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Curiosity, Low Self-Control and Deviance: An Exploratory Study

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Abstract. Many theories in the criminological literature try to explain the causes of criminal behavior. Perhaps the most widely tested, discussed, and debated theory in the criminal justice field is Michael Gottfredson and Travis Hirschi's (1990) *A General Theory of Crime*. The authors argue that "low self-control" represents the primary cause for involvement in crime. The present research tests "Low Self-Control Theory" against an original theory proposing Curiosity as an additional cause for criminal involvement. The data used in the analysis was obtained by surveying a convenience sample of college students (age 18 and older) in various classrooms at a southeastern university. The survey contained measures for Low Self-Control (developed by Grasmick et al., 1993), Curiosity, Exploratory Deviance, and controls for the variables Gender and Age. A review of the analyses reveals that Curiosity does significantly predict the involvement in more minor forms of Exploratory Deviance, controlling for Low Self-Control, Gender and Age. These results indicate that the research hypothesis, *Individuals who are more curious are significantly more likely to engage in exploratory deviance than individuals who are less curious (controlling for the effects of low self-control),* received partial support.

Introduction

Gottfredson and Hirschi's (1990) *A General Theory of Crime* is one of the most influential criminological theories to date (Pratt & Cullen, 2000; also see Goode, 2008; De Ridder, Lensvelt-Mulders, Finkenaur, Stock, & Baumeister, 2012). The authors argue that the major predictor of involvement in crime is "low self-control." Individuals with low self-control are more likely to be involved in criminal and analogous behaviors (e.g. smoking and drinking) because they focus on the immediate benefits of their actions and do not typically consider the distal consequences of such behaviors. Three years after the publication of self-control theory, Grasmick, Tittle, Bursik and Arneklev (1993) provided one of the first major attempts to test this theory. In the study, Grasmick et al. (1993) created a low self-control scale to operationally define an individual's level of self-control. The measure has allowed for many tests of the theory over time (De Ridder et al., 2012).

Recent criminological literature suggests that other factors beyond low self-control also predict involvement in criminal and analogous behaviors (Pratt & Cullen, 2000). One concept not examined to date, which may be another additional predictor, is the concept of "curiosity." The current study specifically attempts to answer one major research question: Are individuals who are more curious more likely to engage in exploratory deviance compared to individuals who are less curious, net of the effects of low self-control, gender, and age? In the following sections, a literature review will first provide the theoretical background surrounding low self-control theory. Second, a theory of curiosity and exploratory deviance will be explained. Third, the methods and analytical procedures of the study will be discussed in detail. The paper concludes with a discussion of the findings, with a specific focus on the implications that they might have for the theory of low self-control.

Brief Literature Review
A General Theory of Crime

There are many theoretical explanations accounting for *why* individuals engage in criminal and analogous behavior; e.g. Strain theory (Merton, 1938), Labeling theory (Tannenbaum, 1938), the theory of Differential Association (Sutherland, 1939), and Control theory (Hirschi, 1969). One of the most widely cited and controversial theoretical works in the criminological field today is *A General Theory of Crime* (1990) by Michael Gottfredson and Travis Hirschi (Pratt & Cullen, 2000; also see Goode, 2008; De Ridder et al., 2012). In their theory, Gottfredson and Hirschi (1990) argue that an individual's involvement in criminal and analogous behavior depends on one significant factor: low self-control. According to the theory, "people who lack self-control will tend to be impulsive, insensitive, physical (as opposed to mental), risk-taking, short-sighted and nonverbal, and they will tend therefore to engage in criminal and analogous acts" (Gottfredson & Hirschi, 1990, p. 90; see also Grasmick et al., 1993; De Ridder et al., 2012). Unlike individuals with low self-control, those with self-control are better able to avoid simple gratifications in order to achieve and benefit from their long-term goals (Gottfredson & Hirschi, 1990, p. 89-90).

