Effects of Maturity and Criminal Experience on Adolescents’ Analysis of Delinquency

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Sabrina Brient
Abstract

In an attempt to prevent the overrepresentation of adolescents in crime, many contemporary Western societies use legal systems based on deterrence and the rational choice model. The current study posits rational choice model is too narrow for use with adolescents, and creates a new model examining associations between the individual components of maturity- sensation seeking, peer influence, risk perception and future orientation- and benefit over cost analysis of delinquency scenarios, moderated by criminal experience. The sample consisted of 16 female and 45 male adolescents detained in a New Hampshire delinquent facility who responded to a questionnaire administered via one-on-one interviews with a facilitator. The findings are limited by the small sample size and lack of variability in the data, however they indicate at least one of the psychosocial factors that comprise maturity of judgment has an independent main effect on benefit and cost analysis. For a number of the other psychosocial factors the relationship appears more complex and appears to be an interaction with other intervening factors, which for one includes criminal experience. These findings have implications for prevention and intervention programs for delinquent youth, indicating a need to focus on particular influences of delinquency. Further research should test this model more thoroughly, with a larger sample size, longitudinal studies and a comparison non-delinquent sample.

Keywords: adolescence, delinquency, criminal experience, psychosocial factors, rational choice model.
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Most importantly, all my thanks go to my parents, who have always provided me with unconditional and unending support, love and guidance. They are the reason I have accomplished what I have, always being proud of me, encouraging me and being there for me no matter the path I chose.
Effects of Maturity and Criminal Experience on Adolescents’ Analysis of Delinquency

Adolescent offending is a significant social issue in contemporary Western society (Cottle, Lee & Heilbrun, 2001), with a large number of adolescent arrested and convicted within the justice system every year. The overrepresentation of adolescents in the justice system is demonstrated in statistics from both Australia and the United States. In Australia, 48% of the offenders arrested in 2009-2010 were between 10 and 24 years old (Australian Bureau of Statistics [ABS], 2012), and in the United States, approximately 42% of arrests in 2010 were of individuals between 10 and 24 years old (Bureau of Justice Statistics [BJS], 2012). The criminal justice system and literature in these countries is largely based on the deterrence model (Matthews & Agnew, 2008; Loughran, Paternoster, Piquero & Pogarsky, 2011; Matsueda, Kreager & Huizinga, 2006), which is grounded in the belief that where punishment for a crime is swift, certain and severe, it will deter individuals from committing (Beccaria, 1764/1986). Various researchers (Matthews & Agnew, 2008; Melde, 2009; Muncie, 1990) on delinquency suggest adolescent offenders do not appear deterred by laws and punishments to the same extent as their adult counterparts. Despite being punished for committing a crime, many adolescents are still likely to reoffend and are also likely to escalate in level and frequency of the crimes they commit (Trulson, DeLisi & Marquart, 2011). Adolescent reoffending may partially be explained by experiences of crime and adolescents’ maturity; both influences will be addressed by this study.

To contribute to previous efforts of developing a more inclusive understanding of delinquent behaviours, I will investigate how the psychosocial
factors relevant to maturity (sensation seeking, risk perception, resistance to peer influence and future orientation), can influence the benefit and cost analysis adolescents use in delinquency scenarios, before considering the affect of criminal experience on these relationships. I will summarise the rational choice model of decision-making research based on the concept of deterrence, before considering research on adolescence in light of specific psychosocial factors that may influence adolescent maturity. Finally, expanding on delinquency research, I will examine how criminal experience moderates the affect these psychosocial factors have on adolescents’ analysis of delinquency scenarios. Rather than measuring their final decisions, I will focus on the benefit over cost analysis an adolescent uses when considering a delinquency scenario. From this point, I will refer to the measure of adolescents’ perceptions of delinquency scenarios as benefit over cost analysis. In focusing on benefit over cost as a measure of adolescents’ perceptions, I will provide a more in depth examination of the processes adolescents’ use in these situations, and what factors influence what would otherwise be a rational analysis.

**Deterrence Doctrine, Rational Choice and Delinquency**

Beccaria (1764/1986) originally postulated the deterrence doctrine that lead to a wider range of literature on the rational choice model (Fagan & Piquero, 2007; Matsueda et al., 2006; Melde, 2009). The rational choice model, first theorized by Becker (1968), states that when deciding whether to commit a crime, an individual will consider the expected benefits of the crime (such as the internal thrill or monetary benefit), in addition to the possibility of achieving them (Piliavin, Gartner, Thornton & Matsueda, 1986; Pogarsky, 2007; Wright, Caspi,
The individual will compare these benefits to the potential costs of committing the crime combined with the possibility of being caught. If the benefits and probability of achieving them outweigh the potential costs and likelihood of being caught, an individual will be more likely to commit the crime (Matthews & Agnew, 2008). For example, an individual may weigh up consequences of a crime, such as imprisonment, and compare them to the thrill or rush they receive from committing the crime (Pogarsky, 2007) before commitment to action is reached.

Rational choice theory has been linked to adults’ decision-making capabilities (Seipel & Eifler, 2008); research on adolescent populations is conflicted. This conflict in adolescent rational choice research is a matter of concern given the application of deterrence for juvenile crimes. Some studies have found support for rational choice theory with adolescent populations. For instance, research by Beyth-Marom, Austin, Fischhoff, Palmgren and Jacobs-Quadrel (1993) found a strong pattern of similar rational responses in adolescents and adults using open-ended questions about five risky decision situations. However, the sample in this study, drawn from the general population, included parent-teen pairs, who may be more likely to share similar views. The sample was also predominately middle to upper class, white and female, which are protective factors against risky decision-making (Osgood, Wilson, O’Malley, Bachman & Johnston, 1996; Steinberg & Monahan, 2007).

In contrast to the results by Beyth-Marom et al (1993), research by Piliavin et al. (1986) using a sample of over 5000 adolescents and adults at high risk of criminality, concluded the rational choice model was oversimplified, and required the integration of situational factors that may influence the importance assigned to
the risks and rewards of this model. Piliavin et al. (1986) explicate criminal experience, cognitive, moral and situational factors as key influencers of risk and reward rational decision-making. Finally, other studies have concluded the he rational choice model would provide a foundation to further theories (Matsueda et al., 2006) however it is too narrow and a more encompassing model is needed (Piliavin et al., 1986; Schneider & Ervin, 1990; Ward, Stafford & Gray, 2006).

Adolescent maturity (Albert & Steinberg, 2011), perceptions of risk (Melde, 2009), peer influence (Matthews & Agnew, 2008; Melde, 2009) and experience with crime (Piliavin et al., 1986) have been associated with both adolescent antisocial decision-making and risky behaviours. I will use the rational choice model as a base for adolescent analysis of delinquent scenarios, addressing gaps in the rational choice literature by examining how maturity affects the otherwise rational benefit over cost analysis of adolescence.

Adolescents’ Development of Maturity

Adolescence is a transitional period occurring during childhood and adulthood (Baird & Fugelsang, 2004; Beaver & Wright, 2005). Typically, adolescence is when young people learn and develop the skills needed in adulthood (Short & Rosenthal, 2008), marking an important stage in psychosocial, cognitive and emotional development (Beaver & Wright, 2005; Steinberg, 2007). One area of literature in adolescent delinquency emphasized the influence of cognitive development on decision making (Blakemore et al., 2010; Blakemore & Choudhury, 2006), however this interpretation is too narrow to appropriately address the differences in decision making between adolescents and adults; adolescents’ decision making ability often does not reflect their full cognitive
capabilities (Modecki, 2009), and is influenced by maturity (Choudhury, Blakemore & Charman, 2006).

Adolescent maturity was first documented as important to criminal culpability in *Kent v. United States* (1966). In this case, maturity of character was outlined as one criterion when considering prosecuting juveniles in adult court (Iselin, DeCoster & Salekin, 2009; Modecki, 2009). Following the *Kent v. United States* (1966) case, research by Steinberg and Cauffman (1996) gave rise to the concept of adolescents’ maturity of judgment, operationalized as responsibility, perspective and temperance. Other researchers have investigated maturity as psychosocial immaturity, operationalized as sensation seeking, risk perception, resistance to peer influence and future orientation (Harden, Quinn & Tucker-Drob, 2012; Maslowsky, Buvinger, Keating, Steinberg & Cauffman, 2011; Modecki, 2009).

In reality, an adolescent’s decision making is neither the product of rational choice nor maturity alone. Adolescent analysis is the product of logical reasoning (rational choice) and level of maturity (Baird & Fugelsang, 2004; Johnson, Blum & Giedd, 2009; Steinberg, 2007), where low levels of maturity impede rational benefit and cost analysis (Fried & Reppucci, 2001). Because of the interaction between rational choice and maturity, adolescents are only similar in decision-making competence to adults in situations where the effect of maturity are minimised (Albert & Steinberg, 2011; Steinberg, 2007). The delinquency scenarios adolescents can find themselves in are often filled with high positive emotional arousal, peers who are like-minded and potential for both internal and external rewards (Harden et al., 2012). These delinquency scenarios influence an adolescent’s maturity, and their ability to use rational benefit over cost analysis of
a situation. Thus, the psychosocial factors that comprise adolescent maturity must be considered when investigating benefit over cost analysis.

**Maturity Impeding Rational Choice Analysis**

An adolescent’s maturity is associated with delinquency (Modecki, 2008) and will impede their decision-making abilities (Choudhury, Blakemore & Charman, 2006; Harden et al., 2012). Studies (e.g. Modecki, 2009) have indicated adolescents are more likely to be influenced by psychosocial factors than adults, rating higher on sensation seeking and lower on risk perception, resistance to peer influence and future orientation. These particular psychosocial factors form the variables that I will measure. I will discuss how each psychosocial factor influences adolescents’ benefit over cost analysis, before discussing how each relationship is moderated by criminal experience.

