Digital Piracy, Self-Control Theory, and Rational Choice: An Examination of the Role of Value

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Abstract

To date, several researchers have shown that attitudes, low self-control, social learning theory and deterrence theory to explain digital piracy. However, no study examined whether rational choice theory mediated the link between low self-control and digital piracy. Further, no study in digital piracy or criminological literature had considered the role of value in such an examination. Therefore, the purpose of the present study was to contribute to the literature by examining the links between low self-control, rational choice, value, and digital piracy. This study built on the mediating model presented by Piquero and Tibbetts (1996). That is, this study assumed that rational choice theory mediated the link between low self-control and digital piracy. Further, this study assumed that some situational factors would mediate the effect of other situational factors

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Keywords: Rational Choice theory, Digital Piracy, Low self-control, Social Learning Theory;

Introduction

Digital piracy was defined as the illegal copying of digital goods, software, digital documents, digital audio (including music and voice), and digital video for any other reason other than to backup without explicit permission from and compensation to the copyright holder (Gopal, Sanders, Bahattacharjee, Agrawal, & Wagner, 2004). In particular, digital piracy had been illegal since the Copyright Act of 1976 (Im & Koen, 1990) that had been amended in the No Electronic Theft (NET) Act (Koen & Im, 1997). These acts made the copying and distribution of digital media over the Internet a felony offense. These laws had produced several court cases for pirating software, music, and movies from the Internet (Motivans, 2004).

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The World Intellectual Property Organisation (WIPO) has developed several treaties to assist in the protection of copyrights. Specifically, WIPO has three treaties that preclude the unlawful taking of copyrighted material: The Copyright Treaty, The Performers and Producers of Phonograms Treaty, and The Databases Treaty. Regardless of these treaties, Rao (2003) showed that the international piracy rates increased in the years of 2000 and 2001. Therefore, piracy is a worldwide behavior. Because of the attributes of the Internet, piracy took place in almost complete deceit making the tracking of rates nearly impossible. However, an industry groups had estimated that software piracy accounted for nearly 11 billion dollars in lost revenue and contributed to loss of jobs and reduced government revenues (Business Software Alliance, 2003).

Equally as important as the illegality and economic implications were the perpetrators of this act. Hinduja (2001, 2003) and Hollinger (1988) argued that software piracy was rampant among college aged students. This should not be shocking as college students routinely used computers and highly priced software (Higgins, 2005). These students were generally male and were enrolled in the liberal arts. To date, several researchers had shown that attitudes (Rahim, Seyal, & Rahman, 2001), low self-control (Higgins, 2005), social learning theory (Skinner & Fream, 1997), and deterrence theory (Gopal et al., 2004; Higgins, Wilson, & Fell, 2005) could explain digital piracy. However, no study examined whether rational choice theory mediated the link between low self-control and digital piracy. Further, no study in the digital piracy or criminological literature had considered the role of value in such an examination.

Therefore, the purpose of the present study was to contribute to the literature by examining the links between low self-control, rational choice, value, and digital piracy. This study built on the mediating model presented by Piquero and Tibbetts (1996). That is, this study assumed that rational choice theory mediated the link between low self-control and digital piracy. Further, this study assumed that some situational factors would mediate the effect of other situational factors. This contributed to the literature in two unique ways. First, the study validated the Piquero and Tibbetts's (1996) model. Second, this study advanced rational choice, self-control theory, and the digital piracy literatures by including a measure of value in the model as a form of motivation. To make these contributions, this study presented self-

control theory and rational choice theory. The role of value in self-control and rational choice theories is discussed and the methods, results, and discussion are presented in order.

