a professor/instructor either via email, telephone, or in person at least once in the past year; plagiarized on a school assignment at least once in the past year; and driven a vehicle while under the influence of alcohol at least once in the past year), each with factor loadings around .50.

Music Piracy Measure: The primary outcome of interest in the study is the individual’s level of participation in music piracy via the downloading of illegal/unauthorized MP3 files. MP3 files are one of the most popular types of digital music, with hundreds of millions available online at any time (Black, 2003; Sharman Networks, 2005). They are also the most susceptible to piracy because they are largely without built-in copy-protection mechanisms. That is, they can be created, distributed, duplicated, and burned to data or audio CDs with no limitations. To note, these files should not be mistaken for (or

confused with) the legal digital music files that are currently available online through legitimate outlets (e.g., iTunes, Rhapsody, eMusic)⁴.

Thirteen questions were employed to capture the scope of actual participation in music piracy. Respondents were asked to indicate how many MP3 files they personally had downloaded the previous week and in an average week (0, 1-5, 6-10, 11-20, More than 20); last month and in an average month (0, 1-25, 26-50, 51-100, More than 100) this year, last year, and two years ago. Furthermore, they were asked to indicate how many they had downloaded in totality during each of the past three years (0, 1-10, 11-100, 101-1000, More than 1000); how many they had downloaded over the course of their life thus far (0, 1-100, 101-500, 501-2000, 2001 or more); and how many total complete music albums in MP3 format they had obtained online (0, 1-5, 6-10, 11-20, More than 20). These variables were factor analyzed using promax rotation, and a one-factor solution was forced due to the primary eigenvalue magnitude.⁵ To note, the alpha value for these 13 dependent items was .93, indicating that if a respondent answered a certain way for one of these questions, it was extremely likely that he or she answered the same way for the other questions.

Demographics:

The instrument terminated with an assortment of items seeking demographic information from the respondent. So as not to bias the responses, students were initially informed of the *general* purpose of the study and then, after completion of the survey, were debriefed as to its *exact* purpose. To note, a conscious effort was made to create and present all questions in as neutral a manner as possible to not offend individuals or prejudice their answers. This is imperative not only to conduct good research, but also because self-reported criminality is the dependent variable. Candidness and forthrightness of responses are essential so that internal validity is not threatened and so that consistency in interpretation is fostered--as best as possible--to most accurately evaluate the key concepts in the work. A pre-test was conducted on 52 undergraduate criminal justice students, and results indicated significant variation in the dependent measure to allow for analyses.

Results

Descriptive Statistics

Table 1 displays the demographic distribution of the sample and indicates that most respondents were female, white, 19 years of age or younger, lowerclassmen, of varying majors, and either not working or working part-time while going to school. Table 2 depicts a general picture of the extent to which students has pirated music over the last week and month, and over the course of their lifetimes. As is evident, most students were active participants in the behavior, and only 14% have never downloaded a single pirated music file.

⁴ This distinction was made clear to participants through both oral and written instructions during survey administration.

⁵ More detail about the factor analysis is available on request.

Table 1. Demographic Characteristics and Participation in Pirating (N=2032)