**Sensation seeking.** Zuckerman, Buchsbaum and Murphy (1980) have defined sensation seeking as a personality trait predisposing individuals with a need for sensations and experiences that are novel, varied and complex. Levels of sensation seeking begin development in childhood and continue throughout adolescence, with the mean sensation seeking levels increasing to a peak around 16 (Harden et al., 2012). This development of sensation seeking has been associated with delinquency (Harden et al., 2012; Donohew, Zimmerman, Cupp, Novak, Colon & Abell, 2000), and risk behaviours (Zimmerman, 2010). In a study of over 400 racially diverse adolescents between the ages of 12 and 17, Maslowsky et al. (2011) found that whilst adolescents used rational benefit and cost analysis of risk behaviour, higher levels of sensation seeking were associated with weighing the benefits of the behaviour as higher than costs. It appears
sensation seeking is an important factor to consider in adolescents’ benefit and cost analysis of delinquency. Maslowsky et al. (2011) also indicated adolescents displayed a significant increase in risk behaviour in the presence of peers, reinforcing the need to include peer influence as a factor when studying adolescents’ analysis of delinquency.

**Resistance to peer influence.** Adolescence marks a transition towards autonomy, with adolescents distancing themselves from authority figures (Steinberg & Monahan, 2007) and spending increasing amounts of time with peers (Albert & Steinberg, 2011; Beaver & Wright, 2005; Brown, 2004). The increased importance of acceptance by peers during adolescence can lead to adolescents modifying their behaviour, modelling it off peers (Brown, 2004) to prevent rejection by those peers (Brown, Clasen & Eicher, 1986). Adolescents may also hold the perception their peers approve of delinquent acts (Allen, Porter, McFarland, Marsh & McElhaney, 2005) with susceptibility to peer influence for adolescents most common in antisocial situations (Erickson, Crosnoe & Dornbusch, 2000). Gardner and Steinberg (2005), using a sample of adolescents (13-16), youth (18-22) and adults (24 and older), investigated risky behaviour either alone or with same-aged peers. The findings indicated adolescents in peer groups reported participating in more risks, focusing on more benefits than costs and making riskier decisions than when alone. Thus, resistance to this peer influence is an important consideration when investigating adolescents’ analysis processes of delinquent behaviour.

**Future orientation.** Future orientation has been defined in many studies as an individual’s ability to imagine their future (Cauffman & Steinberg, 2000). Adolescents have less ability to imagine their future than adults, with the majority
of the development of future orientation ability occurring between the ages of 13 and 16 years of age (Steinberg, Graham, O’Brien, Woolard, Cauffman & Banich, 2009). A weaker orientation to the future has been observed in adolescents who engage in delinquent or risky behaviour (Trommsdorff & Lamm, 1980) and poor judgment (Steinberg, 2007). In a study of 300 adjudicated adolescents recruited from centres related to the justice system, Robbins and Bryan (2004) discovered lower levels of future orientation were significantly associated to a number of risky behaviours, such as delinquency. With adolescents’ decisions about risky behaviours often resulting from benefit and cost analysis (Matsueda et al., 2006) it follows that high levels of future orientation could lead to higher consideration of immediate benefits and a decreased number of costs of delinquency scenarios.

**Risk perception.** In addition to an inability to consider future consequences, uncertainty about the risk of consequences for crimes is influential in the decision to commit a crime (Nagin, 1998; Loughran et al., 2011). Janis and Mann (1977) posited a theory similar to rational choice. They argued that under certain conditions adolescents could make rational decisions about risky behaviours by comparing the benefits of the behaviour with the costs, although the value the adolescents place on the benefits and costs of these behaviours is influenced by perception of risks (Janis & Mann, 1977). For individuals with a low level of risk perception, benefit and cost analysis is impeded, with adolescents focusing on the benefits of the risky behaviour over the costs. In a study on 26 adolescents between 18 and 21 years, Siegel, Cousins, Rubovits, Parsons, Lavery and Crowley (1994) found that involvement in risky situations was inversely related to perceived risks. Despite being conducted on a small
sample, the Risk Involvement Perception Scale used in this study has been used to find similar results (Modecki, 2009).

Although studies have investigated the influence of psychosocial factors on antisocial decision-making (Modecki, 2009), many studies on adolescent development (Boyer, 2006; Fried & Reppucci, 2001; Maslowsky et al., 2011) have failed to address the affect criminal experience has on psychosocial factors. Thus I will consider the moderating effect criminal experience has on the psychosocial factors that comprise adolescent maturity.

**Maturity and Rational Choice Moderated by Criminal Experience**

In addition to prior criminal experience predicting recidivism (Benda, Corwyn & Toombs, 2001), it can also affect the way individuals’ rationalise when making decisions. Criminal history is among several static factors that are strong predictors of persistence in unlawful behaviour (Benda et al., 2001). This could be explained by the influence criminal experience has on the current benefit and cost analysis of a criminal act (Melde, 2009; Fagan & Piquero, 2007) through an interaction with psychosocial factors. An adolescent’s participation in risk correlates positively with the number of benefits they perceive and negatively with the number of potential negative outcomes they perceive in that risk (Cohn, Macfarlane & Yanez, 1995). In addition Boyer (2006) determined adolescents accept some probability of negative consequences, because they desire the positive outcomes of the criminal behaviour. Because of this tendency to accept negative consequences, studies need to consider the influence criminal experience has on each of these factors.
**Sensation seeking.** For individuals with a high level of sensation seeking, increased levels of delinquent behaviour (Pogarsky & Piquero, 2003), exacerbates their likelihood of perceiving benefits rather than cost in delinquent scenarios. For adolescents high on sensation seeking, ongoing experience with a delinquent behaviour could result in positive perceptions of the benefits of the behaviour being increased, and create ‘tunnel vision’. This tunnel vision is a focus on the benefits of delinquent behaviour, while ignoring the costs (Brezina, 2009; Maslowsky et al., 2011). In a study of 447 university students who completed hypothetical scenarios on sensation seeking and appraisal of risk situations, Horvath and Zuckerman (1993) discovered after experience with crime, high sensation seekers indicated a reduction in perceiving costs of a situation and increased perception of the benefits. Although this study was conducted on university students, it highlights the effect criminal experience can have on the relationship between sensation seeking and benefit and cost analysis.

**Resistance to peer influence.** As previously asserted, adolescents with a delinquent peer group may be more likely to engage in delinquent behaviour (Gardner & Steinberg, 2005). This delinquency is often to gain peer approval (Matthews & Agnew, 2008; Gardner & Steinberg, 2005) or because their peers will encourage them to focus on the benefits of delinquent behaviour (Brezina, 2009) and not the consequences. The influence of criminal experience has not, to my knowledge, been considered when measuring how resistance to peer influence is associated with decision-making, or benefit and cost analysis of delinquency. However, delinquent peers, and peer influence has consistently been linked to risk taking and delinquency. Matthews and Agnew (2008) used longitudinal data with high school students to investigate the impact of delinquent peers on adolescents.
They found perceived certainty of punishment deters offending for individuals with no or limited delinquent peers. For individuals with a large number of delinquent peers, deterrence does not work. In addition, Dishion, McCord and Poulin (1999) found affiliation to an antisocial peer group could lead to an escalation of antisocial behaviour to more serious crimes. Because of this relationship between peers and delinquency, it is important to know how the level of criminal experience an adolescent has influences the relationship between their resistance to peer influence and their analysis of delinquent scenarios.

**Future orientation.** For adolescents with a criminal history, there is likely a cycle between the individual’s inability to think about and imagine the future, and criminal behaviour (Trommsdorff, 1986). An adolescent’s lowered level of future orientation can lead to decisions and behaviours that will further reinforce the inability to imagine the future (Trommsdorff, 1986). In a study on male delinquents and non-delinquents, Trommsdorff and Lamm (1980) found future orientation is a complex phenomenon that is less structured in delinquents than non-delinquents. They also found the experience with crime causes problems in an adolescent’s ability to anticipate causal links between delinquent behaviour and future consequences (Trommsdorff et al., 1980). This study was not longitudinal and only used one measure of future orientation from each adolescent, therefore Trommsdorff and Lamm (1980) failed to address whether high levels of criminal experience actually decrease an adolescents’ future orientation ability. It is possible criminal experience actually decreases the costs an adolescent perceives in a delinquent scenario, irrespective of future orientation ability. This question is important, and I will investigate whether criminal experience influences the
relationship between future orientation and benefit over cost analysis of delinquency.

**Risk perception.** Risk participation and prior criminal experience with a particular behaviour has been shown to correlate positively with a focus on the benefits of the risky activity over costs (Maslowsky et al., 2011), irrespective of their risk perception ability. Hunt, Evans and Kares (2007) found young (15 – 24 years old) recreational users of party drugs were aware of and acknowledged a number of risks involved with their drug use, although they still believed the benefits of taking the drugs outweighed the costs. For individuals who have committed a crime and gone unpunished, for each crime that goes undetected, their perception about the certainty of arrest diminishes (Matsueda et al., 2006) and they assign more weight to the positive than negative consequences of these experiences (Albert & Steinberg, 2011), despite still having the ability to perceive risks.