Self-Control Theory

Gottfredson and Hirschi's (1990) *General Theory of Crime*, now known as self-control theory, is one of the most popular crime theories (Agnew, 1995; Tibbetts & Gibson, 2002). The key component of their theory is low self-control. Low self-control is the time-stable individual difference that regulates behavior. Individuals with low self-control are the probable result of ineffective or poor parenting practices early in life--before the age of eight. Specifically, parents that are not effective or consistent in forming an emotional attachment with their child will make the task of monitoring their child's behavior difficult. The difficulty of monitoring the child's behavior reduces the probability that the parents will recognize their child's deviant behavior. This will reduce the opportunity for parents to apply non-corporal punishment for deviant behavior. Thus, these individuals are more likely to prefer simple and easy tasks; prefer physical rather than mental activities; prefer risky behaviors; prefer to focus on themselves; and prefer not to control their temper. That is, these individuals are likely to have low self-control and be more likely to disregard the long-term effects of their decisions for themselves and for others (Gottfredson & Hirschi, 1990).

With this disregard, low self-control manifests itself in several ways. One way is in the form of criminal behavior. For Gottfredson and Hirschi (1990), crime is an act of force or fraud that an individual pursues to satisfy their interests. Crimes are attractive to those with low self-control because crime shares many of the characteristics of low self-control. For instance, crimes are risky, immediately gratifying, easy and simple to perform (Gottfredson & Hirschi, 1990). Thus, low self-control should have a link with digital piracy. That is, individuals with low self-control may not be able to delay purchasing their own copy of the digital media. The individual with low self-control is not likely to honor the trust in the licensing agreement between the creator of the digital media and the copyright holder. Digital piracy is not necessarily a physical act, piracy may provide a thrill. Given the simplicity of the Internet, digital piracy is simple and easy to perform.

So far, the literature is supportive of Gottfredson and Hirschi's (1990) theory. Specifically, the majority of the empirical research

indicated that low self-control has at least a moderate link with criminal behavior (Pratt & Cullen's 2000)[2]. To date, two studies have directly examined and shown that low self-control--measured using self-reports and mother reports--remains relatively stable over time (Arneklev, Cochran, & Gainey, 1999; Turner & Piquero, 2002). Some researchers showed that low self-control had a link with digital piracy (Higgins, 2005; Higgins & Makin, 2004a, b; Higgins, Wilson, & Fell, 2005, in-press; Higgins & Wilson, in-press)[3]. Based on previous researchers results it is expected that low self-control will have a direct effect on digital piracy, these researchers have not considered the complete role of rational choice theory in self-control theory, nor have these researchers examined the role of value in the context of digital piracy.

Rational Choice Theory

Cornish and Clarke (1986) presented that rational choice had three components. The first component of the theory was that individuals would perform criminal acts if they believed that these acts would be to their benefit. This sort of determination required a basic decision-making process. Although the process of making this decision would be bounded by limited information (Simon, 1957), criminal decision-making would be a rational processing of the cost (i.e., the pain) and the benefits of the act (i.e., the pleasure, thrill, or excitement). When the individual viewed that the criminal act would provide more of a benefit than a cost, the individual would perform the criminal act.

Second, Cornish and Clarke (1986) suggested that rational choice theory required a crime-specific focus. The crime specific focus was necessary to capture the idiosyncrasies of different needs that were attached to a criminal act. In addition, this type of focus brought attention the situation or context of a criminal act rather than to the

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[2] Recently, Wright and Beaver (2005) challenged the validity of the Gottfredson and Hirschi's (1990) theory. They argued that the neglect of biological or deterministic views of Gottfredson and Hirschi and previous researchers of their theory made the findings invalid. Wright and Beaver (2005) go on to argue that future tests of the theory should incorporate biological or deterministic views. While this would be interesting, Simons, Simons, and … argued that sociologists routinely assume that some personality features are inherited and thus focus on the sociological variables of the shared and non-shared environments. The view from Simons et al. is the view of the present study.

[3] Recently, Hirschi (2004) redefined self-control conceptually and operationally. Hirschi's conceptual redefinition brought self-control and social bonding together. This version of the theory suggests that self-control could be operationally defined using measures directly from social bonding. While Hirschi's (2004) redefinition advances self-control theory, he does not see past research that used other measures of self-control as invalid. Thus, following previous research in the present study does not invalidate these findings.

individual. The crime specific focus allowed for sensitivity to the differences in the information necessary for different crimes. Cornish and Clarke (1986) argued, "[T]o ignore these differences might well be to reduce significantly one's ability to identify fruitful points of intervention . . ." (p. 2).