| | Sample % | Total MP3s Ever Downloaded | | | | |
|------------------------------------|----------|----------------------------|-------|---------|----------|-------|
| | | 0 | 1-100 | 101-500 | 501-2000 | 2001+ |
| <u>Sex</u> | | | | | | |
| Female | 56.7 | 16.1 | 14.6 | 30.2 | 31.3 | 7.8 |
| Male | 43.3 | 7.2 | 9.0 | 22.6 | 38.5 | 22.8 |
| <u>Race</u> | | | | | | |
| White | 77.9 | 10.7 | 11.1 | 27.2 | 36.3 | 14.7 |
| Black | 10.1 | 24.8 | 15.5 | 24.8 | 22.8 | 12.1 |
| Asian | 5.6 | 10.5 | 19.3 | 33.3 | 27.2 | 9.6 |
| Other | 6.4 | 13.2 | 14.0 | 20.9 | 35.7 | 16.3 |
| <u>Employment (hrs)</u> | | | | | | |
| 0 | 49.1 | 11.7 | 11.7 | 29.1 | 33.8 | 13.6 |
| 10 | 22.5 | 11.1 | 11.6 | 28.8 | 35.4 | 13.1 |
| 20 | 19.5 | 13.4 | 12.4 | 21.7 | 36.4 | 16.2 |
| 30 | 5.7 | 10.4 | 17.4 | 24.3 | 34.8 | 13.0 |
| 40 | 3.2 | 24.2 | 12.1 | 16.7 | 24.2 | 22.7 |
| <u>Age</u> | | | | | | |
| 19 or younger | 57.6 | 10.4 | 14.3 | 30.0 | 33.8 | 11.5 |
| 20 and older | 42.5 | 14.7 | 9.3 | 22.7 | 35.2 | 18.1 |
| <u>Educational Level</u> | | | | | | |
| Freshman | 31.4 | 13.3 | 16.1 | 31.2 | 28.5 | 10.8 |
| Sophomore | 28.9 | 7.0 | 10.5 | 28.6 | 41.2 | 12.8 |
| Junior | 24.2 | 13.4 | 9.8 | 23.6 | 36.2 | 17.1 |
| Senior | 15.5 | 18.2 | 10.8 | 20.4 | 30.9 | 19.7 |
| <u>Living Situation</u> | | | | | | |
| On-Campus Dorm | 55.2 | 10.6 | 13.6 | 29.9 | 33.4 | 12.4 |
| Off-Campus Apt/House | 38.7 | 13.9 | 9.9 | 22.9 | 35.8 | 17.6 |
| On-Campus Apt | 3.7 | 15.8 | 11.8 | 23.7 | 39.5 | 9.2 |
| Other | 2.4 | 18.8 | 14.6 | 27.1 | 27.1 | 12.5 |
| <u>Internet Connection at Home</u> | | | | | | |
| High-speed | 88.9 | 10.0 | 11.5 | 27.6 | 36.0 | 15.1 |
| Dialup | 8.3 | 27.4 | 22.0 | 20.2 | 20.8 | 9.5 |
| No Connection | 2.8 | 40.4 | 5.3 | 26.3 | 24.6 | 3.5 |
| <u>Major in the College of:</u> | | | | | | |
| Social Science | 24.8 | 15.3 | 12.5 | 25.0 | 34.0 | 13.1 |
| Business | 12.0 | 10.2 | 12.7 | 27.5 | 34.0 | 15.6 |
| Natural Science | 11.7 | 13.1 | 11.0 | 27.8 | 33.3 | 14.8 |
| Comm. Arts/Sciences | 10.6 | 6.5 | 10.6 | 20.4 | 10.7 | 21.8 |
| Engineering | 6.9 | 7.1 | 7.9 | 27.1 | 37.1 | 20.7 |
| Human Ecology | 5.7 | 16.5 | 11.3 | 35.7 | 30.4 | 6.1 |
| Undecided | 10.1 | 9.7 | 14.6 | 30.1 | 35.4 | 10.2 |
| Other | 18.2 | 14.3 | 13.5 | 27.8 | 31.8 | 12.7 |
| <i>Base Percentage of Sample:</i> | 100 | 12.3 | 12.2 | 26.9 | 34.4 | 14.3 |

Table 2. Distribution of Music Piracy Variables (N=2032)

| | None | 1 or more MP3s |
|--|------|----------------|
| <i>How many MP3 files have you downloaded:</i> | | |
| in the last week? | 852 | 1180 |
| in the last month? | 559 | 1473 |
| over the course of your life thus far? | 249 | 1783 |

Bivariate Correlations

Table 3 presents the bivariate correlation matrix. The strongest relationship between predictor and outcome variables was male ($r = .296$, $p \leq .01$). With regard to the theoretical variables, behavioral self-control ($r=.183$, $p \leq .01$) and attitudinal self-control ($r=.070$, $p \leq .01$) were moderately related to music piracy. In addition, strain and behavioral self-control were correlated ($r=.187$, $p \leq .01$). Overall, these bivariate results indicate that self-control is associated with music piracy, while strain is not.