Punishment does not necessarily deter individuals from committing further crime, because they may hold the belief that the certainty of punishment for them is lower than their peers who have not been punished, or have only been punished occasionally (Pogarsky & Piquero, 2003). These punished individuals hold the view their prior punishment will help to protect them from future punishment because the experience they have gained (Benthin et al., 1993; Pogarsky & Piquero, 2003), often feeling a sense of competency (Benthin, Slovic & Severson, 1993; Zuckerman, 1980). Therefore, for adolescents with high levels of criminal experience, this experience could influence the relationship between high levels of risk perception and low levels of benefit over cost analysis in delinquency scenarios. Whilst the theories adolescent development, criminal experience and
the rational choice model, are separate and found in different streams of literature, they are not contradictory; the fields could be combined to predict delinquency more accurately (Baird & Fugelsang, 2004; Johnson et al., 2009).

**The Present Study**

First, I will investigate how the individual factors that comprise maturity (sensation seeking, risk perception, resistance to peer influence and future orientation) (Choudhury et al., 2006; Harden et al., 2012) influence an adolescent’s rational choice analysis. Based on previous research, I hypothesize that increased sensation seeking levels (Harden et al., 2012; Rolison & Scherman, 2003), and decreased risk perception (Beyth-Marom et al., 1993; Siegel et al., 1994; Zimmerman, 2010), resistance to peer influence (Gardner & Steinberg, 2005; Simons-Morton, Lerner & Singer, 2005) and future orientation (Robbins & Bryan, 2004) may each independently correlated with an increase in benefit over cost analysis of delinquency scenarios.

Next, I will investigate whether the relationship between each psychosocial factor and benefit over cost analysis of delinquency scenarios is moderated by criminal experience (Harden et al., 2012; Matthews & Agnew, 2008; Trommsdorff, 1986; Nurmi, 1991; Nagin, 1998; Loughran et al., 2011). Based on a number of studies indicating the effects of criminal experience on psychosocial factors and decision-making (Albert & Steinberg, 2011; Brezina, 2009; Fagan & Piquero, 2007; Gardner, Dishion & Connell, 2008; Matsueda et al., 2006; Trommsdorff, 1980, 1986), I hypothesize that criminal experience will moderate the relationship between the psychosocial factors and benefits over costs analysis of delinquency scenarios.
Each independent psychosocial factor will be investigated using a model of moderation, which can be seen in Figure 1 with sensation seeking. As stated above, the adolescents benefit and cost analysis will be measured using a benefit over cost measure. The relationships tested will control for the effects of age, race and SES, factors influential in the analysis of delinquent situations (Osgood, Wilson, O’Malley, Bachman & Johnston, 1996; Steinberg & Monahan, 2007). Gender cannot be controlled for because of the small number of females present in this study, despite being another factor influential in the analysis of delinquent situations (Brown et al., 1986).

Figure 1. Path model used to investigate if criminal experience moderates the relationship between sensation seeking and benefit/cost analysis.
Method

Participants

The study consisted of a single sample of adolescent participants, drawn from a state juvenile delinquent facility in New Hampshire, USA for a previous study (Modecki, 2009). The sample (ages 12-17) consisted of 16 female ($M_{age} = 15.63; SD = .89$) and 44 male ($M_{age} = 15.86; SD = .76$) delinquent individuals detained in the New Hampshire Youth Development Centre. Consistent with the demographics of the New England region of the United States where the data was collected, the individuals in the sample were primarily Caucasian (68.3%) and other ethnicities present in the sample included Hispanic (11.7%), African American (6.7%), and Native American (5.0%). Socio-economic status (SES) was measured by their parent’s education levels, and were high school or less (70.5% mothers, 90.2% fathers), college, completed or some (21.3% mothers, 8.2% fathers), and graduate school (8.2% mothers, 1.6% fathers).

Materials

Participants were given a questionnaire that consisted of demographics, standardized psychosocial scales measuring the factors relevant to maturity, and decision-making vignettes (Appendix B).

Demographics. The demographic questionnaire included age, race, and their parent’s education level to measure for socio-economic status, which were used as covariates in the analyses. Gender was also measured; due to the small sample of females, it was not a covariate. There was also a measure of the adolescents past justice system experience.
Psychosocial Factors. In order to measure psychosocial factors relevant for maturity, four standardized psychosocial measures were used; Sensation Seeking (Arnett, 1994); Resistance to Peer Influence (Steinberg, 2002); Future Outlook Inventory (Cauffman & Woolard, 1999); and Risk Perception Scale (Siegel et al., 1994).

Sensation seeking. The Arnett Inventory of Sensation Seeking (AISS) (Arnett, 1994) is a 20-item scale, with two subscales of 10 items each, Intensity and Novelty (Arnett, 1994) that measures level of sensation seeking. The scale is a 4-point Likert scale and ranges from 1 “Does not describe me at all” to 4 “Describes me very well”. A high score on this scale indicates that the individual has a high level of sensation seeking. For the sample of adolescent delinquents, Cronbach’s $\alpha = .72$, $M = 2.39$, $SD = .63$, Range = 1.03 – 4.06. An example of this scale is “If I were to go to an amusement park, I would prefer to ride the rollercoaster or other fast rides.”

Resistance to peer influence. This study used a revised version of the Resistance to Peer Influence Scale (RPIS) (Steinberg, 2002). This scale is a 10-item 4-point Likert scale that measures the individuals’ independence from peer pressure. The scale ranged from 1 “Not at all like me” to 4 “Very much like me” and a high score indicates a high resistance to peer influence. Modecki (2009) revised this scale, because of poor reliability in a pilot test, to comprise of only single sentences, rather than two contradictory statements. An example of this is “Some people will not break the law just because their friends would”. For this sample, Cronbach’s $\alpha = .71$, $M = 3.05$, $SD = 1.02$, Range = .14 – 4.82

Future orientation. The Future Outlook Inventory (FIO) (Cauffman & Woolard, 1999) is a 14-item measure that uses a 4-point Likert scale to measure
the individual’s ability to perceive and consider future events and consequences. This scale ranges from 1 “Never True” to 4 “Always True” and a high score indicates that the individual possesses an extended future outlook. Cauffman and Woolard (1999) developed this scale using measures from prior studies; Zimbardo Time Perspective Scale (Zimbardo, 1990); Life Orientation Task (Scheier & Carver, 1985), and Consideration of Future Consequences Scale (Strathman, Gleicher, Boninger & Edwards, 1994). For this sample, Cronbach’s $\alpha = .77$, $M = 2.24$, $SD = .76$, Range $= .27 – 3.51$. An example of this scale is “Before making a decision, I weigh the good vs. the bad”.

**Risk perception.** Risk perception was measured using the Risk Perception Scale (RPS) (Siegel et al., 1994). This scale measures the individuals perceived risk of 18 risky behaviours that range in variety from “riding with a drunk driver” to “having sex without a condom”. The RPS is a 9 point Likert scale from 0 “Not at all risky” to 8 “Extremely risky”. On this scale, a high score indicates that the individual possesses a high level of risk perception. The sample showed Cronbach’s $\alpha = .91$, $M = 2.10$, $SD = 1.10$, Range $= .10 – 4.45$.

**Criminal Experience.** Criminal experience was measured using Elliot and Ageton’s (1985) self-report delinquency scale. This scale is a 45-item scale, and measures delinquent and aggressive behaviour, as well as substance abuse. This scale was in the format of “In the year before you were detained at the YDC, how many times did you” with behaviours such as “Hit (or threatened to hit) one of your parents”. When using this scale, five items (that measured status behaviour) were dropped from the original scale. In addition, because individuals were inconsistent in their numerical estimates of behaviour, all items marked above zero were recorded to “1”. Calculating the mean of all items and multiplying it by
100 created a total delinquency score measuring the degree to which an individual engaged in a range of delinquent behaviours. For this sample, Cronbach’s $\alpha = .92$, $M = 7.60$, $SD = 5.52$, Range = 1.00 – 26.00.

Decision Vignettes. The decision-making vignette was based on the Youth Decision Making Questionnaire (YDMQ) (Ford, Wentzel, Wood, Stevens & Siesfeld, 1990), and was adapted to measure different factors of delinquency. It consisted of three anti-social scenarios that asked individuals the reasons they would and would not engage in each delinquency scenario. An example scenario is a vignette which was adapted from O’Conner, Archer & Wu (1992) which is “You and your friend are at a movie theatre watching a film. Behind you two teens are talking, laughing loudly, and kicking the back of your seat all of the time. Your friend wants you to turn around and threaten to hit them if they don’t keep quiet”. This scenario was followed by questions asking “When you are deciding what to do, what are the reasons that would make you decide NOT TO threaten the teens”, followed by the question “When you are deciding what to do, what are the reasons that would make you decide TO threaten the teens”. Participants were asked to discuss all of the reasons they have for not engaging in the behaviour, and all of the reasons they have to engage in the behaviour. From these scenarios, the reasons the individual listed to engage in the delinquent behaviour were totaled as benefits, and the reasons the individual listed not to engage in the delinquent behaviour were totaled as costs. In the current study, for each individual, the number of costs divided the number of benefits, to create a single item referred to as benefit over cost. For this sample, Cronbach’s $\alpha = .68$, $M = 1.95$, $SD = 1.76$, Range = .57 – 10.00.
Procedure

The study had IRB approval obtained through the University of New Hampshire. The New Hampshire Youth Development Centre had custody of the program youth and gave consent for youth participation; thus parental consent was not required. The IRB approval allowed for passive consent from the parents of the delinquent participants. Informed assent was obtained from the adolescents after emphasis that participation and responses would be anonymous and confidential, and would not affect their legal status. The surveys were administered via one-on-one interviews with a researcher, with the questions and scenarios read aloud, and participants responding verbally to a researcher who transcribed their responses. After the measures were administered to the participants, they were given an individual debriefing form (Appendix C), which was explained. For the current study, Human Research Ethics approval was also obtained from Murdoch University.

