

**DEFINING PSYCHOSOCIAL MATURITY: A RISK FACTOR FOR  
OFFENDING AND AGGRESSION IN ADOLESCENTS AND YOUNG ADULTS**

By

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## ABSTRACT

Throughout adolescence and into their early 20s, youth are expected to develop sufficient maturity to navigate the adult world. However, the social and emotional aspects of maturity are not well understood, particularly the consequences of inadequate development. Research suggests a relationship between psychosocial immaturity and offending. This three month longitudinal study tested a model of psychosocial maturity (PM) to determine whether there were age differences consistent with a process of maturation, whether the factors in the model comprised a unitary construct, and whether the model prospectively predicted offending and aggression. PM and offending data were collected from 276 high school and university students over a three to four month period. The study partly confirmed theoretical assumptions about PM and found that PM prospectively and concurrently predicted offending and aggression. These findings further emphasize the need for research on psychosocial maturity and its relationship with offending and other outcomes.

**Keywords:** psychosocial maturity; offending; aggression; adolescents

**Subjects:** Maturation (psychology); Maturation (psychology) – Measurement; Juvenile Delinquency; Aggression – psychology; Adolescent

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## **DEFINING PSYCHOSOCIAL MATURITY: A RISK FACTOR FOR OFFENDING AND AGGRESSION IN ADOLESCENTS AND YOUNG ADULTS**

Psychosocial development is the lifelong process of individuals' social and emotional growth. The term psychosocial maturity (PM) refers specifically to youth and the challenges they must navigate on the path to being a successful adult (Greenberger & Sorensen, 1974). Throughout adolescence and into their early 20s, youth are expected to develop sufficient maturity to negotiate the challenges of the adult world. However, the emotional and social aspects of maturity are not well understood, particularly the consequences of inadequate development. An inability to meet the demands of adult life, such as securing employment or forming adult relationships, could lead to numerous negative outcomes for youth as they transition into young adulthood.

Numerous components of PM have been suggested but consensus has yet to be reached on a definition. The most commonly-used definition of PM was proposed by Steinberg and Cauffman (1996) in their theoretical model of mature judgment. As a preface to defining the model, they distinguished the cognitive aspects of judgment (e.g., weights attached to costs and benefits) from psychosocial factors. While both cognitive and psychosocial factors can impact youths' judgment, a great deal more attention has been paid to youths' cognitive capacities, neglecting psychosocial factors (although see Fontaine, 2008). However, psychosocial factors may affect how these cognitive capacities are applied, such as determining how youths perceive the importance and likelihood of possible consequences associated with their choices (Steinberg & Cauffman, 1996).

Though numerous potential PM elements exist, Steinberg and Cauffman (1996) posited that most would fall under the general dispositions of temperance, perspective, and responsibility. They presented largely theoretical support for their model or used research linking the factors of temperance, perspective, and responsibility to risky behaviour. However, Cauffman and Steinberg (2000a) later pointed out problems with inferring poor decision making from youths' decisions to engage in risky behaviour. They emphasized that decisions to engage in risky behaviours may indicate that youths are unable to make good decisions or that they are able to make good decisions but choose not to. Thus, research linking the components of temperance, perspective, and responsibility more directly to judgment or the cognitive processes associated with decision making is summarized below. As noted by Cauffman and Steinberg (2000a), empirical evidence in this area is limited but provides a background to help link PM to negative outcomes, such as offending and aggression.

### *Temperance*

Temperance refers to the ability to govern one's own behaviour and to restrain oneself from acting upon impulse. Specifically, Steinberg and Cauffman (1996) suggested that increased sensation seeking, hormonal and physiological changes in puberty that lead to increased impulsivity, and mood and emotional fluctuations can impact decision making. Sensation seeking has been linked to judgment distortions in adolescents' decisions to make dangerous railway crossings (Witte & Donohue, 2000). Research linking changes associated with puberty, such as early physical maturation, directly to judgment could not be located. Increased impulsivity in children has been associated with poorer judgment, although the validity of the measure of judgment used in the study



(differences between the Information and Comprehension scales on the Wechsler Intelligence Scales for Children-Revised) is questionable (Brannigan & Ash, 1977). Research comparing youth with emotional problems to community controls found them to demonstrate poorer reasoning when making medical decisions (Mulvey & Peebles, 1996), although no studies on decision making in different emotional states could be located. Affect has also been suggested to mediate age differences in risk taking behaviour, which may be the reason for the failure to find evidence of differences in cognitive factors like the subjective probabilities of negative outcomes between youths and adults (Loewenstein, Weber, Hsee, & Welch, 2001).

### *Perspective*

Perspective involves being able to appreciate short-term and long-term consequences, as well as the effect of actions on other people and the costs and benefits of decisions. Steinberg and Cauffman (1996) posited that the ability to assume different perspectives is influenced by a number of processes in adolescence. Decentration, the ability to shift one's attention from the center of the problem (usually oneself), the immediate situation, and obvious costs and benefits, is likely to accompany mature judgment. Specifically, Steinberg and Cauffman (1996) suggested that social perspective taking and an increased future orientation contribute to mature judgment. Individuals who possess these qualities should be better able to take into account information from others' perspectives and long-term consequences, leading to more mature judgment. However, empirical research linking perspective to judgment or decision making could not be located.

### *Responsibility*

Steinberg and Cauffman (1996) defined responsibility as including the various aspects of autonomy, identity, and ego development. Autonomy subsumes the idea of resistance to peer influence suggested by Scott, Reppucci, and Woolard (1995) to be important to PM, but also includes the ability to behave responsibly in the absence of adult supervision and engage in independent decision making. Maturity would also include advice-seeking when appropriate (Steinberg & Cauffman, 1996). Identity comprises confidence, awareness of one's strengths and weaknesses, and clear values and priorities. Individuals who are clear about their values and their own characteristics are likely to display more mature judgment than those who are insecure or not clear about their beliefs (Steinberg & Cauffman, 1996). Ego development refers to youths' disengagement from their parents while internalizing and retaining their values. It should be noted, however, that other researchers do not make a distinction between ego development and identity, using the term ego identity (e.g., Marcia, 2002). Ego identity is related to more rational and systematic decision making styles in young adults' career decision making (Blustein & Phillips, 1990). No research linking autonomy to judgment could be located.

### *Prior Research on PM*

A number of researchers have highlighted the role that PM and mature judgment play in decision making that may be relevant to offending and, thus, how youth are treated in the justice system (e.g., Scott et al., 1995; Steinberg & Cauffman, 1996). Scott and colleagues (1995) argued that the focus on adolescents' cognitive abilities of reasoning and understanding in legal contexts was too narrow and neglected other

processes at work during adolescent decision making (e.g., peer influence). Although adolescents display similar cognitive capabilities for decision making to adults by age 14 (American Psychological Association, 1990), PM may interfere with these cognitive abilities, or in some cases, appear to override them altogether (Steinberg, 2004).

Empirical research on the factors of temperance, perspective, and responsibility also suggests a relationship with offending. Associations have been found between temperance and marijuana dealing (Little & Steinberg, 2006), as well as problem behaviour in general (Farrell & Sullivan, 2000). Also, adolescents and young adults who score higher on perspective measures make fewer antisocial decisions (Cauffman & Steinberg, 2000b). Research specifically examining future orientation suggests a relationship between positive future orientation and fewer risk behaviours, such as marijuana use, hard drug use, and risky sexual encounters (Robbins & Bryan, 2004). Other research on the ability to take the perspective of others has demonstrated lower levels of empathy in adolescent sex offenders than non-offender adolescents (Farr, Brown, & Beckett, 2004). Lastly, responsibility has been associated with antisocial decision making (Cauffman & Steinberg, 2000b).

### *The Construct of PM*

Although the construct of psychosocial maturity has a sound theoretical background, research supporting the construct has been slower in coming. The first gap the present study sought to address was to test implied theoretical assumptions regarding the construct of PM. The construct of PM is assumed to represent a developmental process of maturation, such that each factor and the overall PM score should demonstrate age differences. Cross-sectional age differences have been found in previous studies of

PM (Cauffman & Steinberg, 2000b; Modecki, 2008). Because the current study was longitudinal, age differences could be examined both cross-sectionally and longitudinally, over three to four months.

Also, the factors of temperance, responsibility, and perspective have been combined to yield a single score of PM in previous studies (e.g., Cauffman & Steinberg, 2000b). Using a single score suggests that the components should comprise a unitary construct. However, the assumption of a superordinate factor emerging from the three components has yet to be tested.