Third, an important distinction was made between criminal involvement and the criminal event. Criminal involvement and criminal events identified decisions that an individual made to participate in crime. On one hand, criminal involvement is the process that an individual used to become initially involved in a particular crime, to continue, and to desist (Cronish & Clarke, 1986). This decision required a substantial amount of information. This information came in different stages of the decision-making process and was not always directly related to the behavior (i.e., some of the information may have been pro-social as well as criminal). On the other hand, the criminal event is the decision to participate in a specific crime. This type of decision was short-term and relied on information that was related to the immediate circumstance or situation.

While under scrutiny from many researchers, rational choice theory had enjoyed varied empirical research support for academic dishonesty, sexual assault, theft and drinking and driving (Bachman, Paternoster, & Ward, 1992; Hickman & Piquero, 2000; Nagin & Paternoster, 1993; Piquero & Tibbetts, 1996; Tibbetts, 1997; Tibbetts & Myers, 1999).

Three streams of research were available that concerned the integration of self-control theory and rational choice theory (i.e., theoretical, moderating, and mediating). Theoretically, self-control theory was presented as being predicated on rational choice theory (Birkbeck & Lafree, 1993; Gottfredson & Hirschi, 1990). Empirically, researchers showed that low self-control was moderated by rational choice or deterrence type measures to explain crime and delinquency (Wright et al., 2004). Other researches showed that rational choice theory partially mediated the effect between low self-control and crime and deviance (Higgins & Marcum, 2005; Nagin & Paternoster, 1993; Tibbetts, 1997; Tibbetts & Myers, 1999). To date, only one study examined the role of deterrence/rational choice for digital piracy (Higgins, Wilson, & Fell, 2005). They found that certainty rather than severity had reduced the likelihood for digital piracy. In the present study, it is expected that external beliefs would have a link with digital

piracy. Further, it is expected that rational choice measures (i.e., shame, morality, and prior behavior) would have a link with digital piracy.

In the self-control and rational choice literatures, some researchers had integrated the two theories (Nagin & Paternoster, 1993; Tibbetts, 1997; Tibbetts & Myers, 1999; Wright et al., 2004). Wright et al. (2004) showed that rational choice theory moderated the link between low self-control and delinquency. Other researchers, using similar statistical methods (i.e., multiple regression with interaction terms) showed that the effects of low self-control were mediated by rational choice measures.

In particular, Piquero and Tibbetts (1996) used responses to a factorial survey from college students and structural equation modeling to examine the mediating role of situational characteristics, low self-control, and crime (i.e., drinking and driving and shoplifting). Their results showed that a large portion of the effects on crime were indirect through the situational characteristics. Importantly, Piquero and Tibbetts's (1996) results showed that some situational characteristics (i.e., perceived pleasure and perceived shame) influenced other situational characteristics as well as by low self-control. To conclude, Piquero and Tibbetts (1996) supported Cornish and Clarke's (1986) and Bernard and Snipes's (1996) contention that propensities (e.g., low self-control) would precede situational characteristics.

While these researchers advanced our understanding of the linkage between low self-control and rational choice theory, additional research was needed to understand the role of value as a situational characteristic. Given the fluctuations of rational choice theory due to the changes in the behavior, additional research was necessary in the context of digital piracy.

The Role of Value in Rational Choice and Self-Control Theories

Rational choice theory is based on subjective expected utility. Baron (1988) defined utility as,

> *'The concept of utility respects the variety of human goals. It represents whatever people want to achieve. Some people do not want pleasure as much as they want other things (such as virtue, productive work, enlightenment, respect, or love--even when these are painful things to have). The utility of an outcome is also different from the amount of money we would pay to achieve it (p. 287).'*

This definition is rooted in utilitarianism moral philosophy. Deci and Ryan (1987) argued that behaviors are deemed as right when behaviors provide happiness, but wrong when behaviors provide the opposite of happiness. The subjective expectancy utility (SEU) theory assumes that individuals will seek to maximize the utility and subjective probability because the behavior will provide happiness. Thus, SEU is a theory of decision-making in various contexts and situations where options may be available. SEU provides that individuals are likely to perform behaviors that provide happiness.