Results

Analysis Plan

The first research aim was to examine how the psychosocial factors that comprise maturity: sensation seeking; peer influence; risk perception; and future orientation; influence the benefit over cost analysis that adolescents use in risky or antisocial situations. The second research aim was to examine how the association between these psychosocial factors and benefit over cost analysis were moderated by criminal experience. The results will be presented in three sections. In the first section, a bivariate relation was examined using correlational analysis. Following this, a series of hierarchical multiple regressions were used to investigate the main effects of the psychosocial factors on benefit over cost analysis, controlling for
age, race and SES. Finally, the moderating effect of criminal experience on the relationships between psychosocial factors and benefit over cost analysis were investigated using another set of hierarchical multiple regressions.

**Missing data**

Data relating to specific items within the questionnaire (race: 3.3%; criminal experience: 5%; and benefit over cost analysis: 1.7%) were missing for 10% of the sample (N= 6). Because of the format of the questionnaire, with a researcher reading out and clarifying questions to participants, the missing data could not be attributed to misunderstanding the question or the need to answer the question. However, the missing data can be attributed to reluctance to disclose personal, or possibly criminal, information. Due to the small sample size, missing values were excluded from the analysis during correlations and regression through pairwise deletion; an individual’s data was only excluded from calculations involving the variable for which they have no score (Cohen & Cohen, 1983). When this was not possible, when testing interactions, listwise deletion was used, where an individual’s entire data sample was excluded from analysis when they had a variable missing.

**Correlations**

A series of descriptive tests were performed on all variables included in the analysis. Table 1 contains the means, standard deviations for these variables. Because of the small sample size, a Shapiro-Wilk test of normality was conducted, indicating the sample was non-normal for criminal experience (p< .05) and benefit over cost analysis (p < .05).
Table 1.

*Descriptive Statistics of Psychosocial Factors and Benefit Over Cost Analysis With Moderating Variable, Criminal Experience (N=60)*

<table>
<thead>
<tr>
<th>Sensation Seeking</th>
<th>Risk Perception</th>
<th>Resistance to Peer Influence</th>
<th>Future Orientation</th>
<th>Criminal Experience</th>
<th>Benefit over Cost Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.39</td>
<td>2.10</td>
<td>3.05</td>
<td>2.24</td>
<td>7.60</td>
</tr>
<tr>
<td>SD</td>
<td>.63</td>
<td>1.10</td>
<td>1.02</td>
<td>.76</td>
<td>5.52</td>
</tr>
</tbody>
</table>

Analyses using z-scores, as well as boxplot, scatterplot and extreme value outputs highlighted a number of outliers. This was expected due to the specific population that was being tested which violated the assumption of normality. Due to the non-normal sample outliers were kept in the analysis. As seen in Table 2, bivariate correlations were used to test the relationship between the predictor variables (sensation seeking, peer influence, risk perception and future orientation respectively) and the criterion variable (benefit over cost analysis). Due to the sample violating the test of normality, Spearman’s rho was used in the correlation analysis; Spearman’s rho is considered a better estimate of correlation in the population for small data sets with non-normal distribution. As was expected, significant correlations were found for risk perception and future orientation, with both benefit over cost analysis and criminal experience. Higher levels of risk perception and future orientation were both associated with lower levels of benefit over cost analysis, and criminal experience. Risk perception and future orientation were also positively correlated. Criminal experience was positively correlated
Table 2.

*Delinquent Reports of Psychosocial Factors and Benefit over Cost Analysis with Moderating Variable, Criminal Experience: Correlations using Spearman’s Rho (N= 60)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Benefit over Cost Analysis</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. SES</td>
<td>-.11</td>
<td>-.16</td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Age</td>
<td>.16</td>
<td>.05</td>
<td>.20</td>
<td>.17</td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Race</td>
<td>.08</td>
<td>-.04</td>
<td>.03</td>
<td>-.14</td>
<td>-.15</td>
<td>-.50**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sensation Seeking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.13</td>
<td>-.15</td>
<td>.10</td>
<td>.18</td>
<td>-.20</td>
</tr>
<tr>
<td>6. Risk Perception</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Resistance to Peer Influence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Future Orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Criminal Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01*
with benefit over cost analysis. Neither sensation seeking, nor resistance to peer influence were significantly correlated with any variables.

The correlations between the predictor and criterion variables were low to moderate in strength. Significant interaction effects are not likely unless the correlation analysis shows a strong relationship between the predictor and the criterion variables. Therefore it was unlikely that moderating effects would be detected (Aguinis, 2004), especially with outliers affecting the correlation. However it was decided that although theses correlations were weak, some were significant and all warranted further investigation. After the bivariate correlations, additional analyses were run using hierarchical multiple regression, to further test the relationships between the predictor and criterion variables (Baron & Kenny, 1986). These analyses investigated the independent effects of sensation seeking, risk perception, resistance to peer influence and future orientation on benefit over cost analysis, controlling for age, race and SES, before analyzing the moderating effect of criminal experience on each of these relationships.

**Multiple Regression**

To test the independent effects of the psychosocial factors (Sensation seeking, risk perception, resistance to peer influence and future orientation) on benefit over cost analysis controlling for age, race and SES, a series of hierarchical regression analyses were conducted. These analyses tested the effects of the psychosocial factors, above and beyond the effects of age, race and SES. The effect of gender was not considered, due to the small number of females present in the study (N= 14).
Predicting adolescents’ benefit over cost analysis from psychosocial factors: 

Controlling for age, race and SES

*Sensation seeking.* Results of the regression predicting benefit over cost analysis from sensation seeking, while controlling for age, race and SES are presented in Table 3. The overall effects of the regression model predicting benefit over cost analysis was not significant, $F(4,56) = 1.93, p= .12$, above and beyond the effects of age, race and SES. The individual effect of sensation seeking was also not significant $F(1,52) = .569, p= .45$.

Table 3.

*Hierarchical Multiple Regression Predicting Benefit over Cost Analysis from Sensation Seeking.*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\Delta R^2$</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>-.26</td>
<td>.19</td>
<td>.17</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.53</td>
<td>.29</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>-.20</td>
<td>.20</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>-.28</td>
<td>.37</td>
<td>.10</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.
Risk perception. Results of the regression predicting benefit over cost analysis from risk perception, while controlling for age, race and SES are presented in Table 4. The overall effects of the regression model predicting benefit over cost decision was significant, F(4,56) = 2.90, p< .05. The individual effect of risk perception was significant F(1,52) = 3.99, p< .05, indicating that there was a significant relationship between risk perception and benefit over cost analysis, above and beyond the effects of age, race and SES.

Table 4.

Hierarchical Multiple Regression Predicting Benefit over Cost Analysis from Risk Perception.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>ΔR²</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>.12</td>
<td>-.31</td>
<td>.19</td>
<td>-.21</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>-.41</td>
<td>.28</td>
<td>-.19</td>
</tr>
<tr>
<td>SES</td>
<td></td>
<td>-.24</td>
<td>.19</td>
<td>-.16</td>
</tr>
<tr>
<td>Step 2</td>
<td>.06*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Perception</td>
<td></td>
<td>-.41*</td>
<td>.21*</td>
<td>-.26*</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.
**Resistance to peer influence.** Results of the regression predicting benefit over cost analysis from resistance to peer influence, while controlling for age, race and SES are presented in Table 5. The simple effects of the regression model predicting benefit over cost analysis was not significant, $F(4,56) = 1.92, p = .12$. The individual effect of resistance to peer influence were also not significant $F(1,52) = .41, p = .47$.

Table 5.

*Hierarchical Multiple Regression Predicting Benefit over Cost Analysis from Resistance to Peer Influence.*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\Delta R^2$</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>-.27</td>
<td>.20</td>
<td>.19</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.48</td>
<td>.30</td>
<td>-.22</td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>-.17</td>
<td>.20</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to Peer</td>
<td>-.17</td>
<td>.24</td>
<td>-.10</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.*
Future orientation. Results of the regression predicting benefit over cost analysis from future orientation, while controlling for age, race and SES are presented in Table 6. The simple effects of the regression model predicting benefit over cost analysis was not significant, F(4,56) = 2.23, p = .08. The individual effect of future orientation were also not significant F(1,52) = 1.62, p = .21.

Table 6.

Hierarchical Multiple Regression Predicting Benefit over Cost Analysis from Future Orientation.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Benefit over Cost Analysis</th>
<th>( \Delta R^2 )</th>
<th>B</th>
<th>SE B</th>
<th>( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td>.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>.22</td>
<td>-.22</td>
<td>.19</td>
<td>-.15</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.47</td>
<td>-.47</td>
<td>.29</td>
<td>-.21</td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>-.21</td>
<td>-.21</td>
<td>.20</td>
<td>-.14</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Orientation</td>
<td>-.38</td>
<td>-.38</td>
<td>.30</td>
<td>-.17</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.
Moderated Multiple Regression

Hierarchical multiple regression analyses were conducted to examine the moderation effect criminal experience on the relationship between the psychosocial factors and benefit over cost analysis. To prepare the data for moderation analysis interaction terms were created for all predictor variables (Jose, 2013; Field, 2013). Multiplying the independent variables (peer influence, sensation seeking, risk perception and future orientation by criminal experience) created interaction terms (Jose, 2005). Interaction terms were entered after the independent variables were already in the equation, as entering the interaction terms first may inflate the size of the moderating effect (Field, 2013).

Centering is another procedure conducted before analysis, and is done to simplify algebraic computations and reduce multicollinearity, which is excessive correlation among predictor variables (Field, 2013). Centering also makes lower order effects interpretable (Field, 2013). This was achieved on all variables by subtracting each value by the mean score, creating transformed variables that had a mean of 0. Finally, the demographic variables (age, race and SES) were entered as step 1, predictor variables (i.e. psychosocial factors and criminal experience) were entered as step 2, followed by the two-way interaction variables as step 3 (Jose, 2013). The results were then confirmed through the use of ModProbe (see Hayes & Matthes, 2009), which tests and probes interactions using listwise deletion.
Predicting adolescents’ benefit over cost analysis from psychosocial factors moderated by criminal experience: Controlling for age, race and SES.