According to Gottfredson and Hirschi (1990), an individual's level of self-control is determined by the quality of parenting received in early childhood. On the one hand, parents who are attached to their children will monitor their behavior, recognize deviant behavior when it occurs, and punish the child to correct their misdeeds (Gottfredson & Hirschi, 1990, p. 97). By doing so, children develop the self-control to resist easy gratification of short-term desires. On the other hand, parents who are less attached tend not to monitor their child's behavior nor punish them for any wrongdoings. Gottfredson and Hirschi (1990) consider the second scenario to reflect "inadequate" child-rearing, which they argue leads to the development of "low" self-control. Low self-controlled individuals end up engaging in behaviors that provide easy, simple benefits but also have long-term negative consequences, because they were not corrected as children (Gottfredson & Hirschi, 1990, pp. 89-91). More self-control individuals are capable of putting aside their immediate short term desires in order to achieve more important and fruitful future accomplishments. They find more success in school (Gottfredson & Hirschi, 1990, pp. 105-107), work harder intellectually to prepare themselves for a rewarding career and, therefore, end up being more successful in their professional endeavors (Gottfredson & Hirschi, 1990, pp. 163-165; see also De Ridder et al., 2012). Thus, both self-control and low self-control have persistent consequences for individuals on either side of the spectrum throughout their lives. For individuals with self-control the consequences typically involve positive experiences, unlike individuals with low self-control whose consequences are generally negative (De Ridder et al., 2012, p. 88).

Early Major Research Efforts Testing Gottfredson and Hirschi's A General Theory of Crime

The vast majority of early empirical tests of the theory provided the field with supporting evidence (Grasmick et al., 1993; see also; Wood, Pfefferbaum, & Arneklev, 1993; Evans, Burton, Dunaway, & Benson, 1997). Concerning one of the earliest empirical examinations of self-control theory, Grasmick et al. (1993) found that low self-control predicted self-reports of "force" and "fraud" "undertaken in pursuit of self-interest," which is Gottfredson and Hirschi's (1990, p. 15) definition of crime. Therefore, the general theory also avoids formal definitions of illegal behavior and explains all criminal and analogous acts, a contention also supported by Gramick et al.'s (1993) findings. Grasmick et al. (1993) also believed that in order to conduct an accurate test of the theory, it was important to develop a valid a way to operationalize the concept that reflects the characteristics of low self-control. Following Gottfredson and Hirschi's (1990, pp. 89-91) conceptualization of the different components of low self-control, Grasmick et al. (1993) developed a twenty-four item scale specifically designed to measure low self-control. The scale has become the most used attitudinal indicator of low self-control (Pratt & Cullen, 2000).

Recent Examinations and Theoretical Extensions

Nearly a decade after earlier tests, Pratt and Cullen (2000) conducted a meta-analysis to assess the empirical status of Gottfredson and Hirschi's (1990) theory. Their meta-analysis summarized the empirical results of most prior tests of self-control theory (also see De Ridder et al., 2012). Results from Pratt and Cullen (2000) indicated that low self-control is a strong predictor of criminal and analogous behaviors across most studies. However, the study also concluded that Gottfredson and Hirschi's (1990) contention that low self-control is the sole determinate of crime may be overstated (Pratt & Cullen, 2000, p. 949). This qualification has led recent scholars to seek to identify alternatives to low self-control that may also predict involvement in criminal and analogous behaviors.

Recently identified concepts include morality, religiosity, social bonds and differential association, which have been shown to either alter and/or reduce the effects of low self-control on various forms of deviance. For example, studies have found that an individual's morality may inhibit involvement in various forms of deviance, either through interaction with, or independent of, low self-control (Schoepfer & Piquero, 2006; Antonaccio & Tittle, 2008; also see Wikström et al., 2010). In addition, several studies argues that religious belief also interacts with self-control (Welch et al., 2006; also see Bartkowski et al., 2008; McCullough & Willoughby, 2009, Rounding et al., 2012) and/or significantly reduces involvement in minor forms of deviance beyond the effects of low self-control (Cochran et al., 1993). Furthermore, recent research testing Social Bond Theory (Hirschi, 1969) has also suggested that elements of the "social bond" (including commitment, attachment, involvement, and belief) can act as an additional cause of crime, beyond the effect of low self-control (Boman, Krohn, Gibson, & Stogner, 2012; Flexon, Greenlearf, & Lurigio, 2012; Longshore, Change, & Messina, 2005; Longshore, Turner, & Stein, 1996). Finally, studies of Differential Association theory (Sutherland, 1947) suggest that associations may also increase involvement in deviance either independent of, and/or in interaction with, low self-control (Holtfreter, Reisig, Piquero, & Piquero, 2010; Franklin, Bouffard, & Pratt, 2012; also see Longshore et al., 2005; Evans et al., 1997).