Cohen and Felson (1979, 1993) argued that value was an individual's perception of gain (i.e., perception of happiness) from a particular target or behavior. Consistent with the SEU view, Deci and Ryan (1991) argued when an individual identifies with the value of an activity, he or she takes full responsibility for the performance of the behavior.

Present Study

The purpose of the present study was to address the gap in the literature by presenting the first systematic examination of self-control, rational choice, and value in the context of digital piracy. This exploratory research contributed to the self-control theory, rational choice theory and digital piracy literatures. Regarding the self-control theory literature, the present study went beyond previous efforts that integrated rational choice using a pleasure or thrill measure as the main benefit (Nagin & Paternoster, 1993; Piquero & Tibbetts, 1996; Tibbetts & Herz, 1996; Tibbetts & Myers, 1999). Regarding the digital piracy literature, the present study was the first effort to examine the mediating role of rational choice theory in the link between self-control and digital piracy that included a measure of value. Further, the present study provided important information for college administrators and other policy-makers that may reduce instances of digital piracy.

Methods

Sample

After Institutional Review Board and Human Subject Protection review, data for this analysis were collected during the fall 2004 semester. Specifically, the researchers gave a self-report questionnaire to college students at a southeastern university in the United States. The students were from different majors enrolled in two courses that

were open to all majors and four courses that were only open to justice administration majors. The researchers asked students who were present on the day of the questionnaire administration to take part in the study during the class period. The researchers told the students of the voluntary nature of the study, and that all responses were anonymous and confidential. This set of procedures produced 386 surveys; however, after list wise deletion for missing cases, 382 completed surveys remained for analysis. The use of a student sample in some studies of deterrence theory may be problematic because the students may not perform the types of crimes being studied (Wright, Caspi, Moffitt, & Paternoster, 2004). In the present study, college students were the proper sample because previous research showed that this was the group of individuals that frequently performed software piracy (Hinduja, 2003, 2001; Hollinger, 1988; Husted, 2000).

Factorial Design

The factorial design approach combined the strengths of experiments and probability sampling. This allowed a researcher to develop unique qualities about a given situation without forcing the researchers to tax their respondents (Rossi & Nock, 1982). In the present study, there were four possible unique combinations (i.e., factors) derived from certainty and severity in the software piracy vignette. Using a vignette format, each student would have to rate all four of the combinations to determine the independent effects of the measures, which would not be very efficient. The factorial design allowed the researchers to infer to this population by randomly assigning the vignettes and the factors to the students. Random assignment for this study was achieved by using a random numbers table.

Important features of our study were the development of a believable scenario and certainty and severity factors. We developed these pieces of our survey in two ways. First, we were informed through the literature review about the measures. Second, we developed our measures through administering a thirty-item semi-structured survey, in a pilot study, to a small sample ($n = 30$) of students (the target population) that were not included in the final sample. Two points of emphasis were made in the semi-structured survey: the hypothetical scenario and the extra-legal sanctions. Following previous

research (Higgins, Wilson, & Fell, 2005), the students were asked to rate the believability of ten scenarios and the factors to be included in the study on an eleven-point scale that ranged from not believable to 100% believable.

The students were also asked to provide information concerning the different factors to be included in the scenario. We were concerned about the proper levels to include in the scenarios so that we did not depart too far from the perceptual nature of deterrence theory. The students were asked to rate the perception of certainty that they would be caught performing the scenarios. The students marked the certainty of being caught on an eleven-point scale that ranged from not being caught at all to a 100% chance of being caught. In addition, the students were asked to rate the perception of the severity of the sentences that they would receive if they were caught. The students marked their perception of severity of the offense on an eleven-point scale with the following categories: "no fine," "500 dollar fine ," "1,000 dollar fine," "10,000 dollar fine," "no jail or fine," "1 month jail time," "3 months jail time," "6 months jail time," "one year jail time," "three years jail time," "five years jail time." These categories were in accordance with a range of possible punishment severity from current legislation concerning software piracy.