Sensation seeking. The results of the two-way interaction of sensation seeking and criminal experience predicting benefit over cost analysis are presented in Table 7. The overall model testing whether the relation between sensation seeking and benefit over cost analysis was moderated by criminal experience above and beyond age, race and SES had a trend level effect, $F(6,53) = 2.26, p = .05$, however the two-way interaction was not significant, $F(1,47) = 1.43, p = .24$ indicating that criminal experience did not significantly moderate the relationship between sensation seeking and benefit over cost analysis.
Table 7.

*Hierarchical Multiple Regression Predicting Benefit over Cost Analysis from Sensation Seeking by Criminal Experience: Controlling for Age, Race and SES.*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( \Delta R^2 )</th>
<th>B</th>
<th>SE B</th>
<th>( \beta )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>-.31</td>
<td>.19</td>
<td></td>
<td>-.21</td>
</tr>
<tr>
<td>Age</td>
<td>-.43</td>
<td>.29</td>
<td></td>
<td>-.20</td>
</tr>
<tr>
<td>SES</td>
<td>-.15</td>
<td>.20</td>
<td></td>
<td>-.09</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>-.37</td>
<td>.42</td>
<td></td>
<td>-.12</td>
</tr>
<tr>
<td>Criminal Experience</td>
<td>.06</td>
<td>.05</td>
<td></td>
<td>.19</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensation Seeking x Criminal Experience</td>
<td>-.09</td>
<td>.07</td>
<td></td>
<td>-.18</td>
</tr>
</tbody>
</table>

*\( p < .05 \). **\( p < .01 \). ***\( p < .001 \).*

*Risk perception.* The results of the two-way interaction of risk perception and criminal experience predicting benefit over cost analysis are presented in Table 8. The overall model testing whether the relation between risk perception and benefit over cost analysis was moderated by criminal experience above and beyond age, race and SES was
significant, $F(6,53) = 2.48$, $p < .05$, however the two-way interaction was not significant, $F(1,47) = .03$, $p = .87$ indicating criminal experience did not significantly moderate the relationship between risk perception and benefit over cost analysis.

Table 8.

*Hierarchical Multiple Regression Predicting Benefit over Cost Analysis from Risk Perception by Criminal Experience: Controlling for Age, Race and SES.*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\Delta R^2$</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>-.34</td>
<td>.19</td>
<td>-.23</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.35</td>
<td>.29</td>
<td>-.16</td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>-.20</td>
<td>.20</td>
<td>-.13</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>.12*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Perception</td>
<td>-.43</td>
<td>.23</td>
<td>.18</td>
<td></td>
</tr>
<tr>
<td>Criminal Experience</td>
<td>.06</td>
<td>.04</td>
<td>-.26</td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>.00*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Perception x Criminal Experience</td>
<td>-.01</td>
<td>.04</td>
<td>-.02</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.*
**Resistance to peer influence.** The results of the two-way interaction of resistance to peer influence and criminal experience predicting benefit over cost analysis are presented in Table 9. The overall model testing whether the relation between resistance to peer influence and benefit over cost analysis was moderated by criminal experience above and beyond age, race and SES was significant, $F(6,53) = 2.97$, $p < .05$. A significant main effect of criminal experience was obtained, $(p < .05)$. This conditional effect was qualified by the significant two-way interaction, $F(6, 53) = 5.71$, $p < .05$ indicating that criminal experience did significantly moderate the relationship between resistance to peer influence and benefit over cost analysis.
Table 9.

*Hierarchical Multiple Regression Predicting Benefit over Cost Analysis from Resistance to Peer Influence by Criminal Experience.*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>ΔR²</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>.12</td>
<td>-.37</td>
<td>.19</td>
<td>-.25</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>-.36</td>
<td>.28</td>
<td>-.17</td>
</tr>
<tr>
<td>SES</td>
<td></td>
<td>-.13</td>
<td>.20</td>
<td>-.08</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to Peer Influence</td>
<td>.07</td>
<td>-.18</td>
<td>.04</td>
<td>-.10</td>
</tr>
<tr>
<td>Criminal Experience</td>
<td></td>
<td>.08*</td>
<td>.23*</td>
<td>.26*</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to Peer Influence</td>
<td>.09*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td>.07*</td>
<td>.03*</td>
<td>.30*</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.*
To probe this two-way interaction, the simple slope was plotted, as shown in Figure 2 (Dawson 2013; Jose, 2013). At low levels of criminal experience, high resistance to peer influence is associated at a lower benefit over cost analysis, and low resistance to peer influence is associated with higher benefit over cost analysis. Whereas, at high levels of criminal experience, high resistance to peer influence is associated with higher benefit over cost analysis, and low resistance to peer influence is associated with lower benefit over cost analysis.

![Figure 2](image_url)

*Figure 2. Moderation effect for criminal experience on resistance to peer influence with benefit over cost analysis.*
The interaction was then further probed using slope difference tests, the results of which are displayed in Table 10. These tests indicated that for low levels of criminal experience, there was a trend level negative relationship between resistance to peer influence and benefit over cost analysis. Both average and high levels of criminal experience evidenced a non-significant slope. These results suggest that for individuals with high levels of criminal experience, resistance to peer influence was negatively related to benefit over cost analysis on a trend level, whereas no such association was noted for average and high levels of criminal experience.

Table 10.

*Slope Difference Tests for Resistance to Peer Influence and Benefit Over Cost Analysis*

<table>
<thead>
<tr>
<th>Level of criminal experience</th>
<th>t-value for slope difference</th>
<th>p-value for slope difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>-1.87</td>
<td>.07</td>
</tr>
<tr>
<td>Average</td>
<td>-.73</td>
<td>.46</td>
</tr>
<tr>
<td>High</td>
<td>.84</td>
<td>.40</td>
</tr>
</tbody>
</table>

*Future orientation.* The results of the two-way interaction of future orientation and criminal experience predicting benefit over cost analysis are presented in Table 11. The overall model testing whether the relation between future orientation and benefit and cost analysis was moderated by criminal experience above and beyond age, race and SES.
was not significant, $F(6,53) = 1.91, p = .10$. The two-way interaction was also not significant, $F(1,47) = .36, p = .55$.

Table 11.

Hierarchical Multiple Regression Predicting Benefit over Cost Analysis from Future Orientation by Criminal Experience.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Benefit over Cost Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\Delta R^2$</td>
</tr>
<tr>
<td>Step 1</td>
<td>.12</td>
</tr>
<tr>
<td>Race</td>
<td>-.24</td>
</tr>
<tr>
<td>Age</td>
<td>-.44</td>
</tr>
<tr>
<td>SES</td>
<td>-.17</td>
</tr>
<tr>
<td>Step 2</td>
<td>.07</td>
</tr>
<tr>
<td>Future Orientation</td>
<td>-.19</td>
</tr>
<tr>
<td>Criminal Experience</td>
<td>.07</td>
</tr>
<tr>
<td>Step 3</td>
<td>.01</td>
</tr>
<tr>
<td>Future Orientation x Criminal Experience</td>
<td>-.04</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.
Discussion

Results Summary

Although numerous orthogonal models of delinquency and adolescent decision-making have been proposed (e.g. Baird & Fugelsang, 2004; Cauffman & Steinberg, 2000; Johnson et al., 2009; Modecki, 2008; Steinberg, 2007), none have integrated the research on rational decision-making with research on adolescent maturity, while taking prior criminal experience into consideration. To contribute to prior efforts of creating a more inclusive understanding of adolescent delinquency, I tested a model examining the relationships between the components of maturity (sensation seeking, risk perception, resistance to peer influence and future orientation) and benefit over cost perceptions, and how these relationships are moderated by criminal experience. Some encouraging partial support was found for the model. Support was found for the hypothesis that risk perception ability is associated with benefit over cost perceptions of delinquency; there was no significant relationship found between either sensation seeking, resistance to peer influence or future orientation with benefit over cost perceptions. Furthermore, only the relationship between resistance to peer influence and benefit over cost perceptions is moderated by criminal experience.

Contrary to the hypothesis that all the tested psychosocial factors would influence benefit over cost analysis of the delinquency scenarios, risk perception was the only psychosocial factor found to significantly influence adolescent’s benefit over cost analysis, above and beyond age, race or SES. More specifically, the results indicated heightened ability to perceive risks by adolescents may be associated with anticipated
fewer benefits and more costs in delinquent scenarios. This result is consistent with past research demonstrating risk perception is an important component for adolescents when deciding whether to engage in risk behaviours (Beyth-Marom et al., 1993; Siegel et al., 1994; Zimmerman, 2010; Zuckerman, 1980). For example, Janis and Mann (1977) posited a theory that under normal conditions adolescents can make rational decisions about whether or not to engage in risky behaviours by balancing benefits and costs, although the value an adolescent attributes to these benefits and costs is determined by the adolescent’s perceptions of that particular risky behaviour (Janis & Mann, 1977).