Table 3. Bivariate Correlation Matrix of Variables (N=2032)

| | X ₁ | X ₂ | X ₃ | X ₄ | X ₅ | X ₆ | Y |
|---|----------------|----------------|----------------|----------------|----------------|----------------|--------|
| X ₁ White | -- | .020 | -.001 | -.134** | -.059** | -.027 | .049* |
| X ₂ Male | | -- | .027 | -.211** | .042 | .041 | .296** |
| X ₃ 20 or older | | | -- | .055* | -.022 | .087** | .031 |
| X ₄ Strain | | | | -- | .009 | .187** | -.043 |
| X ₅ Attitudinal Self-Control | | | | | -- | .070** | .050* |
| X ₆ Behavioral Self-Control | | | | | | -- | .183** |
| Y Music Piracy | | | | | | | -- |

** $p < 0.01$ (two-tailed tests).

* $p < 0.05$ (two-tailed tests).

Regression Analysis

Table 4 presents the Ordinary Least Squares regression analysis and shows that whites more than nonwhites pirate music ($B=.117$, $p<0.05$), while males more than females pirate music ($B=.574$, $p<0.05$).⁶ Confirming what the correlation analysis suggested, the regression results demonstrate that behavioral self-control is a moderate predictor of music piracy ($B=.171$, $p<0.001$), while strain has no explanatory effect. Overall, the full model explained 12% of the variation in the music piracy measure. It should also be mentioned that tests for multicollinearity were unproblematic and did not point to possible overlap in the operationalization and measurement of the theoretical tenets (Long, 1997).

Table 5 shows three logistic regression analyses. The first model examines music piracy by the respondent over the previous week. The results indicate that white and male students had significantly higher piracy scores. In addition, those with lower levels of behavioral self-control were more likely to pirate music than those with higher levels of behavioral self-control ($\text{Exp}(b) = 1.17$). The results indicate that being white increases the likelihood of the behavior in the previous week rather than being nonwhite ($\text{Exp}(b) = 1.04$). Male respondents were more likely than females to participate in music piracy in the previous week ($\text{Exp}(b) = 2.09$). In the second model, which measured music piracy over the previous month, being 20 years of age or older reduced the likelihood of the

⁶Please note that Table 4 presents the beta weights.

behavior. Here also, those with lower levels of behavioral self-control were more likely (Exp(b) = 1.18) to illegally download MP3 files in the previous month than those with higher levels of behavioral self-control. Measuring the relevance of these demographic and theoretical predictors on music piracy over the lifetime of the respondent is depicted in the third model; no significant results were found.

Table 4. OLS Regression: IV Factor Scores on Overall Piracy Factor Score (N=2032)

| Variables | B | Std. Error |
|---------------------------------------|---------|------------|
| Constant | -.348 | .051 |
| White | .117* | .051 |
| Male | .574*** | .043 |
| 20 or older | .019 | .042 |
| Strain | -.009 | .022 |
| Attitudinal Self-Control [^] | .029 | .021 |
| Behavioral Self-Control [^] | .171*** | .021 |
| R ² | | 0.120 |
| Adjusted R ² | | 0.117 |

*p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests).
 F=46.036, df=6, sig=.000

Table 5. Logistic Regression for MP3 files downloaded in last week, last month, and lifetime (N=2032)

| | 1 | | | 2 | | | 3 | | |
|---------------------------------------|---------|----------|--------|----------|----------|--------|-------|----------|--------|
| | b | S.E. | Exp(B) | b | S.E. | Exp(B) | b | S.E. | Exp(B) |
| Constant | .322 | .114 | 1.380 | .979 | .126 | 2.661 | 1.437 | .152 | 4.209 |
| White | .035*** | .113 | 1.036 | .006 | .124 | 1.006 | .607 | .153 | 1.835 |
| Male | .738*** | .098 | 2.092 | .709*** | .109 | 2.032 | .887 | .158 | 2.427 |
| 20 or Older | -.756 | .095 | .469 | -.632*** | .103 | .531 | -.448 | .139 | .639 |
| Strain | .041 | .049 | 1.042 | .048 | .054 | 1.050 | -.038 | .072 | .963 |
| Attitudinal Self-Control [^] | .067 | .047 | 1.069 | .048 | .051 | 1.049 | .083 | .070 | 1.086 |
| Behavioral Self-Control [^] | .154** | .048 | 1.166 | .169** | .054 | 1.184 | .220 | .075 | 1.247 |
| -2 Log Likelihood | | 2631.041 | | | 2298.754 | | | 1437.296 | |
| Cox & Snell R ² | | .063 | | | .044 | | | .036 | |
| Nagelkerke R ² | | .085 | | | .064 | | | .068 | |

*p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests).