I chose to use the most believable scenario from this pilot group. That is, 75 % of the students (n = 23) in the pilot study marked that the following scenario was at least 95 % believable.

> *You are taking a class that requires a lot of computer homework. The class is important to your success in your major because other classes use the same material, so you want to learn the material and make a good grade in the class. You have all of the computer programs that you need for the class EXCEPT for one. So, you go to the bookstore to purchase the software; however, you cannot afford it. Others in the class have told you that they own the program and would be willing to burn a copy for you.*

I chose to use a range of responses to develop the certainty and severity factors that would be randomly assigned in the scenarios for the students. The pilot study revealed that the range of 20 % and 80 % certainty contained 90 % of the students' (n = 27) responses about the certainty of being caught for software piracy. The responses from the pilot study revealed that 70 % of the students (n = 21) provided

responses that ranged between a $500 dollar fine and spending three months in jail. From the pilot study, in our view, we were left with a partially student-generated (i.e., target-population generated) scenario and set of factors. We chose to minimize the complexity of the survey and to use the end points of our ranges as the factors. This resulted in a 2 (certainty levels) X 2 (severity levels) factorial design. We recognized that some may not concur with our method of selecting the scenario and factors for our study. They could argue that our certainty and severity measure reduced variation in the perception of these measures. However, we felt that this procedure was similar to Bouffard's (2002) suggestions for subject-generated information for rational choice and deterrence studies.   Therefore, we believed that the scenario was relevant to this population. In addition, we felt that we identified a reasonable set of factors that can be varied among the sample for the present study. Further, the factorial design allows for variation among the factors for the students.

Dependent Measure

Similar to previous deterrence research (Pogarsky, 2002), the dependent measure for this study was the students' response to a single item, "What is the likelihood that you would take the software under these circumstances?" The students marked their responses on an 11-point scale that was anchored by the responses "not likely" and "100% likely." Higher scores on the item reflected a greater likelihood that they would perform the act.

Low Self-Control

The measure of low self-control was the twenty-four item composite Grasmick, Tittle, Bursik, & Arneklev scale (1993).   The response categories for the scale ranged from one (strongly disagree) to four (strongly agree). Higher scores signaled lower levels of self-control. This scale had an internal consistency of .83, and factor analysis with a screen test showed the scale was uni-dimensional, similar to other deterrence and rational choice studies (see Piquero & Tibbetts, 1996; Nagin & Paternoster, 1993).

Extra-legal Sanctions

The social and self disapproval measures were similar. To measure the expected influence of social disapproval similar to Piquero and Tibbetts (1996), the students were asked the following: "How likely is it that your family would find out that you used a copy of the program in the circumstances described in the scenario?" and "How likely is it that your friends would find out that you used a copy of the program in the circumstances described in the scenario?" The students addressed these questions using an 11-point scale that was anchored by "not likely" and "likely." To measure the expected influence of self-disapproval, the students were asked, similar to Paternoster and Piquero (1995), the students were asked, "How likely would you feel shame if you were to use the copy of the program in the circumstances described in the scenario?" The students addressed these questions using an 11-point scale that was anchored by "not likely" and "100 % likely." In addition, as in Bachman, et al. (1992), the students addressed the following question: "How morally wrong would it be if you were to use the copy of the program in the circumstances described in the scenario?" The students answered this question using an 11-point scale anchored by "not wrong" and "100 % wrong."

Additional Control Measures

The students responded to additional control measures that included their self-report of the number of times that they had pirated software before, their sex (0=male 1=female), their race (1=white 0=nonwhite), and age was an open-ended item. The median age of the sample was twenty years, with a range from eighteen to forty. Fifty-six percent of the sample were female (n = 212), and the remaining 44 % (n = 170) were male. The sample was 17.7 % (n=68) nonwhite and 82.3 % (n=314) white. The demographics of this sample closely approximate the population from which it was drawn.