In contrast to the hypotheses that high levels of criminal experience could diminish the relationship between high levels of risk perception and low levels of benefit over cost analysis of delinquency scenarios, criminal experience had no significant effect. A non-significant result indicates the relationship between risk perception and benefit over cost analysis of delinquency scenarios is not moderated by level of criminal experience. This result contradicts previous research demonstrating adolescents’ prior experience with specific criminal or risky situations is associated with a tendency to ignore or pay less attention to the potential risks of the related behaviour, perhaps because they develop a sense of personal competence in dealing with these situations (Benthin et al., 1993; Zuckerman, 1980). This unexpected result may be due to a number of reasons. Firstly, whilst the measures used in this study examined how the number of criminal behaviours an adolescent engaged in overall, they did not analyse what those acts are. Risk taking is multifactorial and involvement in a particular behaviour does not necessarily indicate involvement in other forms of risk (Siegel et al., 1994). Thus, it is
possible the criminal experience the participants had may differ significantly from the scenarios presented to them in the Risk Perception Scale (RPS) (Siegel et al., 1994). For example, an adolescent may have an abundance of experience with theft, however the RPS only has one item related to any form of theft. Their criminal experience would not influence the perception they hold about other items in the scale, like the riskiness of drugs and alcohol.

Alternatively, the moderating effect of criminal experience on the relationship between risk perception and analysis of delinquency scenarios may not be evident when measured as a benefit over cost measure. Criminal experience may influence the effect risk perception has on an adolescent’s analysis of a delinquency situation. Rather than it causing them to evaluate the number of benefits and number of costs they perceive differently, it is possible increased criminal experience may cause the adolescents to accept the potential negative consequences because they desire the potential benefits (Boyer, 2006). For individuals who have committed a crime and gone unpunished, for each crime that goes undetected, their perception about the certainty of arrest diminishes (Matsueda et al., 2006); they give more weight to the positive than the negative consequences of these experiences (Albert & Steinberg, 2011), despite still having the ability to perceive risks. Additionally, individuals who have been punished for the crime they have committed can often hold the view their prior punishment will help to protect them from future punishment due to the experience they have gained (Benthin et al., 1993; Pogarsky & Piquero, 2003). Because this study does not investigate what overall decision an adolescent would make about a risky situation, it is impossible to deduct
whether their ability to identify more potential costs than benefits would result in a final decision to avoid the behaviour, or risk these costs for the potential rewards.

The hypotheses that high sensation seeking tendencies, impaired future orientation and low levels of resistance to peer influence would each independently predict more benefits than costs to be identified in the delinquency scenarios were not supported. This could be due to the non-normal sample the study was conducted on, comprised of adolescents with criminal experience. Additionally, the level of variability for these factors was not very high, specifically for sensation seeking and future orientation. In the current study, sensation seeking was found to have a non-significant relationship with benefit over cost analysis. In addition to an adolescent’s ability to perceive consequences, sensation seeking is considered one of the two best predictors of risk behaviour (Zimmerman, 2010) therefore this result is unpredicted. It was expected there would be a direct link between sensation seeking and perceived benefits of a risky situation (Rolison & Scherman, 2003), (Harden et al., 2012), with sensation seeking impeding rational analysis and causing an adolescent to over-emphasize the benefits of a crime (Maslowsky et al., 2011). In contrast to the view of a direct link between sensation seeking and perceived benefits, some studies indicate the link between sensation seeking and the analysis of risky situations is influenced by other psychosocial factors (Horvath & Zuckerman, 1993). Thus, it may be the link between sensation seeking and benefit over cost analysis is mediated by other psychosocial factors, like risk perception. High levels of sensation seeking have previously been linked to diminished, or lowered levels of risk perception (Robbins & Bryan, 2004). Whilst this study did not confirm a
correlation between sensation seeking and the other psychosocial factors, it is possible the effect of sensation seeking on benefit over cost analysis is more complex than a direct link.

It was expected future orientation would correlate with an individual’s ability to consider benefits over costs of a delinquency scenario; this hypothesis was not supported. This result is contrary to studies indicating adolescents who engage in delinquent or risky behaviours tend to have poorer future orientation ability, and are often present-oriented (e.g. Cauffman et al., 2005; Trommsdorff et al., 1979). An analysis of the data on future orientation showed it had a weak but significant correlation with criminal experience and benefit over cost analysis, thus it is possible the relationship was not strong enough to show up in a regression analysis (Aguinis, 2004). The difference between the present study and prior research could also be evidence risk perception is a stronger predictor than future orientation of benefit over cost analysis of risky situations. It could also be evidence the relationship between future orientation and benefit over cost analysis of delinquent scenarios is more complex than thought previously. The strong and significant correlation found between future orientation and risk perception could indicate a possible mediation effect of risk perception on the relationship between future orientation and benefit over cost analysis.

The non-significant main effects found for both sensation seeking and future orientation with benefit over cost analysis were unexpected. Consequently, it was unexpected that there was no moderation affect found for criminal experience on these relationships. Prior experience with certain criminal behaviours has been linked to an
adolescent’s perception of the reward potential of that particular crime being increased in individuals with high levels of sensation seeking, through the creation of ‘tunnel vision’ where adolescents will focus only on the benefits of a crime (Albert & Steinberg, 2011; Maslowsky et al., 2011). Trommsdorff and Lamm (1980) found a link between criminal experience and future orientation, although they failed to address whether high levels of criminal experience actually decrease an adolescents’ future orientation ability, or decreases the costs an adolescent perceives in a delinquent scenario, irrespective of future orientation ability. It is possible that criminal experience actually decreases an individual’s future orientation ability. The lack of results with these psychosocial factors may also be indicative of a more complex or alternative relationship between both sensation seeking and future orientation with benefit over cost analysis of risky situations. For example, the relationship may be mediated or influenced by an intervening factor, as discussed above.

Finally, resistance to peer influence was not significantly related to benefit over cost analysis. In the past, peer influence has been found to be an important factor in the consideration of criminality or risk taking for adolescents (Sawyer & Stevenson, 2008). Previous research has found adolescents are more likely to engage in risky behaviour when in the presence of peers (Matsueda et al., 2006), and adolescents with low levels of resistance to peers took more risks, focused on more benefits than costs, and made riskier decisions when in peer groups (Gardner & Steinberg, 2005; Simons- Morton, Lerner & Singer, 2005). This study did not reaffirm these results with independent effects of resistance to peer influence on adolescents’ benefit over cost analysis; the relationship
between resistance to peer influence and adolescents’ benefit over cost analysis of delinquent scenarios might be more complicated than a simple main effect. Interestingly, there was a moderating effect of criminal experience on the relationship between resistance to peer influence and benefit over cost analysis.

Of the moderation analyses conducted, only the relationship between resistance to peer influence and benefits over costs analysis was moderated by criminal experience; the relationship was opposite to the hypothesis. The results found indicate that for an adolescent with minimal criminal experience, high levels of resistance to peer influence decrease the number of benefits over costs the adolescent perceives in a delinquent scenario. As an adolescent gains more experience with criminal behaviour, resistance to peer influence becomes less predictive of their analysis of risky situations. This moderation effect could be interpreted to imply that when an adolescent has minimal experience in a particular situation they will look to their peer’s opinions and experiences to help them analyse a situation they are unfamiliar with (Brown et al., 1986; Brown, 2004). For these individuals, the level of susceptibility to peer influence they have may be related directly to the benefits over costs they perceive in the situation.

As an adolescent gains more experience in criminal situations, they may begin to rely on their peers’ opinions and experiences less because they have their own experiences to draw from (Steinberg and Monahan, 2007). Thus, for these individuals, the level of susceptibility they have to peer influence may not be influential in the benefits over costs they perceive. Because no prior research has looked at the moderating effect of criminal experience before, these results might provide a unique insight into the
relationship between resistance to peer influence and benefit over cost analysis amongst a group of teens that have criminal experience.

Limitations

Despite some of the promising results of the present study, there are a number of limitations that restrict generalizability. Due to the small number of females present in the sample, the present study could not control or test for gender. Thus it needs to be considered gender may play a role in the results found in this study, indicated by previous studies (Brown et al., 1986; Parsons, Halkitis, Bimbi & Borkowski, 2000; Zimbardo et al., 1997; Zuckerman, 1980). These results indicate future research should be done on a larger sample size, in which gender can be examined as a covariate (Modecki, 2009). In addition, due to the large number of analyses run, the possibility of type I error (a false positive) needs to be considered. As mentioned previously, the small sample size makes it difficult to look at interaction effects, which are notoriously underpowered.

The survey’s self-report nature and the facilitator’s presence could have lead to false reporting due to participants’ fear they may be held accountable for their answers. However, prior studies have indicated adolescent participants generally respond honestly (e.g. Lintonen et al., 2004). It is quite possible adolescents are accurate reporters of their own experiences and self-report is the most effective way to access information about their benefit over cost analysis processes. Furthermore, the adolescents were informed at the beginning of the study their participation was voluntary, they could not be held accountable for their answers and all their answers were anonymous and confidential.
Additionally, the questionnaires were given to the adolescents by researchers rather than authority figures from the Youth Development Centre.

Finally, a more varied sample of criminal experience could have provided more insight into how experience impacts on the effect maturity factors have on benefit over cost analysis of delinquency scenarios. A more variable sample could be achieved by looking at delinquent youth with a wider range in criminal experience, like being trialed for criminal behaviour but not yet charged or convicted, and those with only one conviction. Individuals with a more varied range of criminal experience would also theoretically have a more varied range of maturity.

**Strengths**

Despite this study’s limitations there are also a number of strengths. This study shows some encouraging results indicating adolescents’ ability to process a delinquent scenario is not straightforward but is a complex interaction involving numerous psychosocial factors. Thus, the relation between an adolescent’s maturity and their benefit over cost analysis may not be a simple relation. This research also indicates the factors comprising maturity do not seem to have equal influence on benefit over cost analysis of delinquent scenarios, with risk perception appearing more influential to adolescents’ analyses than future orientation and sensation seeking. In addition, an interaction between resistance to peer influence, and criminal experience was also influential in adolescents’ decision-making. Given the small sample of detained youth this data is collected from, and the fact interactions tend to be underpowered, the results
are encouraging. In addition, this study has provided a unique look at a population from whom data is very hard to come by. It has also offered a unique contribution to both rational choice literature, and adolescent developmental research by proposing a new model to address a gap in the current literature.