In summary, recent tests of self-control theory suggest that additional factors predict involvement in criminal and analogous behaviors, beyond the effect of low self-control. The more of these factors that are identified, the more that research moves away from Gottfredson and Hirschi's (1990) early assertion that low self-control is "the" cause of criminal and analogous behaviors (p. 232). The current study tests whether an additional, heretofore neglected, concept in the literature might also be an additional determinant for involvement in criminal and analogous behaviors.

The Present Study: A Theory Based on the Concept of 'Curiosity'

Research on the concept of "Curiosity" is virtually nonexistent in the field of criminology. Therefore, it is important to establish a strong nominal definition for the concept. Curiosity seems to be a subconscious desire, or want, to question things unknown to the individual and/or to experiment with unfamiliar situations and/or behaviors, in order to have an understanding of how things work. Curiosity is a trait that is presumed to be in both genders, in all races and ethnicities, and present at all stages of life. While it is beyond the scope of this research to test the stability and/or malleability of curiosity, it is proposed that the concept may influence involvement in more minor and exploratory types of deviance. For example, curiosity might lead some individuals to try marijuana a couple of times in order to experience the drug's effects. Therefore, the theory that is presented here is that curiosity may lead individuals to engage in certain exploratory types of deviance, beyond the effect of low self-control. [See Figure 1 Below]

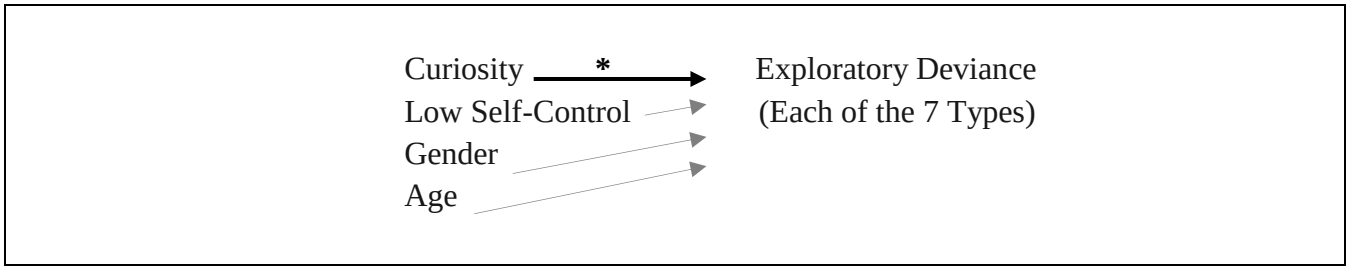

Figure 1 Theory of attributes which contribute to Exploratory Deviance

Research Hypothesis

Hypothesis #1: *Individuals who are more curious are significantly more likely to engage in exploratory deviance than individuals who are less curious, net of the effects of low self-control and other control measures.*

Data and Tables

Sample

The data used in the current study was obtained by surveying a convenience sample of undergraduate college students (age 18 and older) in a southeastern university. A total of seven randomly chosen undergraduate college courses participated in the study. These classes were selected simply by a professor's willingness to devote part of their class time to allow for the administration of the survey. The original Internal Review Board (IRB) application specified that no more than 400 respondents were needed in the study (although it was also felt that at least 300 would be needed for more advanced statistical analyses). Therefore, when the sample size of 344 respondents was reached, no additional surveys were distributed. Preliminary descriptive statistics indicated that 43% of the sample was male (matching the 43% of males within the student body of the relevant college) and that the mean age of the sample was 22.15 years old. While the percent male comparison might make it appear that the sample is representative of the college, we wish to remind readers that this is simply a convenience sample of individuals and no attempt is being made to generalize to the college's population and/or any other population.