[^]Greater magnitude in these factor scores indicates lower self-control

1. How many MP3 files downloaded in the last week?
2. How many MP3 files downloaded in the last month?
3. How many total MP3s have you downloaded over the course of your life thus far?

Discussion

The purpose of the present study was to provide an analysis that examines the connection between strain, self-control, and music piracy. The results suggest that individuals do not download music illegally because they are experiencing strain. Such a finding is counter to the vast majority of previous research on the theory (Agnew, 1985; Agnew & Brezina, 1997; Agnew, Cullen, & Burton, 1996; Brezina, 1998; Mazerolle & Piquero, 1998; Piquero & Sealock, 2000), but could be due to the fact that a more comprehensive model of strain could have been included. In addition, no analysis was

conducted on how strain might be mediated by affect nor whether another variable moderates the association between strain and emotional responses.

With respect to self-control, two measures (i.e., attitudinal and behavioral measures) were employed to more comprehensively capture, represent, and assess the construct at hand. Overall, these results are consistent with previous literature (Higgins et al., 2006, 2007; Higgins & Wilson, 2006) and suggest that those who are attracted to risky behaviors (i.e., low self-control) are also attracted to music piracy. However, the results indicate that attitudinal measures of self-control are not associated with music piracy, which is counter to findings by Higgins et al. (2008b), who showed that attitudinal and behavioral measures are both relevant and applicable to understanding the behavior. The difference between the Higgins et al. (2008b) study and the current work is that the latter employed a measure of actual music piracy, while the former used a vignette to capture the individuals' intentions to participate. Thus, attitudinal measures of self-control may be more relevant for the *intent*--a key element to any behavior--but less so when it comes to actual participation. To clarify, attitudinal measures may be more relevant before music piracy is committed rather than after commission. Regardless of the way in which self-control is conceptualized and operationalized, the concept appears salient to music piracy.

To be sure, this current work needs to be interpreted within its limits. First, the study is cross-sectional, and longitudinal data may provide a clearer picture as to how variability in strain may affect music piracy participation. Second, no published study to date has examined complete versions of these theories. This should be done in the future. Third, the study was based on a sample of undergraduate students from a single university, which restricts the generalizability of the findings to other populations. Finally, the study used self-reported data, which is sometimes less methodologically sound. Although multiple measures were combined to better assess participation in the behavior, responses may have been subject to recall bias, or students may have underreported their involvement to provide socially desirable answers.

Policy Implications and Conclusion

According to Gottfredson and Hirschi (1990), self-control is a personality characteristic largely developed and refined when a person is a child. They also argue that it is age-invariant; that is, it tends to stay constant over the course of a person's life. Unfortunately, this does not provide much assistance in suggesting policy solutions that societal institutions can enact to increase self-control among its members, apart from appropriate and adequate parenting of children. The role of the nuclear family in developing self-control notwithstanding, other factors seem to escalate the likelihood of a university student disregarding any internal or external constraints and proceeding to commit music piracy.

An example can be provided to illustrate two of these factors. Many college students know of the illegality associated with driving under the influence of alcohol. They can viscerally understand why it is a criminal offense, and they are accustomed to stories--on television or in print--of intoxicated individuals causing their own death or the death of others. As such, a tangible loss or harm is visible to potential and actual drunk drivers. Second, almost everyone is aware of the harsh punishment (fines, attorney and court costs, incarceration, loss of driving privileges, etc.) that follows a driving under the influence (DUI) arrest and conviction and of the fact that there is a good chance of arrest and

conviction. This points to issues related to the certainty and severity of punishment (Beccaria, 1968).

Both of these notions underscore elements that are nonexistent with digital music piracy. There is no tangible and visible harm associated with participating in downloading copyrighted music from the Internet, which might serve as an internal constraint. There is also no substantive threat of detection, apprehension, and punishment to serve the role of an external constraint.

The former--an awareness of tangible and visible harm--might be tackled through increased use of music artists and bands speaking out against piracy because of losses incurred to them and the industry. Recently, both motion picture actors and musicians have spoken out in advertisements against movie and music piracy, but no positive effect has been identified. To note, *South Park*, an animated sitcom on Comedy Central, parodied the fiscal harm that music piracy has caused musical artists and bands. An FBI detective takes a few of the main characters, who are elementary-school children, to visit the homes of famous musicians and tells them that their music piracy has prevented one artist from purchasing a gold-plated shark tank to be installed by his pool; another from purchasing a "Gulfstream IV" jet, making her settle for a "Gulfstream III"; and another from buying his son a tropical island as a birthday present. This seems to indicate that the public cannot believe that multimillionaire musicians are financially suffering as their songs are downloaded online. Consequently, these deterrence tactics lack legitimacy and are even laughable in the eyes of ordinary individuals.