**Implications and Future Research**

This study’s results have implications for prevention programs and intervention for delinquent youth. For example, interventions with the purpose of reducing risky behaviour may benefit by focusing on increasing adolescents’ resistance to peer influence (Gardner & Steinberg, 2005). These interventions should also focus on increasing adolescents’ risk perception ability in a manner that would not give them cause to believe several of their peers are engaging in the behaviour, or would be appealing to high sensation seekers. Due to the limitations of this study, namely the small sample size, and accompanying lack of variability within the sample, the results of this study should be considered with caution. This model and study should be considered a preliminary snapshot into the subject, a combination of deterrence and maturity theories. Therefore, it should be tested more thoroughly in the future, with a larger sample size. In addition, longitudinal studies should be conducted (Matthews & Agnew, 2008; Modecki, 2009; Steinberg & Monahan, 2007; Zimmerman, 2010). An example of further research could include a longitudinal study comparing psychosocial development and their effects on benefit over cost analysis of delinquency, in larger samples of delinquent adolescents and non-delinquent adolescents (Modecki, 2009).
Conclusion

Previous literature into deterrence has indicated that adolescents faced with risky or delinquent situations will use a process based on the benefit and costs analysis of rational decision-making (Fagan & Piquero, 2007; Matsueda et al., 2006; Melde, 2009; Paternoster, 2010) before engaging in these situations. By combining this theory with adolescent developmental theory on maturity, the present study highlights adolescents’ decision-making process is not as straight-forward as thought previously. Even with a small and unique sample, testing underpowered analyses (Cohen & Cohen, 1983) this study indicates at least one of the psychosocial factors that comprise maturity (risk perception), have an independent main effect on benefit over cost analysis. For at least one psychosocial factor (resistance to peer influence), the effect appears to be much more complex and is moderated by the adolescent’s criminal experience. These results are very promising, and indicate much more research is necessary in this area.
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Appendix A

This thesis was prepared for the journal *Law and Human Behavior*

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Prepare manuscripts according to the *Publication Manual of the American Psychological Association* (6th edition). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*).

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If you have an equation that has already been produced using Microsoft Word 2007 or 2010 and you have access to the full version of MathType 6.5 or later, you can convert this equation to MathType by clicking on MathType Insert Equation. Copy the equation from Microsoft Word and paste it into the MathType box. Verify that your equation is correct, click File, and then click Update. Your equation has now been inserted into your Word file as a MathType Equation.

Use Equation Editor 3.0 or MathType only for equations or for formulas that cannot be produced as Word text using the Times or Symbol font.

Tables

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

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APA can now place supplementary materials online, available via the published article in the PsycARTICLES® database. Please see Supplementing Your Article With Online Material for more details.

Abstract and Keywords

All manuscripts must include an abstract containing a maximum of 250 words typed on a separate page. After the abstract, please supply up to five keywords or brief phrases.
References

List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.

Examples of basic reference formats:


Figures

Graphics files are welcome if supplied as Tiff, EPS, or PowerPoint files. Multipanel figures (i.e., figures with parts labeled a, b, c, d, etc.) should be assembled into one file. The minimum line weight for line art is 0.5 point for optimal printing. For more information about acceptable resolutions, fonts, sizing, and other figure issues, please see the general guidelines.

When possible, please place symbol legends below the figure instead of to the side.

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1597–1611.

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Authors of manuscripts rejected without review may appeal the decision to the Editor-in-Chief, requesting a reconsideration of the decision. If that appeal is rejected but the author believes the decision is inappropriate, the author may appeal to the Executive Committee of the American Psychology-Law Society (AP-LS), APA Division 41.

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An author wishing to appeal a manuscript should direct the editorial appeal first to the associate editor who made the rejection. If the associate editor declines to further consider the manuscript, or the associate editor does a second review of the manuscript and still rejects it, the author may appeal next to the Editor-in-Chief. If the Editor-in-Chief believes the appeal has merit, the manuscript may be reassigned to a new associate editor for independent re-review. If the Editor-in-Chief rejects the appeal, the author may request that the appeal and the manuscript be sent to the Executive Committee of the American Psychology-Law Society (AP-LS), APA Division 41.

For rejected comments.

Decisions on comments are final and cannot be appealed.
Appendix B

Questionnaire

Demographics
Please circle the answer that best describes you.

A. What is your primary racial background?
   (1.) African American
   (2.) Native American (Indian)
   (3.) Asian American
   (4.) Caucasian (white)
   (5.) Hispanic American
   (6.) Mixed African American and white
   (7.) Mixed Hispanic American and white

B. How old are you?
   ____________________ years old

C. What is your gender?
   (1) Male            (2) Female

D. What type of town are you from?
   (1.) Large city
   (2.) Small city
   (3.) Town
   (4.) Rural area
   (5.) Farm

E. What is the last full grade that you have completed in school?
   (1). 6\textsuperscript{th} grade or less  (5.) 10\textsuperscript{th} grade
   (2.) 7\textsuperscript{th} grade           (6.) 11\textsuperscript{th} grade
   (3.) 8\textsuperscript{th} grade          (7.) GED
   (4.) 9\textsuperscript{th} grade          (8.) 12\textsuperscript{th} grade

F. For the last full year you have completed in school, what was your average grade?
   (1.) All A’s
   (2.) Primarily A’s and B’s
   (3.) All B’s
   (4.) Primarily B’s and C’s
   (5.) All C’s
Running Head: MATURITY AND EXPERIENCE PREDICTING DELINQUENCY

(6.) Primarily C’s and D’s
(7.) All D’s
(8.) Primarily D’s and F’s
(9.) All F’s

G. Highest level of education attained by your mother:
(0.) Don’t know/Not sure
(1.) Less than high school/GED
(2.) High school
(3.) Some college education
(4.) Associate Degree (2 year college)
(5.) College degree (4 year college)
(6.) Some graduate education
(7.) Graduate or professional degree (Ph.D MD MBA MA)

H. Highest level of education attained by your father:
(0.) Don’t know/Not sure
(1.) Less than high school/GED
(2.) High school
(3.) Some college education
(4.) Associate Degree (2 year college)
(5.) College degree (4 year college)
(6.) Some graduate education
(7.) Graduate or professional degree (Ph.D MD MBA MA)

Arnett Sensation Seeking Inventory (ASSI)
1. I can see how it would be interesting to marry someone from a foreign country.
   1
   Does not describe me very well
   2
   Does not describe me somewhat
   3
   Describes me very well
   4
   Describes me somewhat

2. When the water is very cold, I prefer not to swim even if it’s a hot day.
   1
   Does not describe me very well
   2
   Does not describe me somewhat
   3
   Describes me very well
   4
   Describes me somewhat

3. If I have to wait in a long line, I’m usually patient about it.
   1
   Does not describe me very well
   2
   Does not describe me somewhat
   3
   Describes me very well
   4
   Describes me somewhat

4. When I listen to music, I like it to be loud.
1. Does not describe me at all
2. Does not describe me very well
3. Describes me somewhat
4. Describes me very well

5. When taking a trip, I think it is best to make as few plans as possible and just take it as it comes.
1. Does not describe me at all
2. Does not describe me very well
3. Describes me somewhat
4. Describes me very well

6. I stay away from movies that are said to be frightening or highly suspenseful.
1. Does not describe me at all
2. Does not describe me very well
3. Describes me somewhat
4. Describes me very well

7. I think it’s fun and exciting to perform or speak before a group.
1. Does not describe me at all
2. Does not describe me very well
3. Describes me somewhat
4. Describes me very well

8. If I were to go to an amusement park, I would prefer to ride the rollercoaster or other fast rides.
1. Does not describe me at all
2. Does not describe me very well
3. Describes me somewhat
4. Describes me very well

9. I would like to travel to places that are far away and strange.
1. Does not describe me at all
2. Does not describe me very well
3. Describes me somewhat
4. Describes me very well

10. I would never like to gamble with money, even if I could afford it.
1. Does not describe me at all
2. Does not describe me very well
3. Describes me somewhat
4. Describes me very well

11. I would have enjoyed being one of the first explorers of an unknown land.
1. Does not describe me at all
2. Does not describe me very well
3. Describes me somewhat
4. Describes me very well
12. I like a movie where there are a lot of explosions and car crashes.

1. Does not describe me at all
2. Does not describe me somewhat
3. Describes me me somewhat
4. Describes me very well

13. I don’t like extremely hot and spicy foods.

1. Does not describe me at all
2. Does not describe me somewhat
3. Describes me somewhat
4. Describes me very well

14. In general, I work better when I’m under pressure.

1. Does not describe me at all
2. Does not describe me somewhat
3. Describes me somewhat
4. Describes me very well

15. I often like to have the radio or TV on while I’m doing something else, such as reading or cleaning up.

1. Does not describe me at all
2. Does not describe me somewhat
3. Describes me somewhat
4. Describes me very well

16. It would be interesting to see a car accident happen.

1. Does not describe me at all
2. Does not describe me somewhat
3. Describes me somewhat
4. Describes me very well

17. I think it’s best to order something familiar when eating at a restaurant.

1. Does not describe me at all
2. Does not describe me somewhat
3. Describes me somewhat
4. Describes me very well

18. I like the feeling of standing next to the edge on a high place and looking down.

1. Does not describe me at all
2. Does not describe me somewhat
3. Describes me somewhat
4. Describes me very well

19. If it were possible to visit another planet or the moon for free, I would be among the first in line to sign up.

1. Does not describe me at all
2. Does not describe me somewhat
3. Describes me somewhat
4. Describes me very well
at all very well

20. I can see how it must be exciting to be in a battle during a war.

<table>
<thead>
<tr>
<th>Describe me</th>
<th>Describe me</th>
<th>Describes</th>
<th>Describes me</th>
</tr>
</thead>
<tbody>
<tr>
<td>at all</td>
<td>very well</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Risk Perception Scale
For each of the following behaviors, circle the number that best corresponds to how risky or dangerous you think it is to engage in that behavior.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Not at All risky</th>
<th>Slightly risky</th>
<th>Moderately risky</th>
<th>Very risky</th>
<th>Extremely risky</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having sex</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Drinking alcohol</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Getting drunk</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Binging/purging</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Taking speed</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Shoplifting</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Driving a car</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Smoking cigarettes</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Walking alone at night</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Riding with a drunk driver</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Taking prescription drugs as prescribed</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Riding a motorcycle</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Smoking marijuana</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Having sex without a condom</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Driving after drinking</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Taking crack or cocaine</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Driving/riding without a seatbelt</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Taking prescription drugs without doctor’s approval or in excess</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Revised Resistance to Peer Influence Scale (RPIS)
How much does this describe you?