Measures: Low Self-Control

"Low Self-Control" is measured with the use of Grasmick et al.'s (1993) twenty-four item scale. This scale was specifically designed to measure the original conceptualization provided by Gottfredson and Hirschi (1990) in their original theory (see specifically pp. 89–91). The measure captures not only the six sub-dimensions, but also those dimension which are used to account for a higher order, more global, and low self-control construct (Arneklev, Grasmick, & Bursik, 1999). The sub-dimensions are impulsivity, simple tasks, risk seeking, physical activity, self-centeredness, and volatile temper. Each of the six dimensions is measured using four survey items. Respondents replied to the twenty-four items by answering all questions on a four point scale of (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. Therefore, a high score represents a high degree of "low" self-control. The means and standard deviations for the over-all 24 item scale and each of the individual items are listed in table 1. Chronbach's alpha increases from .809 to .811 with the elimination of the fourth item of the Physical Activities component. For a complete discussion of the development of the scale see Grasmick et al. (1993, p. 117). [See Table 1]

Table 1 Low Self-Control Scale Items (n= 344)

Item	Mean	S. D.
Impulsivity Component		
I don't devote much thought and effort to preparing for the future.	1.40	.69
I often do whatever brings me pleasure here and now, even at the cost of some distant goal.	2.04	.88
I'm more concerned about what happens to me in the short run than in the long run.	1.71	.71
I much prefer doing things that pay off right away rather than in the future.	1.95	.80
Simple Tasks Component		
I frequently try to avoid things that I know will be difficult.	2.00	.78
When things get complicated, I tend to quit or withdraw.	1.62	.66
The things in life that are easiest to do bring me the most pleasure.	2.04	.79
I dislike really hard tasks that stretch my abilities to the limit.	1.79	.71
Risk Taking Component		
I like to test myself every now and then by doing something a little risky.	2.92	.77
Sometimes I will take a risk just for the fun of it.	2.66	.88
I sometimes find it exciting to do things for which I might get in trouble.	2.04	.91
Excitement and adventure are more important to me than security.	1.93	.81
Physical Activities Component		
If I had a choice, I would almost always rather do something physical than something mental.	2.45	.92
I almost always feel better when I am on the move than when I am sitting and thinking.	2.91	.82
I like to get out and do things more than I like to read or contemplate ideas.	2.91	.86
I seem to have more energy and a greater need for activity than most other people my age.	….	….
Self-Centered Component		
I try to look out for myself first, even if it means making things difficult for other people.	2.06	.87
I'm not very sympathetic to other people when they are having problems.	1.61	.76
If things I do upset people, it's their problem, not mine.	1.75	.81
I will try to get the things I want even when I know it's causing problems for other people.	1.68	.72
Temper Component		
I lose my temper pretty easily.	1.98	.90
Often, when I'm angry at people I feel more like hurting them than talking to them about why I am angry.	1.69	.78
When I am really angry, other people better stay away from me.	2.00	.94
When I have a serious disagreement with someone, it's usually hard for me to talk about it without getting upset.	2.31	.93
Alpha reliability = .81		

Curiosity

"Curiosity" is a new concept that, prior to this study, had never been measured empirically in the criminological literature. In order to define this construct operationally, a pretest was conducted in the spring of 2013 in an attempt to identify four reliable survey questions to measure a form of "behavioral" curiosity. Retrospective questions (i.e. items that ask about an earlier time point in the respondent's life) were used to measure curiosity and "exploratory" deviance (see below). Each item was prefaced with the phrase "When I was young." The term "young" did not

receive any specific definition, however, in order to allow for individual interpretation to influence responses to the survey questions. Measures for exploratory deviance were prefaced with the phrase "When you were in middle/high school…" Exploratory deviance measures were defined in order to satisfy concerns about temporal order. An example question for behavioral curiosity is, "When I was young, if I was curious about something, it would often compel me to do something about it." Respondents were asked to reply to four questions using the same four point response scale that was used to measure low self-control. Responses were coded (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. A high score, therefore, represents high behavioral curiosity. Chronbach's alpha reliability for the Behavioral Curiosity scale is .856. The alpha could not be increased with the deletion of any of the items. The items and their means and standard deviations are listed in Table 2.