### *Interpersonal Skills*

Though Steinberg and Cauffman's (1996) model provides a useful starting point, the model was proposed in the context of mature judgment. Thus, in the context of behaviour (e.g., offending), it is possible that the model may include additional components. For example, Fried and Reppucci (2001) proposed an alternate judgment model of PM comprising temporal perspective, susceptibility to peer influence, and risk perception (i.e., perceived invulnerability to risk and increased emphasis on the negative consequences of not engaging in the risky behaviour). Susceptibility or resistance to peer influence from Fried and Reppucci's (2001) model of PM would appear to be especially relevant to behaviour. Unfortunately, the U-shaped developmental pathway of susceptibility to peer influence (Fried & Reppucci, 2001; although see Steinberg & Monahan, 2007) precluded it from being used in this study, as the other components of PM appear to follow a more or less linear developmental pathway (Cauffman & Steinberg, 2000b). Also, susceptibility to peer influence is problematic because the effects of peer influence on offending may be moderated by the social orientation of

adolescents' peers. The measure of susceptibility to peer influence in Fried and Reppucci's (2001) study used hypothetical antisocial situations and had youth report the likelihood that they would participate in the behaviour. While such a measure would be appropriate to use in a decision making study, youths' offending behaviour may demonstrate equivocal results. That is, youth may be highly susceptible to peer influence, but if their primary peer group is prosocial, the relationship with actual offending may disappear.

Thus, a theoretical framework for psychosocial interventions aimed at offenders in custody was consulted to determine whether additions should be made to Steinberg and Cauffman's (1996) judgment model of PM in the context of offending behaviour. Chung, Little, and Steinberg (2005) outline three key areas of adolescent development in which deficits may lead to adolescent offending. Adolescents must develop competency in educational and vocational skills to function in society. They must also acquire the interpersonal skills necessary for fostering fulfilling adult relationships. Finally, adolescents must develop a positive sense of self-worth and, perhaps most importantly, the ability to govern their own behaviour.

The current study used a combination of Steinberg and Cauffman's (1996) and Chung and colleagues' (2005) definitions of PM. The model tested in this study consisted of temperance (which is included in both models), perspective, responsibility, and interpersonal skills. Educational and vocational skills from Chung and colleagues' (2005) framework were omitted from the current definition because they were not likely to vary sufficiently in a sample of participants recruited from school settings. Also, self-worth was omitted because there is equivocal evidence for its relationship with offending (Oser,

2006). Moreover, like susceptibility to peer influence, self-worth follows a U-shaped developmental pathway, in that it is high in childhood, drops in adolescence, and then levels out until old age where it drops again (Robins & Trzesniewski, 2005).

Research on interpersonal skills, which are added to Steinberg and Cauffman's (1996) model in this study, suggests a relationship with offending and a developmental process. Interpersonal skills are necessary for adolescents and young adults to develop meaningful relationships and maintain employment. Social and interpersonal skills have been found to be moderately correlated with problem behaviours (Leadbeater, Hellner, Allen, & Aber, 1989). Moreover, positive relationships and lasting employment have been associated with desistance from criminal activity (Laub & Sampson, 2001). Although less is known about the developmental pathway of interpersonal skills, interpersonal competence becomes increasingly important to intimacy as adolescents age (Buhrmester, 1990) and interpersonal competence would need to develop accordingly.

The second gap in the literature that this study addressed was to test a model of PM expanded to encompass the context of behaviour, beyond judgment. Also, despite the name "psychosocial," studies have yet to include a "social" component of PM.

#### *PM and Offending*

Previous research on PM has found that immaturity leads to poorer outcomes for youth. For example, adolescents who are less psychosocially mature are more likely to drink heavily than their psychosocially mature peers (Adalbjarnardottir, 2002). Adolescents and young adults who are less psychosocially mature are also more likely to make antisocial decisions than those with higher PM scores (Cauffman & Steinberg, 2000b). More recently, researchers have suggested that inadequate psychosocial

development may increase an adolescent's risk for offending (Chung et al., 2005).

The link between offending and PM has implications for offenders who have been released from custody. Offenders likely experience inadequate opportunities for psychosocial development while in custody, which presents a significant barrier to their successful re-entry into society (Steinberg, Chung, & Little, 2004). Offenders may re-enter society as adults after entering the justice system as adolescents. While their non-incarcerated peers have had the freedom to develop the values, maturity, and independence that are necessary to assume these adult roles, similar opportunities rarely exist in custody (Altschuler, 2005). This developmental lag may leave offenders poorly equipped to deal with the new challenges they face, such as securing lawful employment and forming adult interpersonal relationships. As a result, offenders may experience poor outcomes upon their release, notably recidivism. Recidivism rates range from 40% of released offenders being re-arrested within a year to 85% at the very top end for serious, violent, or recurrent offenders being re-arrested within five years (Bullis, Yovanoff, Mueller, & Havel, 2002; Trulson, Marquart, Mullings, & Caeti, 2005).

The relationship between PM and offending in a population of young offenders has also been supported by empirical research. Studies have found an association between higher PM and fewer self-reported offences in samples of juvenile offenders (Cruise, Hall, Amenta, & Douglas, 2002; Cruise et al., 2008; Modecki, 2008). However, other difficulties associated with having prior experience in the juvenile justice system, such as time in custody or the opportunity to meet other deviant peers in court or custody settings may contribute to offending and psychosocial immaturity in these youth. Studying the relationship between PM and offending in a population with little or no

previous experience with the criminal justice system may help to elucidate the effects of psychosocial deficits.

Research on antisocial decision making and maturity of judgment suggests a relationship between offending and PM outside of the offender population. Cauffman and Steinberg's study (2000b) used a community sample in their study that demonstrated that high school and college students who were less psychosocially mature exhibited more antisocial decision making. Although antisocial decision making was related to age, Cauffman and Steinberg (2000b) demonstrated that it was actually PM that was responsible for age differences in antisocial decision making. However, the hypothetical situations used in the study may not generalize to behaviour.

A recent study by Modecki (2008) confirmed a relationship between offending and PM in community youth and adults. Moreover, PM remained the strongest predictor of offending when antisocial decision making, age, and socioeconomic status (SES) variables were added to the regression equation. However, to strengthen confidence in the direction of the relationship between PM and offending (i.e., that PM influences offending and not vice versa), longitudinal research is needed to determine whether PM predicts later offending. For example, offending could restrict youth from associating with prosocial peers and from other opportunities for the development of maturity, although there are likely some transactional processes at work. Yet another gap the present study attempted to address was the lack of longitudinal research to determine whether PM prospectively predicts offending.

#### *PM and Aggression*

Though research has examined PM in the context of antisocial decision making



and offending, studies have yet to determine whether a relationship exists between PM and aggression. Aggression has been proposed to have two forms, overt and relational, and two functional dimensions, reactive and instrumental (Little, Jones, Heinrich, & Hawley, 2003). Overt aggression refers to more direct types of physical and verbal aggression, such as kicking, punching, and verbal altercations. Relational forms of aggression are intended to damage relationships and contribute to feelings of exclusion from groups. The reactive dimension of aggression applies to angry defensive responses to goal-blocking and provocation, while instrumental aggression occurs in anticipation of self-serving outcomes.

There is reason to believe that aspects of aggression may be related to PM, presuming a relationship between PM and offending. The overt form and reactive dimension of aggression have been found to be related to antisocial behaviour (Little et al., 2003). Also of interest to this study, the reactive form of aggression has been found to be related to low self-control (temperance) and instrumental aggression to social competence (Little et al., 2003; Stanford, Greve, & Dickens, 1995).

The final gap the present study sought to address was to examine the relationship between PM and aggression, which thus far has not been studied. Different forms and functions of aggression could also be tested against PM generally and the different components of PM that have been found to be related to specific forms aggression in previous research (e.g., temperance and interpersonal skills).

### *Hypotheses*

1. The current study tested Steinberg and Cauffman's (1996) model of PM to determine whether it satisfied the assumptions of being a developmental process and a unified

construct by showing age differences, both cross-sectionally and longitudinally over three to four months, and by supporting a superordinate factor of PM. It was expected that PM would show age differences and the data would conform to the expected factor structure.

2. The model of PM was expanded to include interpersonal skills as part of a model of PM for offending behaviour. The same assumptions as above were tested. It was expected that interpersonal skills would show age differences and fit the unitary model.

3. The current study concurrently and prospectively tested PM as a risk factor for offending. Based on previous findings of a relationship between PM and offending, PM was expected to predict offending concurrently and three to four months later.

4. The current study concurrently and prospectively tested PM to determine whether a relationship exists with aggression. Based on the research findings described above that demonstrated a relationship between offending and types of aggression, PM was expected to predict aggression.