The latter--the threat of detection, apprehension, and punishment--would presumably require increased vigilance by law enforcement and other regulating entities. Intellectual property theft is an act subject to civil and criminal penalties and is expressly prohibited by the law. This negative definition by itself does not, however, appear to deter people from downloading pirated music. Perhaps the inability of the criminal justice system to actively enforce the law due to resource limitations is the reason why individuals are not affected by such anti-piracy stipulations. To be sure, when the recording industry filed hundreds of civil lawsuits⁷ in the mid-2000s, piracy participation on file exchange networks dropped off substantially, but it began to creep up relatively soon thereafter as the likelihood of a music pirate's detection and apprehension was identified as miniscule amongst the millions of persons who took part in the phenomenon (Bowman, 2003; CNN.com, 2004; Dean, 2003). This example is only one of many initiatives that have not been successful in curtailing the behavior online. Perhaps more private sector companies in the copyright industries must collectively engage in such endeavors to provide external constraints on the behavior. The results, however, may be the same--a sharp decrease followed by an increase to levels prior to policy implementation.

With the continual advances in information technology and the increasing presence and distribution of intellectual property online, rigorous theoretical approaches to interpreting and analyzing copyright violators and violations hold much value. Legislators, academicians, and practitioners can benefit from this research, both by garnering a deeper knowledge of the nuances of both crimes and criminals and by obtaining direction in how they might attend to the issues at hand (Denning, 1998). The current work has sought to contribute to the extant literature base by further examining the contributive factors of music piracy and in generating policy that will curtail the problem. This inquiry is

⁷ Civil, rather than criminal, lawsuits were filed because it was difficult to muster the attention of law enforcement.

warranted so that the novel occasions for deviance resulting from technological progress do not overshadow the promises and profits of the continued progress into an information-based society.

References

- Agnew, R. (1985). A revised strain theory of delinquency. *Social Forces*, 64, 151-167.
- Agnew, R. (1989). A longitudinal test of the revised strain theory. *Journal of Quantitative Criminology*, 5, 373-387.
- Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology*, 30(1), 47-87.
- Agnew, R. (2006a). General strain theory: Recent developments and directions for further research. In F. T. Cullen, J. Wright, & M. Coleman (Eds.), *Advances in Criminological Theory, Taking Stock: The Status of Criminological Theory* (Vol. 15, pp. 101-123). New Brunswick, NJ: Transaction.
- Agnew, R. (2006b). *Pressured into Crime: An Overview of General Strain Theory*. New York: Oxford University Press.
- Agnew, R., & Brezina, T. (1997). Relational problems with peers, gender, and delinquency. *Youth & Society*, 29(1), 84-111.
- Agnew, R., Cullen, F. T., Burton, V. S. J., et al. (1996). A new test of classic strain theory. *Justice Quarterly*, 13(4), 681-704.
- Agnew, R., & White, H. R. (1992). An empirical test of general strain theory. *Criminology*, 30(4), 475.
- Akers, R. L. (2009). *Social Learning and Social Structure: A General Theory of Crime and Deviance*. Edison, NJ: Transaction.
- Arneklev, B. J., Grasmick, H. G., Tittle, C. R., & Bursik, R. J. (1993). Low self-control and imprudent behavior. *Journal of Quantitative Criminology*, 9, 225-247.
- Aseltine, R. H., Gore, S., & Gordon, J. (2000). Life stress, anger and anxiety, and delinquency: An empirical test of general strain theory. *Journal of Health and Social Behavior*, 41(3), 256-275.
- Beccaria, C. (1968). *On Crimes and Punishments* (H. Paolucci, Trans.). Indianapolis: Bobbs-Merrill.
- Benson, M. L. (1985). Denying the guilty mind: Accounting for involvement in a white-collar crime. *Criminology*, 23(4), 583-608.
- Benson, M. L., & Moore, E. (1992). Are white-collar and common offenders the same? An empirical and theoretical critique of a recently proposed general theory of crime. *Journal of Research in Crime and Delinquency*, 29(3), 251-272.
- Black, J. (2003). Big music's broken record. Retrieved on February 13, 2003, from http://www.businessweek.com/technology/content/feb2003/tc20030213_9095_tc078.htm
- Bowman, L. M. (2003). RIAA to sue thousands of file swappers. Retrieved on June 25, 2003, from http://zdnet.com.com/2100-1105_2-1020876.html
- Brezina, T. (1998). Adolescent maltreatment and delinquency: The question of intervening processes. *Journal of Research in Crime and Delinquency*, 35(1), 71-99.
- Broidy, L. M. (2001). A test of general strain theory. *Criminology*, 39(1), 9.
- Cloward, R. A., & Ohlin, L. E. (1963). *Delinquency and opportunity: A theory of delinquent gangs* (Fourth ed.). New York: The Free Press.