Table 2 Curiosity Items (n= 344)

Item	Mean	S. D.	Factor Loading
When I was young, I often found myself trying new things just to see what they were like	2.83	.84	.86
When I was young, if anything peaked my interest I would often investigate it further.	3.10	.70	.78
When I was young, I had an inquisitive nature that would often influence what I did.	2.85	.74	.82
When I was young, if I was curious about something, it would often compel me to do something about it.	2.89	.74	.79
Cronbach's Alpha = .86 Eigen Value = 2.80			

Exploratory Deviance

Respondents were asked to answer questions regarding seven different types of behaviors in which they may or may not have participated during middle or high school. Many of the measured behaviors are illegal. For the purposes of this study, however, these behaviors were referred to as "deviance" due to individuals' age at which they occurred. It is also noteworthy that four out of seven of these behaviors are "status offenses." A status offense is a type of behavior which is illegal only if committed by persons of a particular legal status such as when minors consume alcohol underage (Whitehead & Lab, 2012). In such a case, individuals over the legal age requirement (21 and older) would not be in violation of any laws. An example of a retrospective question for exploratory deviance is, "When you were in middle/high school, how many times did you drink alcohol to the point of intoxication?" All items were answered using a four point scale of (0) never, (1) a few times, (2) more than a few times, and (3) often/frequently.

To operationalize "exploratory" deviance, we purposefully selected the attributes of "a few times" and "more than a few times" so that strictly curious people could distinguish behaviors not important to them in self-reporting. Theoretically, the respondent's curiosity would be satisfied after engaging in a behavior "a few times." For individuals responding in categories (2) and (3), an additional factor (i.e. low self-control) would account for continued engagement in the behavior and, therefore, would not hold any importance to our test. The test to delineate the *relative* effects of curiosity versus low self-control can be conducted by comparing individuals in category (0) "never" to the individuals reporting (1) "a few times." Both non-curious respondents and those with high self-control should be more likely to be in category (0), whereas curious respondents and those with low self-control should be more likely in category (1). This test, therefore, determines if curiosity is still a significant predictor of exploratory deviance (being in category 1), while controlling for the effects of low self-control. Means and standard deviations for these seven variables, the curiosity scale, the low self-control scale, and the control variables are listed in Table 3.

Table 3 Exploratory Deviance Items (N= 344)

Item	Variable Name	Resp. Coded	Mean	S. D.	Resp 1 %	Resp 0 %	Respondents
When you were in middle/high school, how often did you "sneak out" of your home at night?	Sneak Out	0= Never 1= A few Times	32	.47	31.90	68.10	N= 304
When you were in middle/high school, how often did you skip an entire day of classes (e.g. when you were not sick)?	Skip a Day	0= Never 1= A few Times	.53	.50	52.60	47.40	N= 291
When you were in middle/high school, how many times did you gamble with real money?	Gamble with Real Money	0= Never 1= A few Times	.16	.37	16.00	84.00	N= 324
When you were in middle/high school, how often did you attend "house parties"?	House Parties	0= Never 1= A few Times	.44	.50	43.50	56.50	N= 255
When you were in middle/high school, how often did you use marijuana?	Use Marijuana	0= Never 1= A few Times	.19	.39	18.90	81.10	N= 296
When you were in middle/high school, how many times did you drink alcohol to the point of intoxication?	Drank to Intoxication	0= Never 1= A few Times	.26	.44	26.30	73.70	N= 274
When you were in middle/high school, how often did you try prescription drugs that were not specifically prescribed for you?	Prescription Drugs	0= Never 1= A few Times	.06	.23	5.70	94.30	N= 336
Curiosity			11.68	2.54	…..	…..	N= 344
Low Self- Control			47.45	8.29	…..	…..	N= 343
Male			.43	.50	42.70	57.30	N= 344
Age			22.15	4.34	…..	…..	N= 344

To control for potential instances of omitted variable bias, Gender (Male=1, Female= 0) and Age (measured as a continuous variable) were used as control variables. According to Gottfredson and Hirschi's (1990), age is independent of low self-control (pp. 124-144) and, therefore, should be used as a control variable. Gender differences in criminal and analogous behaviors may reflect the differences between males and females and respective degree of self-control (Gottfredson & Hirschi, 1990, pp. 144-149). Gender is still used as a control variable, as the measure may not completely capture self-control levels.