## Method

### *Participants*

The initial sample comprised 126 high school students and 150 university students recruited from the Lower Mainland of British Columbia. The follow-up sample consisted of 93 high school students and 90 university students, which is a retention rate of approximately 65%. Due to a high rate of attrition at Time 2, analyses were run to determine whether there were differences between youth who did and did not complete the follow-up questionnaires. No significant differences were noted on any of the psychosocial maturity subscales or the overall composite score at Time 1 between those who completed the follow-up questionnaires and those who did not. The participants

were broken down into the follow age groups, at Time 1 (T1) and Time 2 (T2): a) 14-15 years old (T1: 53; T2: 38), b) 16-17 years old (T1: 62; T2: 45), c) 18-19 years old (T1: 112; T2: 74), and (d) 20-21 years old (T1: 47; T2: 25), 2 undisclosed.

The sample was 56% female, 43% male, and 1% undisclosed. The ethnic composition of the sample was 51% Asian, 26% White, 7% South Asian, and 14% Other (Mixed race, Middle Eastern, Latin American, Aboriginal, Black). Demographic characteristics of the sample and descriptive statistics are presented in Tables 1, 2, and 3.

### *Consent and Recruitment*

Ethics approval for the study was obtained through the SFU Research Ethics Board and the school board's Research Committee. The school board required active consent for participants under the age of 19. Thus, consent forms were sent home with youth, which were then returned signed by their parents. The high school participants were recruited by having teachers make an announcement a week ahead of time that a researcher would be coming. At this time, the teachers briefly described the study and handed out consent forms to be signed by the parents or guardians of the students.

Teachers made it clear to the students that participation was completely voluntary and that they would not be penalized in any way if they did not want to participate. Youth participating in the study also signed consent forms before participating in the study.

University students were recruited through the research participation system. In the research participation system, students are required to sign up for and complete a certain number of research sessions for course credit. Students are given an option of an alternate activity to obtain course credit if they do not wish to participate. Students who signed up to participate using the research participation system were sent a link to an

online questionnaire. At the end of the questionnaire, students were asked to leave their e-mail addresses with the researcher so that they could be contacted again in approximately four months. The e-mail addresses were kept separate from the study data and under password protection to ensure anonymity as much as possible. Consent was obtained from the university participants via the online questionnaire. Participants read the form and clicked “Ok” to indicate that they wished to participate in the study, at which point they were directed to the survey.

Because of the sensitive nature of data on past offenses, high school participants' names were removed from the questionnaire booklet once they were matched to their original questionnaires and assigned a number. University participants were sent a number to use to fill out their online questionnaires at Time 2. The list of names and participant numbers were kept in a separate place from the data. Once the psychosocial maturity and offending data were matched, all identifying information was destroyed to protect participants' interests.

Incentives for participating in the study varied according to setting. High school participants received a pizza party at the second session. Participants recruited through the research participation system received course credit as compensation for the first questionnaire. For the second questionnaire, participants were entered in a draw for \$100.

### *Procedure*

Data collection involved self-report questionnaires. Participants filled out paper questionnaires in class for the high school sample or online questionnaires for the university sample. The differing questionnaire format between the high school and university samples had the potential to be a confound in this study, particularly for self-

reported offending. However, previous research found negligible differences between online and paper questionnaire formats in the percentage of youth reporting various offences (Lucia, Herrmann, & Killias, 2007). Psychosocial maturity measures were completed at the first session, and offending and aggression measures as well as the psychosocial maturity measures were completed approximately three to four months later. The package of questionnaires for Time 1 took approximately 25 minutes to complete. The second session lasted approximately 30 minutes.

### *Measures*

As in previous studies (Cauuffman & Steinberg, 2000b; Cruise et al., 2008; Modecki, 2008; Steinberg & Cauuffman, 1996), the construct of psychosocial maturity comprised temperance, responsibility, and perspective. The measures and calculations used to derive indices in this study were the same as in the aforementioned studies. A measure of interpersonal skills was also added for this study:

#### *Temperance*

The ability to govern one's own behaviour was assessed by aggregating the suppression of aggression and impulse control subscales of the Weinberger Adjustment Inventory (Weinberger & Schwartz, 1990). Participants described what they had usually been like over the past year using a 5-point Likert scale. A sample item is "I should try harder to control myself when I'm having fun" (reverse scored). Higher scores indicate higher levels of emotional self-restraint. The internal consistency of the 15-item scale at Time 1 was  $\alpha = 0.85$ . Concurrent validity with sexual activity, alcohol use, delinquency, and aggression has been demonstrated (Weinberger & Schwartz, 1990).

### *Perspective*

The score for perspective was derived by averaging a measure of future orientation and a measure of the ability to take the perspective of others, as in previous studies (e.g., Cauffman & Steinberg, 2000b). The Consideration of Future Consequences Scale (Strathman, Gleicher, Boniger, & Edwards, 1994) was used as a measure of future orientation. As the scale was intended for use in a college sample, a simplified version of the scale was used so that it would be appropriate for all students (Cauffman, personal communication, August 20, 2007). Participants used a 5-point Likert scale to indicate how characteristic the 12 items were of them. A sample item is “My convenience is a big factor in the decisions I make or the actions I take” (reverse scored). Higher scores indicate greater future orientation. In the validation study of the measure, good predictive validity was found for health concerns, cigarette-smoking, and environmental behaviours, the measure significantly converged with measures of conscientiousness and future orientation, and incremental validity was demonstrated over other measures of future orientation (Strathman et al., 1994).

The ability to take the perspective of others was measured by the consideration of others subscale of the WAI (Weinberger & Schwartz, 1990). Participants describe what they have usually been like over the past year on 7 items using a 5-point Likert scale. A sample item is “I often go out of my way to do things for other people.” Higher scores indicate a greater appreciation of others’ point of view. Psychometric data were not available for this scale.

A total perspective score was calculated by converting item totals to standardized units and averaging the two scores. The internal consistency of the overall perspective

score at Time 1 was  $\alpha = 0.77$  in this sample.

### *Responsibility*

Responsibility was measured using the 30-item personal responsibility subscale of the Psychosocial Maturity Inventory (Greenberger & Bond, 1984). Within the subscale are items pertaining to self-reliance, work orientation, and identity. Participants were asked to indicate their agreement with statements about themselves using a 4-point scale. A sample item is “I never know what I’m going to do next” (reverse coded). Higher scores indicate a greater capacity to function independently. The internal consistency of the scale in the current sample was  $\alpha = 0.89$  at Time 1. Studies support its criterion validity with behavioural descriptions of students and participation in social action projects, as well as construct validity demonstrated by developmental increases in scores, correlations with related measures, and factor validity (Greenberger & Bond, 1984).

### *Interpersonal Skills*

Participants' interpersonal skills were assessed using the interpersonal communication/human relations skills subscale from the Life Skills Development Scale-Adolescent form (Darden, Ginter, & Gazda, 1996). Participants were asked to indicate whether they agreed with 15 items using a 4-point scale. A sample item is “I am comfortable when I am with members of the opposite sex.” Higher scores indicate more interpersonal competence. The internal consistency of the subscale was  $\alpha = 0.74$  at Time 1 in this sample. The interpersonal skills scale demonstrated discriminant validity from a physical competence scale and acceptable convergent validity was demonstrated for the general life skills construct in the validation study (Darden et al., 1996).

### *Psychosocial Maturity*

As in previous studies (e.g., Cauffman & Steinberg, 2000b), a composite score of psychosocial maturity was calculated from the individual psychosocial maturity measures. Measures were transformed to standardized units and averaged, then rescaled on a 5-point scale.

### *Demographic Information*

The last page of the questionnaire booklet had a demographic information sheet which was used to collect data about age, gender, grade or level of education, ethnicity, estimate of household income, mother's, and father's highest level of education. The latter three items were used as indices of socioeconomic status (SES). When reviewing the data, it became apparent that several participants misinterpreted the household income item to mean their own income and another third left the item blank, rendering its validity questionable. Participants appeared to answer the parental education items in a valid manner, which were used as indicators of SES in this study. The measure of SES used in this study represents only one aspect of SES and is of limited validity.

### *Offending*

The criterion variable of offending behaviour was measured at Time 2 using the Self-Report of Offending scales (SRO, Huizinga, Esbensen, & Weiher, 1991). A score was calculated based on the occurrence of 28 different offenses. Offenses are listed under broad categories of theft, assault, public disorder, and other (e.g., fraud, vandalism, arson). The internal consistency of the measure was  $\alpha = 0.80$  in this sample.

Although this study relies on self-report rather than official records offending, in general, self-report measures of offending have been found to correlate moderately to



strongly with official arrest records (Thornberry & Krohn, 2000). The SRO was modified slightly to include the frequency of offenses, which improves the validity of self-report measures of offenses (Thornberry & Krohn, 2000). Also, although participants are generally asked to report lifetime offenses, participants were asked to only record offenses they had committed in the past four months for the purpose of this study.