1. Some people go along with their friends just to keep them happy.
   - Not at all like me
   - Somewhat like me
   - Sort of like me
   - Very much like me

2. Some people think it’s more important to be an individual than to fit in with the crowd.
   - Not at all like me
   - Somewhat like me
   - Sort of like me
   - Very much like me

3. For some people, it’s pretty easy for their friends to get them to change their mind.
   - Not at all like me
   - Somewhat like me
   - Sort of like me
   - Very much like me

4. Some people would do something that they knew was wrong just to stay on their friends’ good side.
   - Not at all like me
   - Somewhat like me
   - Sort of like me
   - Very much like me

5. Some people hide their true opinion from their friends if they think they will be made fun of because of it.
   - Not at all like me
   - Somewhat like me
   - Sort of like me
   - Very much like me

6. Some people will not break the law just because their friends would.
   - Not at all like me
   - Somewhat like me
   - Sort of like me
   - Very much like me

7. Some people change the way they act so much when they are with their friends that they wonder who they “really are”.
   - Not at all like me
   - Somewhat like me
   - Sort of like me
   - Very much like me

8. Some people take more risks when they are with their friends than they do when they are alone.
   - Not at all like me
   - Somewhat like me
   - Sort of like me
   - Very much like me
9. Some people say things they don’t really believe because they think it will make their friends respect them more.
1. Not at all like me
2. Somewhat like me
3. Sort of like me
4. Very much like me

10. Some people think it’s better to be an individual even if people will be angry at them for going against the crowd.
1. Not at all like me
2. Somewhat like me
3. Sort of like me
4. Very much like me

Future Outlook Inventory
Please read each sentence carefully and circle the number that you most agree with

1. I will keep working at difficult, boring tasks if I know they will help me get ahead later.
1. Never true
2. Rarely true
3. Often true
4. Always true

2. I live each day as if it’s my last.
1. Never true
2. Rarely true
3. Often true
4. Always true

3. I think about how things might be in the future.
1. Never true
2. Rarely true
3. Often true
4. Always true

4. I tend to get caught up in the excitement of the moment.
1. Never true
2. Rarely true
3. Often true
4. Always true

5. I make lists of things to do.
1. Never true
2. Rarely true
3. Often true
4. Always true

6. Before making a decision, I weigh the good vs. the bad.
1. Never true
2. Rarely true
3. Often true
4. Always true

7. I will give up my happiness now so I can get what I want in the future.
1. Never true
2. Rarely true
3. Often true
4. Always true

8. I make decisions on the spur of the moment.
1. Never true 2. Rarely true 3. Often true 4. Always true

9. I would rather save my money for a rainy day than spend it now on something fun.
1. Never true 2. Rarely true 3. Often true 4. Always true

10. I can’t really plan for the future because things change so much.
1. Never true 2. Rarely true 3. Often true 4. Always true

11. I always seem to be doing things at the last minute.
1. Never true 2. Rarely true 3. Often true 4. Always true

12. I don’t plan; I take each day as it is.
1. Never true 2. Rarely true 3. Often true 4. Always true

13. I can see my life 10 years from now.
1. Never true 2. Rarely true 3. Often true 4. Always true

1. Never true 2. Rarely true 3. Often true 4. Always true

Delinquency Scale
In the year before you were detained at the YDC, how many times did you:

1. Purposely damaged or destroyed property belonging to your parents or family members.
2. Purposely damaged or destroyed property belonging to a school.
3. Purposely damaged or destroyed other property that did not belong to you (not counting family or school property).
4. Stolen (or tried to steal) a motor vehicle, such as a car or motorcycle.
5. Stolen (or tried to steal) something worth more than $50.
6. Knowingly bought, sold or held stolen goods (or tied to do any of these things).
7. Thrown objects (such as rocks, snowballs, or bottles) at cars or people.
8. Carried a weapon other than a plain pocket knife.
9. Stolen (or tried to steal) things worth $5 or less.
10. Attacked someone with the idea of seriously hurting or killing him/her.
11. Been paid for having sexual relations with someone.
13. Sold marijuana or hashish (“pot”, “grass”, “hash”).
14. Hitchhiked when it was illegal to do so.
15. Stolen money or other things from your parents or other members of your family.
16. Hit (or threatened to hit) a teacher or other adult at school.
17. Hit (or threatened to hit) one of your parents.
18. Hit (or threatened to hit) other students.
20. Sold hard drugs, such as heroin, cocaine, and LSD.
21. Taken a vehicle for a ride (drive) without permission.
22. Had (or tried to have) sexual relations with someone against their will.
23. Used force (strong-arm methods) to get money or things from other students.
24. Used force (strong-arm methods) to get money or things from a teacher or other adult at school.
25. Used force (strong-arm methods) to get money or things from people (not students or teachers).
26. Avoided paying for things such as movies, bus or subway rides, and food.
27. Been drunk in a public place.
28. Stolen (or tried to steal) things worth between $5 and $50.
29. Stolen (or tried to steal) something at school, such as someone’s coat from a classroom, locker, or cafeteria, or a book from the library.
30. Broken into a building or vehicle (or tried to break in) to steal something or to look around.
31. Begged for money or things from strangers.
32. Failed to return extra change that a cashier gave you by mistake.
33. Made obscene telephone calls, such as calling someone and saying dirty things.
34. Used alcoholic beverages (beer, wine, and hard liquor).
35. Used marijuana-hashish (“grass”, “pot”, “hash”).
38. Used barbiturates (“Downers”, “Reds”).
39. Used heroin (“Horse”, “Smack”).
40. Used cocaine (“Coke”).

Decision Vignettes
1. You and a friend have the same history test but are in different classes. You have history in the morning while she/he has history in the afternoon. At lunch, your friend asks you to tell her/him what questions were on the test. You realize that your friend has a good reason for not studying, but you know you shouldn’t tell the test questions.

When you are deciding what to do, what are the reasons that would make you decide TO tell your friend the questions? Please list as many as you think of:

1. 
2. You’re out shopping with some of your close friends and they decide to take some clothing without paying for it. You don’t think it’s a good idea, but they say you should take something too.

When you are deciding what to do, what are the reasons that would make you decide TO take the clothing? Please list as many as you think of:
1.  
2.  
3.  
4.  
5.  
6.  

When you are deciding what to do, what are the reasons that would make you decide NOT TO take the clothing? Please list as many as you think of:
1.  
2.  
3.  
4.  
5.  
6.  

3. You and your friend are at a movie theatre watching a film. Behind you two teens are talking, laughing loudly, and kicking the back of your seat all of the time. Your friend wants you to turn around and threaten to hit them if they don’t keep quiet.

When you are deciding what to do, what are the reasons that would make you decide NOT TO threaten the teens? Please list as many as you think of:
1.  
2.  

When you are deciding what to do, what are the reasons that would make you decide to threaten the teens? Please list as many as you think of:

1. 
2. 
3. 
4. 
5. 
6.
Appendix C

Debriefing Document

Study Title: Effects of Maturity and Criminal Experience on Adolescents’ Analysis of Delinquency

About this Study:
This study is using adolescents (young people) held in a correctional facility to look at the influence of maturity and previous criminal experience on the benefits and costs found in hypothetical delinquency scenarios. Delinquency scenarios are possible antisocial or criminal situations that adolescents are faced with. The level of maturity was measured using the surveys Arnett Sensation Seeking Inventory, Risk Perception Scale, Revised Resistance to Peer Influence Scale and Future Outlook Inventory.

Your participation and responses in this study are anonymous, confidential and will not affect your legal status. Consent was gained from The New Hampshire Youth Development Centre for your participation, and verbal consent was obtained from you. However, you were also informed that you could withdraw from the study at any time, which is still the case. You can also have access to a copy of the report written from the data obtained in this study if you wish, although your data will not be identifiable due to anonymity.

Purpose:
The juvenile justice system, which prosecutes and convicts adolescents for crimes committed often transfers them to adult court based on the belief that they have the same decision making abilities as adults. The purpose of this study is to look at the decision making abilities of adolescents with criminal experience and show that this experience and their maturity will influence how they weigh up the benefits and costs in a possible antisocial or criminal situation so that they cannot make rational decisions like adults.

If you have questions, contact the experimenters.

Experimenter(s): Dr. Kathy Modecki and Sabrina Brient

Contact Information: sabrinabrient@hotmail.com

For ethical concerns, contact the Institutional Review Board for the Protection of Human Subjects in Research (IRB), Manager Julie F. Simpson on 603-862-2003 or Julie.simpson@unh.edu.

Thank you for your participation!