- CNN.com. (2004). More song swappers sued. Retrieved on January 24, 2004, from http://money.cnn.com/2004/01/21/technology/riaa_suits/index.htm
- Cochran, J. K., Wood, P. B., Sellers, C. S., Wilkerson, W., & Chamlin, M. B. (1996). *Academic dishonesty and low-self-control: An empirical test of a general theory of crime*. Paper presented at the American Society of Criminology, Chicago, IL.
- Cohen, A. K. (1955). *Delinquent boys: The culture of the gang*. Glencoe, IL: The Free Press.
- Coleman, J. W. (1989). *The criminal elite: The sociology of white-collar crime*. New York: St. Martin's Press.
- Dean, K. (2003). RIAA hits students where it hurts. Retrieved on April 5, 2003, from <http://www.wired.com/news/digiwood/0,1412,58351,00.html>
- Denning, D. (1998). *Information Warfare and Security*. Reading: Addison-Wesley.
- Gopal, R. D., Sanders, G. L., Bhattacharjee, S., Agrawal, M., & Wagner, S. (2004). A behavioral model of digital music piracy. *Journal of Organizational Computing and Electronic Commerce*, 14(2), 89-105.
- Gottfredson, M., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.
- Grasmick, H. G., Tittle, C. R., Bursik, R. J., & Arneklev, B. J. (1993). Testing the core empirical implications of Gottfredson and Hirschi's general theory of crime. *The Journal of Research in Crime and Delinquency*, 30(1), 5.
- Higgins, G. E. (2005). Can low self-control help with the understanding of the software piracy problem? *Deviant Behavior*, 26(1), 1-24.
- Higgins, G. E. (2007). Digital piracy: An examination of low self-control and motivation using short-term longitudinal data. *CyberPsychology & Behavior*, 10, 523-529.
- Higgins, G. E., Fell, B. D., & Wilson, A. L. (2006). Digital piracy: Assessing the contributions of an integrated self-control theory and social learning theory using structural equation modeling. *Criminal Justice Studies*, 19(1), 3-22.
- Higgins, G. E., & Makin, D. A. (2004). Does social learning theory condition the effects of low self-control on college students' software piracy? *Journal of Economic Crime Management*, 2(2), 1-22.
- Higgins, G. E., & Wilson, A. L. (2006). Low self-control, moral beliefs, and social learning theory in university students' intentions to pirate software. *Security Journal*, 19(2), 75-92.
- Higgins, G. E., Wilson, A. L., & Fell, B. D. (2007). Low self-control and social learning in understanding students' intentions to pirate movies in the United States. *Social Science Computer Review*, 25, 339-357.
- Higgins, G. E., Wolfe, S. E., & Marcum, C. D. (2008a). Digital piracy and neutralization: A trajectory analysis from short-term longitudinal data. *International Journal of Cyber Criminology*, 2(2), 324-336.
- Higgins, G. E., Wolfe, S. E., & Marcum, C. D. (2008b). Digital piracy: An examination of multiple conceptualizations and operationalizations of self-control. *Deviant Behavior*, 29, 440-460.
- Hinduja, S. (2007). Neutralization theory and online software piracy: An empirical analysis. *Ethics and Information Technology*, 9(3), 187-204.
- Hinduja, S., & Ingram, J. (2008). Self-Control and ethical beliefs on the social learning of intellectual property theft. *Western Criminology Review*, 9(2), 52-72.
- Hinduja, S., & Ingram, J. (2009). Social learning theory and music piracy: The differential role of online and offline peer influences. *Criminal Justice Studies*, 22(4), 405-420.