### *Aggression*

The second criterion variable, aggression, was assessed using the Measurement System of Aggression (MSA; Little et al., 2003). The MSA is a 36-item self-report questionnaire which allows for the calculation of scores for four different constructs of aggression (relational and overt aggression, which are related to the type of aggressive acts, and reactive and instrumental aggression, which are related to the functions of aggression). Participants indicated how true statements were of them generally on a 4-point scale. A sample item is “I’m the kind of person who puts people down.” Internal consistency for the overall scale in this sample was  $\alpha = 0.96$ .

### Results

The results section is organized according to the research questions. Missing values on the questionnaires were replaced with the mean value for that item. In the case where more than two items were missing on a scale, the scale score and the overall PM score were excluded from analyses at that time period. In cases where missed items were largely restricted to the interpersonal skills scale, the PM score was calculated for Steinberg and Cauffman’s (1996) model. Due to the variable number of participants used to calculate the scale scores, differences in degrees of freedom between factors appear below.

The minimum sample size necessary to detect a medium effect was calculated based on Cohen's (1988) formula for adequate power. The sample was chosen according to the guidelines for ANOVA to test the question of age differences because it required the largest sample size to avoid Type II error. Assuming a medium effect size ( $f = .25$ , from Cohen's recommendations for effect sizes in a one-way ANOVA) with  $\alpha = .05$  and four groups, the necessary sample size is 45 per group. With a minimum of 44 participants per group at Time 1, there should have been adequate power to detect a medium effect if one existed, and thus avoid Type II error.

Because numerous hypotheses were tested, Bonferroni corrections were used in the interest of controlling for Type I error. As Bonferroni corrections are conservative, the corrections were limited to individual hypotheses that tested multiple PM factors (e.g., age group comparisons, regression analyses for offending) to simultaneously minimize the possibility of a Type II error.

Several assumptions must be met for the regression analyses required for the offending and aggression research questions. No serious violations of assumptions were detected. Although some problems with the assumption of normality were apparent, the sample size should be sufficiently large so that the tests would not be affected and if anything, non-normality should result in a more conservative estimate.

Though this study used a community sample, 64.1% of youth and young adults who completed the Time 2 questionnaires reported engaging in some type of offending behaviour at least once in the previous three to four months. The offending questionnaire included petty theft, public drunkenness, and loud behaviour, so the base rates of some of the more serious offenses were examined. For example, 5.6% of participants reported

joyriding, 0.6% of reported committing a break and enter, 1.7% reported committing arson, 0.6% reported committing a sexual assault, 1.2% reported using a weapon to get money, and 0.6% reported committing rape. The base rate was sufficiently high to detect effects in this sample.

*Question 1a) Does PM show age differences cross-sectionally and longitudinally?*

Correlational analyses and an ANOVA were conducted to determine whether the PM scores showed age differences that would be consistent with a process of maturity. Correlational analyses were used to determine whether age and gender were correlated with the different PM factors and the overall PM model from Steinberg and Cauffman (1996). Age group was correlated with perspective,  $r = 0.20$ ,  $p = .001$ , responsibility,  $r = 0.16$ ,  $p < 0.01$ , and the composite PM score,  $r = 0.18$ ,  $p < 0.01$ , but not temperance,  $r = 0.06$ , *ns*. Gender was not significantly correlated with any of the other variables, thus it was excluded from further analyses.

Univariate analyses were run for age group to determine whether there were any cross-sectional age differences in the PM factors at Time 1. An ANOVA did not yield a significant effect of age on temperance,  $F(3,270) = 1.98$ , *ns*, but did reveal a significant effect for the perspective factor,  $F(3, 270) = 7.10$ ,  $p < 0.001$ , and the overall PM score,  $F(3,266) = 4.70$ ,  $p < 0.01$ . Responsibility was only marginally significant using a Bonferroni correction,  $F(3, 266) = 2.71$ ,  $p < 0.05$ .

Bonferroni Post hoc comparisons were used to examine the source of the significant age differences on perspective and the overall PM score. On both factors, the 16-17 year olds had significantly lower perspective and maturity scores than the 18-19 and 20-21 year olds. Mean differences from the 16-17 year olds of  $\Delta = -0.25$  ( $p = 0.001$ )

and  $\Delta = -0.32$  ( $p = 0.001$ ) were obtained on the perspective factor for the 18-19 and 20-21 year old age groups, respectively. Mean differences for the 16-17 year olds of  $\Delta = -0.20$  ( $p = 0.01$ ) and  $\Delta = -0.23$  ( $p = 0.01$ ) were obtained on the composite PM factor from the 18-19 and 20-21 year old age groups, respectively.

Paired samples *t*-tests were conducted to determine whether there were significant differences between Time 1 and Time 2 PM factors that would indicate longitudinal changes. There were no significant differences between any of the factors of temperance,  $t(180) = -0.62$ , *ns*,  $r = 0.81$ , perspective,  $t(179) = 0.70$ ,  $r = 0.70$ , responsibility,  $t(177) = 1.14$ , *ns*,  $r = 0.80$ , or the composite PM score,  $t(176) = 0.50$ , *ns*,  $r = 0.82$ . Thus, no further longitudinal analyses of the changes in PM were conducted.

*Question 1b) Does psychosocial maturity represent a unified construct?*

As a first step, correlational analyses were run to determine whether the PM factors of temperance, perspective, and responsibility were significantly intercorrelated. All three of the Steinberg and Cauffman (1996) model factors were significantly correlated (see Table 4).

Next, the factor structure of PM was tested to determine whether it represents a unified construct using fit indices derived from confirmatory factor analysis (CFA) using Mplus (Muthén & Muthén, 2001). The three factors were tested to determine whether they loaded onto a superordinate factor representing the construct of PM. The model achieved an adequate fit (i.e.,  $< 0.06$ ; Hu & Bentler, 1998) on the Root Mean Square Error,  $RMSEA = 0.06$ ,  $p < 0.001$ . However, a good fit (i.e.,  $> 0.95$ ; Hu & Bentler, 1998) was not achieved on the Comparative Fit Index,  $CFI = 0.061$ , or the Tucker Lewis Index,  $TLI = 0.60$ .

Though the factors of temperance, perspective, and responsibility did not show consistent support for being included in the PM model, they were left as in the original Steinberg and Cauffman (1996) model because this model has theoretical support and the variables were significantly intercorrelated in the analyses above, but the composite score was omitted from further analyses.

*Question 2) Do interpersonal skills fit with Steinberg and Cauffman's (1996) model?*

Like the factors of temperance, perspective, and responsibility, the interpersonal skills factor was tested to determine whether it demonstrated age differences to suggest a process of maturity and whether it fit the PM model. Univariate analyses were run to determine whether interpersonal skills showed age differences consistent with a process of maturation. Age did not have a significant effect on interpersonal skills,  $F(3, 261) = .40, ns$ . A paired sample t-test did not indicate any longitudinal age effects on interpersonal skills,  $t(179) = 0.81, ns$ .

Interpersonal skills were correlated with the factors in Steinberg and Cauffman's (1996) model to determine whether there was a relationship between the factors that might suggest they fit with the model. Interpersonal skills were correlated with perspective,  $r = 0.28, p < 0.001$ , and responsibility,  $r = 0.59, p < 0.001$ , but not temperance,  $r = 0.12, ns$ . Factor analyses were run as above with the addition of interpersonal skills to the model. The model achieved an adequate fit (i.e.,  $< 0.06$ ) on the Root Mean Square Error,  $RMSEA = 0.06, p < 0.001$ . However, a good fit ( $> 0.90$ ) was not achieved on the Comparative Fit Index,  $CFI = 0.59$ , or the Tucker Lewis Index,  $TLI = 0.58$ .

As interpersonal skills did not show sufficient evidence of satisfying the

assumptions of the PM model to warrant their addition to the existing model, they were not included in the model of PM for the remaining research questions. However, as interpersonal skills may nonetheless be a behavioural measure of interest in predicting offending and aggression, they were included in separate analyses.

*Question 3) Does PM predict offending?*

The central question of interest to this study was whether PM predicts offending. The Time 2 data for the three factors of temperance, perspective, and responsibility were entered into a regression analysis as a block to determine whether they concurrently predicted offending at Time 2. This block of Time 2 variables was a significant predictor of offending,  $F(3, 174) = 9.88, p < 0.001$ , and accounted for 15% of the variance in offending. Of the variables, only temperance was significantly related to offending,  $\beta = -0.35, p < 0.001$ ; perspective,  $\beta = -0.05$ , and responsibility,  $\beta = -0.02$ , were non-significant. Interpersonal skills were entered in a separate equation and were not related to offending behaviour ( $\beta = 0.06, ns$ ).