Analysis Procedures

The analysis proceeds in the following steps. First, bivariate correlations will be analyzed to determine whether Curiosity and/or Low Self-Control are significantly related to each of the seven types of Exploratory Deviance. Second,

logistic regression will be used to compare the effects of Curiosity and Low Self-Control "head-to-head" in explaining exploratory deviance. The research hypothesis will be supported if curiosity significantly predicts exploratory deviance, while controlling for Low Self-Control, Age and Gender.

Results

Table 4 reports the results of the bivariate correlations between the measures of Curiosity and Low Self-Control Scale and each of the deviance items. A number of findings stand out in the table. First, there are significant correlations between Curiosity and the variables Sneaking Out (r = .201, p = <.001), to Gamble with Real Money (r = .150, p = .007), and the unauthorized use of Prescription Drugs (r = .111, p = .042). In addition, Curiosity is close to being associated significantly with Skipping a Day of School (r = .102, p = .083). In contrast, bivariate correlations between Low Self-Control and Gambling with Real Money (r = .140, p = 012), Drinking Alcohol to the point of Intoxication (r = .163, p = .007), and the unauthorized experimentation with Prescription Drugs (r = .178, p = .001) are also significant. Interestingly, there is also a significant relationship between Curiosity and Low Self-Control (r = .209, p = <.001). [See Table 4]

Table 5 reports the logistic regression results for the effects of Curiosity and Low Self-Control on Exploratory Deviance controlling for Age and Gender. The results are mixed. Curiosity significantly predicts a number of different types of Exploratory Deviance such as Sneaking Out (b = .180, p = <.001), Skipping a Day of School (b = .117, p = .021), and Gambling with Real Money (b = .192, p = .012) controlling for the effects of Low Self-Control, Age and Gender. However, Low Self-Control significantly predicts Drinking to the point of Intoxication (b = .043, p = .019) and the unauthorized Use of Prescription Drugs (b = .094, p = .003) controlling for the effects of Curiosity, Age and Gender. Surprisingly, neither Low Self-Control nor Curiosity significantly predicts Attending House Parties or Smoking Pot. [See Table 5]

Table 4 Correlations Among Exploratory Deviance Items, Curiosity, and the Low-Self Control Scale (r is the top number and the significance level is the bottom number).

	Sneak Out	Skip Day	Gamble Money	House Parties	Use Mari-juana	Intoxicated Drunk	Prescript Drugs	Curiosity	Low Self-Control
Sneak Out	1.000								
Skip Day	.146 .017	1.000							
Gamble Money	.052 .377	.001 .998	1.000						
House Parties	.287 <.001	.162 .014	.243 <.001	1.000					
Use Ma-rijuana	.175 .004	.004 .954	.155 .009	.282 <.001	1.000				
Intoxicat-ed Drunk	.215 .001	.053 .408	.229 <.001	.392 <.001	.293 <.001	1.000			
Prescript Drugs	.117 .044	.061 .303	.115 .040	.126 .045	.227 <.001	.168 .005	1.000		
Curiosity	.201 <.001	.102 .083	.150 .007	.072 .253	.077 .189	.067 .268	.111 .042	1.000	
Low Self-Control	.067 .248	-.073 .214	.140 .012	.058 .358	.059 .316	.163 .007	.178 .001	.209 <.001	1.000

Table 5 Logistic Regression for the Effects of Curiosity and Low Self-Control on Exploratory Deviance (Controlling for Gender and Age).

	Sneak Out (N=303)	Skip a Day (N=290)	Gamble With Money (N=323)	House Parties (N=254)	Use Marijuana (N=295)	Drank to Intoxication (N=273)	Prescription Drugs (N=335)
Curiosity	.180 (<.001)	.117 (.021)	.192 (.012)	.043 (.395)	.055 (.390)	.033 (.571)	.197 (.089)
Low Self-Control	.010 (.536)	-.021 (.182)	.031 (.147)	.006 (.694)	.007 (.718)	.043 (.019)	.094 (.003)
Gender	.165 (.520)	-.333 (.171)	.329 (<.001)	.559 (.034)	.909 (.003)	.406 (.151)	.801 (.115)
Age	.051 (.073)	.047 (.108)	-.030 (.526)	.008 (.773)	-.042 (.322)	-.018 (.584)	.081 (.068)
Nagelkerke R^2	.073	.048	.277	.033	.063	.053	.150