- Hirschi, T., & Gottfredson, M. R. (1993). Commentary: Testing the general theory of crime. *Journal of Research in Crime and Delinquency*, 30(1), 47-54.
- International Federation of the Phonographic Industry. (2008). Digital music report 2008: Summary. Retrieved June 4, 2009, from <http://www.ifpi.org/content/library/DMR2008-summary.pdf>
- Ingram, J., & Hinduja, S. (2008). Neutralizing music piracy: An empirical examination. *Deviant Behavior*, 29(4), 334-366.
- Lanier, M., & Henry, S. (1998). *Essential Criminology*. New York: Free Press.
- Long, J. S. (1997). *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage.
- Mazerolle, P., Burton, V., Cullen, F. T., Evans, D., & Payne, G. L. (2000). Strain, anger, and delinquent adaptations: Specifying general strain theory. *Journal of Criminal Justice*, 28, 89-101.
- Mazerolle, P., & Piquero, A. (1997). Violent responses to situations of strain: A structural examination of conditioning effects. *Violence and Victims*, 12, 323-344.
- Mazerolle, P., & Piquero, A. (1998). Linking exposure to strain with anger: An investigation of deviant adaptations. *Journal of Criminal Justice*, 26(3), 195-211.
- Merton, R. K. (1938). Social structure and anomie. *American Sociological Review*, 3, 672-682.
- Merton, R. K. (1968). *Social Theory and Social Structure*. New York: Free Press.
- Messner, S. F., & Rosenfeld, R. (1994). *Crime and the American Dream*. Belmont, CA: Wadsworth.
- Morris, R., G., & Higgins, G. E. (2009). Neutralizing anticipated and self-reported digital piracy: A multi-theoretical exploration among college undergraduates. *Criminal Justice Review*, 34, 173-195.
- Nagin, D. S., & Paternoster, R. (1993). Enduring individual differences and rational choice theories of crime. *Law & Society Review*, 27(467-496).
- Paternoster, R., & Brame, R. (1998). The structural similarity of processes generating criminal and analogous behaviors. *Criminology*, 36, 633-669.
- Paternoster, R., & Brame, R. (2000). On the association among self-control, crime, and analogous behaviors. *Criminology*, 38(3), 971-982.
- Paternoster, R., & Mazerolle, P. (1994). General strain theory and delinquency: A replication and extension. *Journal of Research in Crime and Delinquency*, 31(3), 235-263.
- Piquero, A., & Tibbetts, S. (1996). Specifying the direct and indirect effects of low self-control and situational factors in offenders' decision making: Toward a more complete model of rational offending. *Justice Quarterly*, 3, 481-510.
- Piquero, N. L., & Sealock, M. D. (2000). Generalizing general strain theory: An examination of an offending population. *Justice Quarterly*, 17(3), 449-484.
- Pratt, T. C., & Cullen, F. T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology*, 38(3), 931-964.
- Rosoff, S. M., Pontell, H. M., & Tillman, R. (2002). *Profit without honor: White-collar crime and the looting of America*. Upper Saddle River, NJ: Prentice Hall.
- Sharman Networks. (2005). Kazaa Media Desktop. Retrieved on June 19, 2005, from <http://www.kazaa.com/us/index.htm>
- Siwek, S. E. (2007). The true cost of copyright industry piracy to the U.S. economy. *IPI Policy Report*, #189: Institute for Policy Innovation.

- Skinner, B. F., & Fream, A. M. (1997). A social learning theory analysis of computer crime among college students. *Journal of Research in Crime and Delinquency*, 34, 495-518.
- Steffensmeier, D. (1989). On the causes of white-collar crime: An assessment of Hirschi and Gottfredson claims. *Criminology*, 27(2), 345-358.
- Tremblay, R. E., Boulerice, B., Arseneault, L., & Niscale, M. J. (1995). Does low self-control during childhood explain the association between delinquency and accidents in early adolescence? *Criminal Behaviour and Mental Health*, 5, 439-451.
- Wall, D. (2005). Information technology and the criminal justice system. In A. Pattavina (Ed.), *The Internet as a conduit for criminal activity* (pp. 78-94). Thousand Oaks, CA: Sage Publications.