Prospectively collected data also demonstrated an association between offending and PM. The Time 1 data for the three factors of temperance, perspective, and responsibility were entered into a regression analysis as a block to determine whether they prospectively predicted offending at Time 2. This block of Time 1 variables was a significant predictor of offending four months later,  $F(3, 174) = 5.79, p = 0.001$ , and accounted for 9% of the variance in offending. Of the variables, only temperance was related to offending,  $\beta = -0.24, p < 0.01$ ; perspective,  $\beta = -0.10$ , and responsibility,  $\beta = 0.00$ , were non-significant. Interpersonal skills were entered in a separate regression analysis and did not significantly predict Time 2 offending ( $\beta = -0.04, ns$ ).

To determine whether PM had any predictive usefulness for offending beyond demographic factors such as age group, gender, ethnicity, and socioeconomic variables (mother's highest education, father's highest education), these factors were first entered as a block in a hierarchical regression with Time 1 data. The block of age group, gender, ethnicity, and SES variables was a significant predictor of offending,  $F(5, 145) = 2.70, p < 0.05$ . When the PM block of factors was added to the model, the new model significantly predicted offending,  $F(8, 142) = 4.06, p < 0.001$ , and more than doubled the amount of variance accounted for by the original model,  $R^2_{\text{step1}} = 0.08; R^2\Delta = 0.11$ . Again, temperance was the only significant predictor in the model ( $\beta = -0.26, p < 0.01$ ) while perspective ( $\beta = -0.08$ ) and responsibility ( $\beta = -0.03$ ) were non-significant. Most importantly, age became non-significant with the addition of the PM factors to the model (Age group block 1,  $\beta = -0.17, p < 0.05$ ; Age group block 2,  $\beta = -0.14, ns$ ), suggesting that maturity accounts for unique variance in offending over and above age (see Table 5).

*Question 4) Does PM predict aggression?*

The Time 2 data for the three factors of temperance, perspective, and responsibility were entered into a regression analysis as a block to determine whether they concurrently predicted aggression at Time 2. This block of Time 2 variables was a significant predictor of aggression,  $F(3, 174) = 26.90, p < 0.001$ , and accounted for 32% of the variance in aggression. Temperance,  $\beta = -0.60, p < 0.001$ , and perspective were both significantly related to aggression,  $\beta = 0.20, p < 0.01$ ; responsibility was non-significant,  $\beta = -0.08$ . Interpersonal skills were not related to aggression ( $\beta = 0.00, ns$ ).

The Time 1 PM factors were used to determine whether they predicted aggression scores three to four months later. The factors of temperance, perspective, and

responsibility significantly predicted aggression at Time 2,  $F(3, 173) = 16.98, p < 0.001$ . The model accounted for 23% of the variance in aggression scores. Temperance,  $\beta = -0.51, p < 0.001$ , and perspective,  $\beta = 0.23, p < 0.01$ , were both significant predictors of aggression, but responsibility was not,  $\beta = -0.12, ns$ . Interpersonal skills at Time 1 did not significantly predict aggression at Time 2 ( $\beta = -0.05, ns$ ).

Correlational analyses of the offending and aggression scores indicated that they were significantly related to one another ( $r = 0.41, p < 0.001$ ). It is possible then, that the variance that PM shares with aggression is responsible for the relationship between the PM factors and offending. The PM factors and aggression were simultaneously entered into a regression equation. When aggression was entered in the model, it was the only significant predictor of offending ( $\beta = 0.32, p < 0.001$ ). The PM factors became nonsignificant (temperance:  $\beta = -0.16$ ; perspective:  $\beta = -0.12$ ; responsibility:  $\beta = 0.01$ ).

Further regression analyses were conducted to determine whether specific types of aggression were related to the block of PM factors. The Time 2 factors demonstrated a stronger relationship with aggression and were thus used in these analyses. The factors significantly predicted all types of aggression (see Table 6). As temperance was hypothesized to predict reactive aggression and interpersonal skills were hypothesized to predict instrumental aggression based on prior research findings, regression analyses were run to test these hypotheses. Temperance significantly predicted reactive aggression,  $\beta = -0.55, p < 0.001$ , but interpersonal skills did not predict instrumental aggression,  $\beta = -0.06, ns$ .

## Discussion

The present longitudinal study examined assumptions regarding the model of PM,



specifically whether the model of PM demonstrated age differences consistent with a process of maturity and whether it represented a unified construct. Also, this study tested an expanded model of PM and determined whether PM prospectively predicted offending and aggression in a sample of 276 high school and university students.

The perspective and composite PM factors showed significant age differences cross-sectionally, specifically between the 16-17 year old and 18-19 and 20-21 year old age groups. The finding of age differences in PM is important because it suggests that immaturity is relatively transitory, which has important implications for criminal responsibility if PM is related to offending behaviour (discussed in more detail below). That is to say, choices that youth make (e.g., to participate in criminal behaviour) when they are psychosocially immature may be different than those they will make once they have matured (Grisso, 2000). In the current study, the PM aggregate, the perspective factor and the responsibility factor demonstrated at least marginal age differences consistent with a developmental process of maturity, though temperance did not show age differences. Similarly, Modecki (2008) did not find age differences in adolescents and young adults for temperance, although responsibility demonstrated significant age differences in the study. The discrepancy between this study's findings and Modecki's (2008) could be due to the use of a smaller sample in this study. Interestingly, the youngest age group did not demonstrate significant differences from the oldest age group in the current study. One possible reason for the finding of differences between the 16-17 year olds and the older age groups is that the 16-17 year old group included students from a modified program. Students in this class struggled in regular classrooms for reasons that may be related to or co-occur with maturity. They thus could have scored lower on

measures of PM than their same-age peers or even those in lower grades. However, when these students were removed from the analyses, the age differences remained significant. Another possible explanation is that similar U-shaped patterns of lower scores around middle adolescence have been found on other measures of psychosocial factors, which may be due to younger adolescents imitating parent responses without having truly developed PM or middle adolescents going through a phase of endorsing less mature responses (Fried & Reppucci, 2001).

There were no significant differences between Time 1 and Time 2 scores on any of the factors or the PM composite, suggesting that PM may be fairly stable over a three to four month period. Elsewhere, research has demonstrated that developmental changes in another PM factor, resistance to peer influence, occurred at a rate of approximately one-quarter standard deviation over six months, although the rate of change slowed over time (Steinberg & Monaghan, 2007). Future longitudinal research in this area should include longer and/or multiple follow ups, as in Steinberg and Monaghan (2007).

The results of this study appeared to show partial support for a unified construct of PM. While the data fit a model of three factors with a superordinate factor of PM on one of the indices (RMSEA), it provided a poor fit on others. However, due to bias inherent to noncentrality parameter sample estimates (e.g., RMSEA), fit also should be determined using a relative fit index (e.g., TLI; Newsom, 2008). As the data showed a poor fit on the TLI, it is likely that the relatively large sample size biased the RMSEA, such that it appeared to be a good fit. This finding raises some concerns for the validity of the construct of PM as it is currently measured. The use of a composite score of PM, which suggests a unified construct, was not indicated by the data in this study.

Although interpersonal skills have been posited to be a factor in one theoretical model of PM (Chung, Little, & Steinberg, 2005) and a social component is suggested by the term “psychosocial” maturity, this study was not able to demonstrate that interpersonal skills shared the properties expected of components of PM (i.e., age differences, unitary construct). While factors such as temperance, responsibility, and perspective are likely to contribute to youths’ skill at interacting with their peers, interpersonal skills do not appear to belong to the construct of PM, though there is likely overlap between the constructs. As suggested by a colleague, social skills may not fit with the model of PM because it is a behavioural measure; although the more trait-oriented measures of temperance, perspective, and responsibility did not support a unitary construct either. Further research is necessary to verify that interpersonal or social skills are part of a separate construct. Studies may use confirmatory factor analysis as in this study or, alternately, may use a different measure that taps into interpersonal traits or that shows better internal consistency than the one used in this study. However, it would be important to first improve the validity of the PM measures.

This study found that PM, and specifically temperance, prospectively predicted offending. Higher temperance scores were related to decreased offending. By using a prospective study design, it is possible to have greater confidence that PM contributes to offending, rather than the reverse. This study was also able to replicate other studies’ findings of a concurrent relationship between PM and offending (Cruise et al., 2008; Modecki, 2008).