Conclusion

The current research tested Gottfredson and Hirchi's (1990) *A General Theory of Crime* and the original theory of curiosity and deviance. The study's research hypothesis contended that individuals who are more curious are more likely to engage in exploratory deviance than individuals who are less curious, controlling for the effects of low self-control. This hypothesis received partial support. The analysis revealed a significantly strong statistical association between curiosity and the acts of sneaking out, skipping a day of school, and gambling with real money (net the effects of low self-control and other control variables). Therefore, curiosity seems to predict less serious variations of exploratory deviance. The initial findings are consistent with other recent research that has found that other factors, beyond the effects of low self-control, help to explain involvement in criminal and analogous behaviors (Pratt & Cullen, 2000; and see Evans et al., 1997; Cochran et al., 2002; Longshore et al., 2005; Schoephfer & Piquero, 2006; Welch et al., 2006; Antonaccio & Tittle, 2008). In contrast, Gottfredson and Hirschi's (1990) theory of low self-control was also supported because low self-control proved to be the only significant predictor of drinking to intoxication and the unauthorized use of prescription drugs. Therefore, the concept of low self-control seems to be a stronger predictor of more serious types of exploratory deviance. As previously mentioned, neither low self-control nor curiosity significantly predict attending house parties or smoking pot. A possible explanation for these latter types of deviance is Edwin Sutherland's (1947) Theory of Differential Association. Further research may discover that friends who engage in these specific behaviors provide a stronger predictor than an individual's level of curiosity or their level of self-control.

The results demonstrated that curiosity was an additional predictor of certain types of exploratory deviance, beyond the effects of low self-control. Therefore, curiosity can now be considered a new concept that can compete with the concept of low self-control in a continued effort to understand involvement in different types of

deviant behavior. The results also suggested that curiosity, while correlated with low self-control, should be considered a separate concept altogether. Curiosity predicted certain types of exploratory deviance. Low self-control significantly predicted other types. Therefore, the research did not find that curiosity alters the time frame used in the calculus of low or high self-control individuals when they are deciding whether to engage in such behaviors. Future research should test for interactions between curiosity and low self-control to examine that potential. Researchers are encouraged to use the new measure of curiosity in future endeavors.

Like all research, this study has limitations. First, the analysis conducted on the sample was drawn from a convenient population. While convenience samples are generally considered acceptable for exploratory research projects, other researchers are encouraged to conduct similar analyses with the use of representative samples. Second, other concepts that have been shown to be additional predictors for involvement in criminal and analogous behaviors (e.g. morality, religiosity, social bonds and differential association) were not controlled for in this study. Furthermore, additional variables could also have been controlled for the analysis (e.g. race/ethnicity, family income, etc.). Therefore, the results, to a certain extent, could be spurious. Additional controls when testing similar relationships as those tested in this study may yield important results.

It may be premature to provide any type of policy implications based on a single study. This research has confirmed, however, that curiosity provides a significant motivation for the engagement in certain types of deviant behaviors (i.e. sneaking out, skipping a day of school, and gambling with real money). Given the inherent nature of curiosity, a degree of deviance is unavoidable in youth. Such a finding has important implications when examined alongside labeling theory (Tannenbaum, 1938; Lemert, 1953; Becker 1963). Juvenile laws and institutions should establish an explicit difference between exploratory deviance and criminal behavior. According to labeling theory, labeling merely deviant youths as "criminals" may, in fact, spur deeper exploration into more serious behaviors such as those explicitly defined as criminal.

In summary, this study indicates that the previously overlooked concept of curiosity may hold considerable potential in explaining certain types of exploratory deviance. Curiosity is now a new criminological concept that reflects the types of factors that Pratt and Cullen (2000) encouraged researchers to discover and explore. The implications for *A General Theory of Crime* is that curiosity is also now another new concept that also erodes the proposition that low self-control, for all intents and purposes, is "*the* individual cause of crime" (Gottfredson & Hirschi, 1990, p. 232, italics in original). While serious exploratory deviance was dependent on low self-control (consistent with the theory), curiosity predicted involvement in various forms of more minor exploratory deviance, which low self-control could not explain. This finding threatens the very foundation of the "general" theory, which states that low self-control should account for all forms of deviance be they exploratory or not. Therefore, this research represents the first step towards a new body of knowledge in criminology.

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