Analysis

Structural equation modeling (SEM), via Mplus 4.0, was used to explore the links between low self-control, rational choice theory, value, and digital piracy. SEM was used for two reasons. First, SEM allowed for the simultaneous testing of the links hypothesized in this study.

Second, these links were examined without the influence of measurement error.

In interpreting SEM, researchers need to understand two issues--model fit and effects (i.e., direct and indirect). Researchers should understand the fit between the data and the model. Model fit was determined using a series of fit indices. In particular, the chi-square statistic is a direct test of the differences between the hypothesized model and the data. For proper fit, the chi-square statistic should not be statistically significant. This would indicate that hypothesized model and the data are the same. Unfortunately, researchers showed that the chi-square statistic was sensitive to sample size and recommended consulting additional fit indices to determine model fit (Hu & Bentler, 1999; Kline, 2005). Gibbs, Giever, and Higgins (2003) and Hu and Bentler (1999) recommended examining additional fit statistics to determine model fit that include: the confirmatory-fit-index (CFI) (standard .95 and above), the root mean squared error of approximation (RMSEA) (standard .05 and below), and the standardized root mean of the residual (standard .05 and below) for proper fit of the model to the data.

Importantly, SEM allowed researchers to estimate the direct and indirect effects of their measures. That is, SEM allowed for an understanding of the direct effect that one measure would have on another measure and the mediating effect of the measures. Therefore, this sort of analysis is congruent with the analysis Piquero and Tibbetts (1996) used to examine the link between low self-control and rational choice theory.

Results

Table 1 presented the correlation results that were used to develop the SEM model. In particular, shame (-.53), value (.50), external sanctions (-.41), moral behaviors (-.37), prior behaviors (.20), and low self-control (.21) correlated with digital piracy. Further, the cost measures of rational choice theory (i.e., moral beliefs [.66] and external sanctions [.70]) positively correlated with shame. Further, value (-.49), prior behavior (-.22), and low self-control (-.11) negatively correlated with shame. Low self-control (.19) and prior behavior (.35) positively correlated with value, but external sanctions (-.45) and moral beliefs (-.37) negatively correlated with value. Thus, correlations exist between low self-control, rational choice theory, value, and digital piracy. These

results are consistent with the literature in these areas (Deci et al., 1994; Gottfredson & Hirschi, 1990; Higgins, 2005; Nagin & Paternoster, 1993; Piquero & Tibbetts, 1996; Tibbetts & Myers, 1999).

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Table 1. Correlations among Independent Measures.

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| Measure	1	2	3	4	5	6	7
Intentions	1.00						
Shame		-.53	1.00				
Value	.50	-.49	1.00				
External Controls	-.46	.70	-.45	1.00			
Moral	-.44	.66	-.37	.57	1.00		
Prior Piracy	.23	-.22	.35	-.28	-.24	1.00	
Low Self-Control	.21	-.11	.19	-.09	-.11	.06	1.00

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Figure 1 showed the SEM that empirically examined the links between low self-control, rational choice theory, value, and digital piracy. The chi-square (13.88, df = 6, p = .03) indicated that the model did not fit the data very well. As stated above, the sample size forced the chi-square statistic to be statistically significant. However, after consulting the CFI (.99), RMSEA (.05), and the SRMR (.02), the decision was made that the model did fit the data very well.

Figure 1 showed the results that examined the direct effect of low self-control on intentions to digital pirate and the indirect effects on intentions to digital pirate through situational factors. Low self-control had a direct link with digital piracy (beta = .11) and a direct positive effect on value (beta = .14). This indicated that the lower an individual's level of self-control the more likely they are to perform digital piracy and highly value the digital media. Unlike Piquero and Tibbetts (1996), low self-control did not have links with shame or external sanctions. Further, low self-control not only had direct links, but it had an indirect link with digital piracy through value (beta = .04). This is consistent with Gottfredson and Hirschi's (1990) view that individuals with low

self-control are unlikely to see the consequences of their digital piracy, and is consistent with previous research (Piquero & Tibbetts, 1996).