This study was the first to examine the relationship between PM and aggression. Aggression scores were predicted by the block of PM factors at both time points. Higher

temperance scores and, surprisingly, lower perspective scores were related to lower aggression scores. This latter finding may be due to the fact that aggression is a multifaceted construct that includes instrumental aggression, which is a more-goal oriented type of aggression and may be related to a stronger future orientation. The possibility that the variance accounted for by PM in aggression was responsible for the relationship between PM and offending was tested by entering the PM factors and aggression into the regression equation for offending. The PM factors became nonsignificant with the addition of aggression, which may have some implications for the need to further disentangle the effects of these variables on offending. Also, consistent with theoretical and empirically-based predictions, the ability to govern one's behaviour, or temperance, was related to the reactive form of aggression. A relationship between interpersonal skills and instrumental aggression was not confirmed. Although aggression was chosen as an outcome in this study, it is likely that inadequate PM leads to a host of negative outcomes other than offending and aggression.

#### *Future Research*

The finding that PM is related to offending in this and other studies (Cruise et al., 2008, Modecki, 2008), as well as the finding from this study that PM predicted aggression, underlines the need for more research into the poorly understood process of psychosocial development. A number of questions remain, such as whether some people continue to be psychosocially immature relative to others throughout their lives. Although a process of maturation suggests that everyone will eventually reach maturity (e.g., as in biological maturity), such a developmental pathway may not adequately characterize psychosocial development. Studies on PM in older adults, in particular adult offenders,

are warranted. Modecki (2008) included a sample of adults in her study and found age differences in adults relative to adolescents and young adults on temperance only. However, these adults were presumably functioning well as they were recruited through and associated with undergraduate researchers (e.g., employers, teachers, etc.). Research on individual differences in PM and, again, longitudinal studies with longer and multiple follow-ups are needed to better understand this construct.

Also, research should also examine processes involved with psychosocial maturation. While there are certainly biological and developmental aspects of PM, it is likely that there are environmental influences on psychosocial development as well that could be bolstered by intervention. Many people have had the experience of meeting a youth who seems mature for his or her age. It may be beneficial to examine what factors are associated with greater PM or faster acquisition of PM, particularly environmental mechanisms. For example, an adolescent who spends a significant amount of time with psychosocially mature adults is likely to develop PM earlier or ultimately become more psychosocially mature than youth who do not have the benefit of frequent interaction with mature adults. It may be difficult, however, to disentangle the effects of experience from developmental changes, as experience and development are nearly always occurring in tandem (Cauffman & Steinberg, 2000a).

Future research with youth offenders is necessary to understand how PM develops in these youth and whether it is any different from community youth samples. It is possible that there are other processes at work or that other risk factors present in offenders impact the relationship between psychosocial maturity and offending. In particular, if research suggests that experience plays a key role in psychosocial

development, it will be important to determine how or whether PM develops while youth are in custody. Opportunities to be exposed to the types of experiences that might foster PM are unlikely to abound in custody. Future research should investigate the possibility of a developmental lag in custody, as it is possible offenders may benefit from alternatives to custody whenever they are available. Offenders who were psychosocially immature before they were incarcerated may find themselves unable to catch up further deficits that have accumulated in custody and get caught in the downward trajectory that characterizes many offenders.

### *Limitations*

One limitation of this study is that a single definition of PM is lacking, such that other variables that contribute to maturity may be missing from the current definition. Just a few possibilities are resistance to peer influence and risk tolerance, but there are many more. It is also possible that the reason for the poor fit of the data to the model is due to problems with the measurement of PM, rather than the factors themselves. This study further emphasizes the need for more research into the construct and measurement of PM, which has major implications for healthy adult outcomes in adolescents but lacks definition. As raised by a colleague, the construct of PM is extremely vague and the body of research on the construct is limited in comparison with research on certain individual factors (e.g., impulsivity). Research on these factors has delineated the biological, behavioural, and trait-oriented developmental changes that occur. However, these factors are often considered in isolation and may benefit from the unified approach that is offered by a model of PM. Clearly, much more research is needed in the area of the construct of PM.

This study included a briefer follow up period than was indicated by studies that suggest that developmental changes in PM factors may take six or more months to be detected (e.g., Steinberg & Monaghan, 2007). Regrettably, due to delays entering the school system, a longer follow-up period was impossible without following youth into the next school year and risking a higher attrition rate. Nonetheless, the PM factors were able to predict offending even over this short time. Also, the study involved a somewhat truncated sample in terms of age groups, ranging only from 14-21 years old. It is likely that greater age differences would be found if the sample had included young adolescents or children and adults. Again, regardless, significant age differences were found in this study.

Still another limitation of the study is that the questionnaires were not developed for or normed on the full age range represented in this study. Several of the measures were developed for use in adolescent populations so they may not have been appropriate for the young adults in the study. Others were developed for college students and had to be modified for use with younger adolescents. Unfortunately, measures that are designed and normed for a range of ages are rarely available. However, the internal consistency of the measures was high in this study and the measures have been used in previous studies (e.g., Cauffman & Steinberg, 2000b).

Also, the attrition rate in this study was equal to approximately one third of participants. Though a lower attrition rate would have been desirable, the youth and young adults who were attrition cases were not significantly different from those who were not. Finally, as noted earlier, only two SES variables were used, which does not provide an especially valid measure of SES.

### *Implications*

Research suggesting a relationship between offending and PM has been used to support the diminished culpability of youth relative to adults. The notion that youth should not be held responsible for their crimes to the same degree as adults has been fundamental to the existence of the youth justice system since the *Juvenile Delinquents Act* (1908). More recent legislation has made explicit the reasons for the differential treatment of youth and adults, specifically that there should be “fair and proportionate accountability that is consistent with the greater dependency of young persons and their reduced level of maturity” (YCJA, Declaration of Principle, 2002). However, changes to legislation allowing youth to be sent to adult court automatically for certain crimes in the United States and sentencing them as adults in the United States and Canada appears to counter progress made at the turn of the last century. The trend towards harsher punishment began in response to public perceptions that violent youth crime was on the rise and that the youth criminal justice system was too lenient and ineffective.

Nearly 10,000 youth were transferred to criminal court in the United States in the year 2004 (Stahl et al., 2007). Almost every state in the US has the option to waive youth for criminal prosecution and in 15 states the waiver is presumptive, meaning that the burden of proof is shifted to the defendant to prove that the case should not be heard in adult court (Griffin, 2003). Several states do not specify a minimum age for transfer, meaning that youth of any age may be prosecuted in adult court. Although youth are no longer transferred to adult court under the *Youth Criminal Justice Act* (YCJA, 2002) in Canada, judges still have the authority to impose adult sentences for serious crimes such as murder and sexual assault or for repeat offenders. Research on PM may have



implications for youths' transfer to adult court.

Research on developmental immaturity has already influenced other legal issues. In the case of *Roper v. Simmons* (2005), a landmark U. S. case in which capital punishment was ruled unconstitutional for youth for crimes committed under the age of 18, studies on developmental immaturity played a key role in the decision. Justice Kennedy highlighted the defendant's immaturity, impulsivity, and his susceptibility to peer influence as mitigating factors. Studies in psychology on developmental maturity were cited in the majority opinion (e.g., Steinberg & Scott, 2003). Justice Kennedy summed up the relevance of maturity to culpability and punishment thusly: "The differences between juvenile and adult offenders are too marked and well understood to risk allowing a youthful person to receive the death penalty despite insufficient culpability" (p. 19).

Whether research on PM can be extended to juvenile transfer laws in a similar fashion warrants caution. Only one of eight criteria laid out in *Kent v. United States* (1966) for waiving juvenile courts' jurisdiction over certain offenses speak to maturity and sophistication; most of the other criteria pertain to the nature of the offenses. Also, it is possible that recognizing PM as a legitimate reason to reduce culpability may create a slippery slope towards using PM as a defence, if there are individual differences in PM. For example, if some 24-year-olds are less mature than some 16-year-olds, is it reasonable that they be held to the same standard of culpability? What if, by assessing PM in adult offenders, it becomes apparent that all offenders are "immature," lacking impulse control and perspective relative to others? Finally, since transfer to adult court is a less severe punishment than the death penalty, it may be difficult to convince

lawmakers that developmental considerations should be given much weight, although research suggests that youth who serve their sentences in adult facilities are at risk for negative outcomes such as higher suicide rates, inadequate services to address their needs, and sexual and physical victimization (Allard & Young, 2002; Amnesty International, 1998; Forst, Fagan, & Vivona, 1989).

Another issue raised by the current study that threatens the applicability of PM research to transfer laws is that, though PM was a significant predictor of offending, it was notable that it only accounted for 9-15% of the variance in offending. For example, prior history of offending along with a number of other variables (e.g., anger, thought disturbance) accounted for 29% of the variance in recidivism in a study of risk assessment tools (Marczyk, Heilbrun, Lander, & De Matteo, 2003). Substance use alone was found to account for 22% of the variance in offending in another study (Kemshall, Marsland, Boeck, & Dunkerton, 2006). It may be difficult to argue that age or maturity should mitigate culpability if developmental factors account for a reasonably negligible amount of youths' offending behaviour. However, a limitation of the methodology used in this and other studies on PM and offending (e.g., Cruise et al., 2008; Modecki, 2008) is that it is only able to measure more dispositional or trait aspects of temperance, perspective, and responsibility. Steinberg and Cauffman (1996) emphasize the situational nature of these factors and that people may show variable PM in different situations. Ideally, researchers would be able to measure such factors in the heat of the moment to determine their contribution to actual behaviour, which may be much higher than youths' overall disposition towards being more impulsive, less future- and other-oriented, and less responsible. However it is likely that people who are less inclined towards PM

generally are likely to display decreased levels of situational PM as well or perhaps even show interaction effects between PM traits and antisocial situations.

In addition to the implications of PM research for the youth justice system, there may also be implications for research on PM for primary prevention programs in schools, as schools are thought to be arenas for psychosocial development (Greenberger & Sorensen, 1974). In particular, a relationship between maturity and offending would underscore the need for psychosocial interventions for offenders. However, it should be noted that the PM factors themselves may not necessarily constitute the best treatment targets. For example, impulse control treatment programs have been found to improve social problem solving, but not reduce delinquency rates (Lochman, 1992). While there could be a number of explanations for this finding, one is that impulsivity may be associated with, but not a cause of delinquent activity. Rather, it is likely that poor impulse control and delinquency are just two negative outcomes of the variety of risk factors that tend to co-occur in justice-involved youth (Thompson & Pope, 2005).

The current study prospectively identified PM as a predictor of offending and aggression to provide the next step in a line of research on psychosocial development. Growing up involves more than just physical maturity but other processes involved in maturation remain poorly understood. Further research on psychosocial maturity is necessary to better understand the consequences of inadequate development and possibly intervene before adolescents enter into a downward spiral of limited opportunity for development and poor outcomes that is difficult to escape.

## REFERENCE LIST

- Adalbjarnardottir, S. (2002). Adolescent psychosocial maturity and alcohol use: Quantitative and qualitative analysis of longitudinal data. *Adolescence, 37*, 19-54.
- Allard, P., & Young, M. C. Prosecuting juveniles in adult court: The practitioner's perspective. *Journal of Forensic Psychology Practice, 2*, 65-77.
- Altschuler, D. M. (2005). Policy and program perspectives on the transition to adulthood for adolescents in the juvenile justice system. In D. W. Osgood, E. M. Foster, C. Flanagan, & G. R. Ruth (Eds.), *On your own without a net: The transition to adulthood for vulnerable populations* (pp. 68-91). Chicago, IL: University of Chicago Press.
- American Psychological Association. (1990). Brief for Amicus Curiae, in support of appellees. *Hodgson v. Minnesota*, 497 U.S. 417.
- Amnesty International. (1998). *Betraying the young: Children in the US justice system*. Retrieved 01/25/09 from <http://www.amnesty.org/en/library/info/AMR51/060/1998>.
- Blustein, D. L., & Phillips, S. D. (1990). Relation between ego identity statuses and decision-making styles. *Journal of Counseling Psychology, 37*, 160-168.
- Brannigan, G. G., & Ash, T. (1977). Social judgment in conceptually impulsive and reflective children. *Psychological Reports, 41*, 466.
- Buhrmester, D. (1990). Intimacy of friendship, interpersonal competence, and adjustment during preadolescence and adolescence. *Child Development, 61*, 1101-1111.
- Bullis, M., Yovanoff, P., Mueller, G., & Havel, E. (2002) Life on the 'outs' – Examination of the facility-to-community transition of incarcerated youth. *Exceptional*

*Children, 69, 7-22.*

- Cauffman, E., & Steinberg, L. (2000a). Researching adolescents' judgment and culpability. In T. Grisso & R. Schwartz (Eds.), *Youth on trial: A developmental perspective on juvenile justice* (pp.325-343). Chicago, IL: The University of Chicago Press.
- Cauffman, E., & Steinberg, L. (2000b). (Im)maturity of judgment in adolescence: Why adolescents may be less culpable than adults. *Behavioral Sciences & the Law, 18*, 741-760.
- Chung, H. L., Little, M., & Steinberg, L. (2005). The transition to adulthood for adolescents in the juvenile justice system: A developmental perspective. In D. W. Osgood, E. M. Foster, C. Flanagan, & G. R. Ruth (Eds.), *On your own without a net: The transition to adulthood for vulnerable populations* (pp. 68-91). Chicago, IL: University of Chicago Press.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2<sup>nd</sup> ed.). Hillsdale, NJ: Erlbaum.
- Cruise, K. R., Fernandez, K., McCoy, W. K., Guy, L. S., Colwell, L. H., & Douglas, T. (2008). The influence of psychosocial maturity on adolescent offenders' delinquent behavior. *Youth Violence and Juvenile Justice, 6*, 178-194.
- Cruise, K. L., Hall, H. L., Amenta, A. E., & Douglas, T. (2002). Psychosocial maturity study I: A preliminary report of the association with self-report of delinquent behavior. Poster presented at the biennial conference of the American Psychology-Law Society Conference, Austin, TX.
- Darden, C. A., Ginter, E. J., & Gazda, G. M. (1996). Life-Skills Development Scale –

- Adolescent Form: The theoretical and therapeutic relevance of life-skills. *Journal of Mental Health Counselling, 18*, 142-163.
- Farr, C., Brown, J., & Beckett, R. (2004). Ability to empathize and masculinity levels: Comparing male adolescent sex offenders with a normative sample of non-offending adolescents. *Psychology, Crime & Law, 10*, 155-167.
- Farrell, A. D. & Sullivan, T. N. (2000). Structure of the Weinberger Adjustment Inventory Self-Restraint Scale and its relation to problem behaviors in adolescence. *Psychological Assessment, 12*, 394-401.
- Fontaine, R. G. (2008). On-line social decision making and antisocial behaviour: Some essential but neglected issues. *Clinical Psychology Review, 28*, 17-35.
- Forst, M., Fagan, J., & Vivona, T. S. (1989). Youth in prisons and training schools: Perceptions and consequences of the treatment-custody dichotomy. *Juvenile and Family Court Journal, 40*, 1-14.
- Fried, C. S., & Reppucci, N. D. (2001). Criminal decision making: The development of adolescent judgment, criminal responsibility, and culpability. *Law and Human Behavior, 25*, 45-61.
- Greenberger, E., & Bond, L. (1984). *User's manual for the Psychosocial Maturity Inventory*.
- Greenberger, E. & Sorensen, A. B. (1974). Toward a concept of psychosocial maturity. *Journal of Youth and Adolescence, 3*, 329-358.
- Griffin, P. (2003). Trying and sentencing youth as adults: An analysis of state transfer and blended sentencing laws. *Technical assistance to the juvenile court special project bulletin*. Retrieved 01/29/2009 from the National Institute of Corrections:

<http://www.nicic.org/Library/019650>.

Grisso, T. (2000). What we know about youths' capacities as trial defendants. In T. Grisso & R. Schwartz (Eds.), *Youth on trial: A developmental perspective on juvenile justice* (pp.139-171). Chicago, IL: The University of Chicago Press.

Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparametrized model specification. *Psychological Methods*, 3, 424-453.

Huizinga, D., Esbensen, F. A., & Weiher, A. W. (1991). Are there multiple paths to delinquency? *Journal of Criminal Law & Criminology*, 82, 83-118.

Juvenile Delinquents Act. (1908). Retrieved 09/30/2008 from <http://www.lawyers.ca/ycja/jda.htm>.

Kemshall, H., Marsland, L., Boeck, T., & Dunkerton, L. (2006). Young people, pathways, and crime: Beyond risk factors. *The Australian and New Zealand Journal of Criminology*, 39, 354-370.

Kent v. United States, 383 U.S. 541 (1966).

Laub, J., & Sampson, R. (2001). Understanding desistance from crime. In M. Tonry (Ed.), *Crime and justice: A review of research*, Vol. 28, (pp 1-69). Chicago, IL: University of Chicago Press.

Leadbeater, B. J., Hellner, I., & Allen, J. P. (1989). Assessment of interpersonal negotiation strategies in youth engaged in problem behaviors. *Developmental Psychology*, 25, 465-472.

Little, M., & Steinberg, L. (2006). Psychosocial correlates of adolescent drug dealing in the inner city: Potential roles of opportunity, conventional commitments, and maturity. *Journal of Research in Crime and Delinquency*, 43, 357-386.