In addition, Figure 1 examined whether situational factors would have a direct effect on intentions to digital pirate and would have indirect effects on intentions to digital pirate through other situational factors. Value (beta = .28), moral beliefs (beta = -.12), and shame (beta = -.29) have links with intentions to digital pirate in the expected directions. These findings mean that as the value of the digital media increased for the individual the likelihood of pirating also increased. Further, these results indicated that moral beliefs and shame would be important measures in reducing the instances of digital piracy. Importantly, the results of this study did not show that prior behavior or external sanctions would be relevant in digital piracy. These results were expected given that some (Hirschi & Gottfredson, 1993) argued that prior behavior may be an indication of low self-control. That is, this measure was conflicting with the attitude based measure of self-control. Further, external sanctions were not significant in reducing the likelihood of digital piracy (average is 3.94). This result suggested that individuals were not very certain that external sanctions would be prominent in reducing their digital piracy.

Figure 1. Integrated Model of Low Self-Control, Rational Choice, Value, and Digital Piracy.
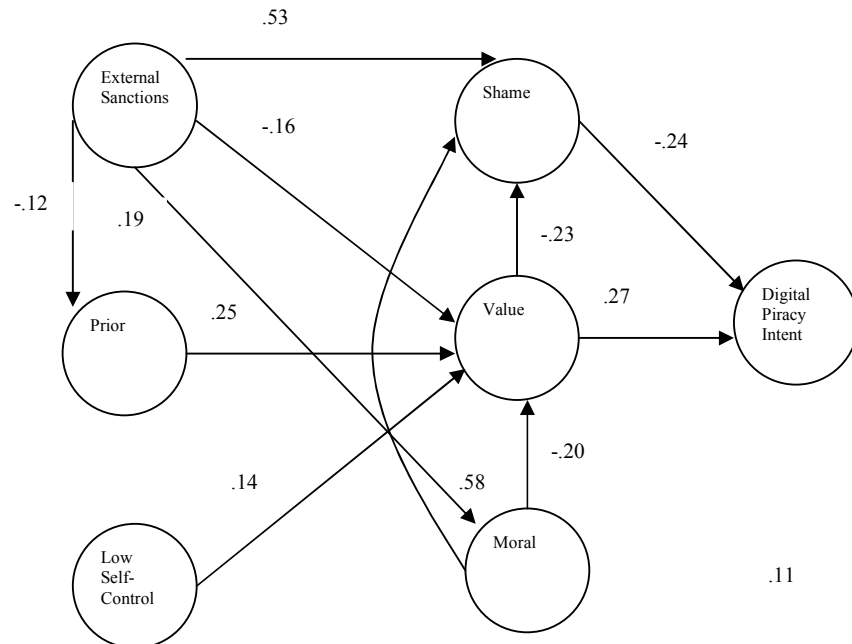
For other effects, moral beliefs (beta = .58) had a link with shame. This link indicated as that as the individual's belief that digital piracy was morally wrong increased situational shame that accompanied digital piracy also increased. Moral beliefs had an indirect effect (beta = -.17) on digital piracy through shame. Value (beta = -.23) had an interesting link with shame. That is, when the value of the digital media increased for the individual the situational shame for intending to pirate the digital media also decreased. Value had an indirect effect (beta = -.07) on digital piracy through shame suggesting that shame may reduce the motivation or want for digital piracy.

Other effects include a direct effect between moral beliefs (beta = -.20), low self-control (beta = .14), prior behavior (beta = .25), and external sanctions (beta = -.16) and value. The links between moral beliefs and external sanctions indicated that as they increase the value of the digital media is likely to decrease for the individual. Conversely, as low self-control and prior behavior increase, the value of the perceived digital media increases. Indirectly, moral beliefs had a link with intentions to pirate software (beta = -.06) through value, indicating that as an individual's moral beliefs increase their value of the digital media decreased and this reduced the likelihood of digital piracy. Others also had indirect links with intentions to pirate software through value: low self-control (beta = .04), prior behavior (beta = .07), and external sanctions (beta = -.05). With the exception of external sanctions, as low self-control increased and prior behavior increased, the value of the digital media increased that increased the likelihood of digital piracy. However, when external sanctions increased, the individual was less likely to value the digital media reducing the likelihood of digital piracy. Overall, these findings indicated that the situational factors were important in the increase and decrease in how an individual valued the digital media that had an effect on their likelihood for piracy. Three measures had effects on the perceptions of external sanctions.

In particular, when moral beliefs (beta = .19) and shame (beta = .53) increased the perception of external sanctions for digital piracy increased. However, when prior behavior increased the perceptions of external sanctions decreased for digital piracy (beta = -.12). Importantly, these measures did not have indirect links with intentions for digital piracy.

Discussion and Conclusion

The purpose of the present study was to address the gap in the literature by presenting the first systematic examination of self-control, rational choice, and value in the context of digital piracy. This research contributed to the self-control theory, rational choice theory and digital piracy literatures. The results of the present study show that low self-control has direct and indirect effects with intentions to digital piracy (Pratt & Cullen, 2000; Higgins, 2005; Higgins & Makin, 2004a, b). Further, the present study shows that low self-control has indirect links with a modified version of situational factors (i.e., value) (Deci et al., 1994; Nagin & Paternoster, 1993; Piquero & Tibbetts, 1996; Tibbetts & Herz, 1996; Tibbetts & Myers, 1999). In addition to these results, the present study shows that situational factors have both direct and indirect effects with digital piracy (Piquero & Tibbetts, 1996; Tibbetts & Herz, 1996; Tibbetts & Myers, 1999). These results indicate that low self-control and rational choice theory maybe compatible theories that can explain digital piracy.

The present study helps criminologists understand more about the decision-making mechanisms for digital piracy. The results indicate that low self-control and rational choice theory can be applied and integrated to understand the intentions to digital pirate. These findings go beyond previous research in the digital piracy literature (i.e., Higgins, 2005; Higgins & Makin, 2004a, b; Higgins, Wilson, & Fell, 2005). Thus, the present study contributes to the literature by outlining some of the motivational components (i.e., prior behavior, low self-control and value) and the deterrent components (i.e., shame and moral beliefs).

Understanding the motivational and deterrent components of digital piracy from the integrated low self-control and rational choice theory model, provides important information for college administrators and other policy-makers that may reduce instances of digital piracy. That is, to reduce instances of digital piracy college administrators can develop policies and programs on campus that reiterate the morality of the digital piracy as well as the shame that may come from digital piracy. Security specialists can use this information to develop specific technological innovations that remind students of the morality and potential shame involved in digital piracy.

While the present study informs the literature about the links between low self-control, rational choice theory, value and digital piracy, the present study has some noteworthy limits. In particular, the study uses responses to a scenario as the dependent measure rather than an actual measure of behavior. However, this technique has become rather normal in rational choice theory studies because it allows for proper temporal ordering. However, this limits the trash talking. The study only uses data from one university in the United States, and it may limit the international generalization. However, this is the first study to examine this sort of model and the results should be consumed as preliminary and in need of replication on a large scale. The data for this study are cross-sectional. Longitudinal data may provide very interesting insights into the development of the decision-making process. This is an area for future research.

Despite the limits of the present study, low self-control, rational choice theory, value and digital piracy have connections. Specifically, the link between low self-control and digital piracy is partially mediated by an individual's value of the digital media. Further, situational factors (i.e., moral beliefs and shame) effects on digital piracy are mediated by value. Therefore, the value an individual places on digital media is an important piece of the decision-making process. While future studies that use actual measures of piracy; from multiple university; and that are longitudinal will inform our understanding about the links between low self-control, rational choice, value, and digital piracy. For now, the results of this study are show that the value that an individual places on digital media is important regardless of their low self-control, moral beliefs, or perceptions of situational shame.

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