- Little, T. D., Heinrich, C. C., Jones, S. M., & Hawley, P. H. (2003). Disentangling the “whys” from the “whats” of aggressive behaviour. *The International Journal of Behavioral Development, 27*, 122-133.
- Loewenstein, G. F., Weber, E. U., Hsee, C. K., & Welch, N. (2001). Risk as feelings. *Psychological Bulletin, 127*, 267-286.
- Lochman, J. E. (1992). Cognitive-behavioral intervention with aggressive boys: Three-year follow-up and preventive effects. *Journal of Consulting and Clinical Psychology, 60*, 426-432.
- Lucia, S., Herrmann, L., & Killias, M. (2007). How important are interview methods and questionnaire designs in research on self-reported juvenile delinquency? An experimental comparison of Internet vs paper-and-pencil questionnaires and different definitions of the reference period. *Journal of Experimental Criminology, 3*, 39-64.
- Marcia, J. E. (2002). Adolescence, identity, and the Bernardone family. *Identity: An International Journal of Theory and Research, 2*, 199-209.
- Modecki, K. L. (2008). Addressing gaps in the maturity of judgment literature. Age differences and delinquency. *Law and Human Behavior, 32*, 78-91.
- Marczyk, G. R., Heilbrun, K., Lander, T., & DeMatteo, D. (2003). Predicting juvenile recidivism with the PCL:YV, MAYSI, and YLS/CMI. *International Journal of Forensic Mental Health, 2*, 7-18.
- Mulvey, E. P., & Peebles, F. L. (1996). Are disturbed and normal adolescents equally competent to make decisions about mental health treatments? *Law and Human Behavior, 20*, 273-287.



- Muthén, L. K., & Muthén, B. O. (2001). *Mplus user's guide* (2nd ed.) [Computer software and manual]. Los Angeles, CA: Muthén & Muthén.
- Newsom, J. T. (2008). *Some clarifications and recommendations on fit indices*. Retrieved 12/16/2008 from [www.upa.pdx.edu/IOA/newsom/semclass/ho\\_fit.doc](http://www.upa.pdx.edu/IOA/newsom/semclass/ho_fit.doc).
- Oser, C. B. (2006). The criminal offending-self-esteem nexus: Which version of the self-esteem theory is supported? *The Prison Journal*, *86*, 344-363.
- Robbins, R. N., & Bryan, A. (2004). Relationships between future orientation, impulsive sensation seeking, and risk behavior among adjudicated adolescents. *Journal of Adolescent Research*, *19*, 428-445.
- Robins, R. W., & Trzesniewski, K. H. (2005). Self-esteem development across the lifespan. *Current Directions in Psychological Science*, *14*, 158-162.
- Roper v. Simmons, 543 U.S. 551 (2005).
- Scott, E. S., Reppucci, N. D., & Woolard, J.L. (1995). Evaluating adolescent decision making in legal contexts. *Law and Human Behavior*, *19*, 221-244.
- Stahl, A. L., Puzzanchera, C., Livsey, S., Sladky, A., Finnegan, T. A., Tierney, N., & Snyder, H. N. (2007). *Juvenile court statistics 2003-2004*. Retrieved 03/13/2009 from The Office of Juvenile Justice and Delinquency Prevention: <http://ojjdp.ncjrs.org/publications/PubResults.asp>.
- Stanford, M. S., Greve, K. W., & Dickens Jr, T. J. (1995). Irritability and impulsiveness: Relationship to self-reported impulsive aggression. *Personality and Individual Differences*, *5*, 757-760.
- Steinberg, L. (2004). Risk taking in adolescence: What changes and why? *Annals of the New York Academy of Sciences*, *1021*, 51-58.

- Steinberg, L., & Cauffman, E. (1996). Maturity of judgment in adolescence: Psychosocial factors in adolescent decision making. *Law and Human Behavior, 20*, 249-272.
- Steinberg, L., Chung, H. L., & Little, M. (2004). Reentry of young offenders from the justice system: A developmental perspective. *Youth Violence and Juvenile Justice, 2*, 21-38.
- Steinberg, L., & Monahan, K. C. (2007). Age differences in resistance to peer influence. *Developmental Psychology, 43*, 1531-1543.
- Steinberg, L., & Scott, E. S. (2003). Less guilty by reason of adolescence: Development immaturity, diminished responsibility, and the juvenile death penalty. *American Psychologist, 58*, 1009-1018.
- Strathman, A., Gleicher, F., Boniger, D. S., & Edwards, C. S. (1994). The consideration of future consequences: Weighing immediate and distant outcomes of behavior. *Journal of Personality and Social Psychology, 66*, 742-752.
- Thompson, A. P., & Pope, Z. (2005). Assessing juvenile offenders: Preliminary data for the Australian Adaptation of the Youth Level of Service/Case Management Inventory (Hoge & Andrews, 1995). *Australian Psychologist, 40*, 207-215.
- Thornberry, T. P., & Krohn, M. D. (2000). The self-report method of measuring delinquency and crime. In U.S. National Institute of Justice, *Measurement and Analysis of Crime and Justice: Criminal Justice Series, Vol. 4* (pp 33-83). Washington, DC: National Institute of Justice.
- Trulson, C. R., Marquart, J. W., Mullings, J. L., & Caeti, T. J. (2005). In between adolescence and adulthood: Recidivism outcomes of a cohort of state delinquents.

*Youth Violence and Juvenile Justice*, 3, 355-387.

Weinberger, D. A., & Schwartz, G. E. (1990). Distress and restraint as superordinate dimensions of self-reported adjustment: A typological perspective. *Journal of Personality*, 58, 381-417.

Witte, K., & Donohue, W. A. (2000). Preventing vehicle crashes with trains at grade crossings: The risk seeker challenge. *Accident Analysis and Prevention*, 32, 127-139.

Youth Criminal Justice Act. (2002). Retrieved 12/05/07, from the Government of Canada, Department of Justice: [laws.justice.gc.ca/en/Y-1.5/index.html](http://laws.justice.gc.ca/en/Y-1.5/index.html).

**APPENDIX: TABLES**

Table 1

*Demographic and Offense Characteristics of the Study Sample*

Age Group	14-15	16-17	18-19	20-21
<i>n</i> T1	53	62	112	47
<i>n</i> T2	36	45	74	25
Mean age (SD)	15.02 (.52)	17.22 (.56)	18.63 (.50)	20.98 (.59)
Sex				
Female	50.9%	62.9%	56.3%	57.4%
Male	49.1%	37.1%	43.8%	42.6%
Ethnicity				
Asian	69.8%	46.8%	50.9%	40.4%
White	13.2%	21.0%	31.3%	38.3%
IndoCan	03.8%	06.5%	08.0%	08.5%
Other	11.3%	24.2%	09.8%	19.1%
Highest Parent Ed.				
>High school	00.0%	00.0%	04.5%	02.1%
High school	28.3%	12.9%	20.9%	14.9%
College	15.1%	33.9%	17.0%	25.5%
University	39.7%	37.1%	41.1%	36.2%
Graduate school	00.0%	08.1%	15.2%	21.3%
Mean Offenses (SD)	2.08(3.52)	5.47(6.39)	1.85(2.77)	2.04(2.57)

Table 2

*Mean and Standard Deviations of the Measures*

	Time 1			Time 2		
	N	Mean	SD	N	Mean	SD
Temperance	276	3.48	.60	181	3.38	.60
Perspective	275	3.54	.43	183	3.47	.46
Responsibility	270	3.71	.52	181	3.72	.52
Psychosocial Maturity	270	3.58	.40	180	3.52	.40
Interpersonal Skills	271	3.82	.48	183	3.84	.50
Aggression				180	1.71	.51

\*measures were rescaled on a 5-point scale. Psychosocial maturity was calculated based on Steinberg and Cauffman's (1996) model of temperance, perspective, and responsibility.

Table 3

*Mean and Standard Deviations of the Measures Stratified According to Age Groups (T1)*

	14-15	16-17	18-19	20-21
	Mean	Mean	Mean	Mean
	(SD)	(SD)	(SD)	(SD)
T	3.48 (0.60)	3.33 (0.58)	3.56 (0.63)	3.48 (0.50)
P	3.48 (0.37)	3.36 (0.45)	3.61 (0.41)	3.68 (0.41)
R	3.61 (0.48)	3.62 (0.52)	3.75 (0.52)	3.86 (0.56)
PM	3.53 (0.34)	3.44 (0.40)	3.64 (0.39)	3.67 (0.43)
I	3.82 (0.46)	3.78 (0.51)	3.81 (0.50)	3.88 (0.42)

T = Temperance, P = Perspective, R = Responsibility, PM = Psychosocial Maturity, I = Interpersonal Skills

\*measures were rescaled on a 5-point scale. Psychosocial maturity was calculated based on Steinberg and Cauffman's (1996) model of temperance, perspective, and responsibility.

Table 4

*Intercorrelations between Psychosocial Maturity Factors*

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	Temperance	Perspective	Responsibility	Int.Sk.
Temperance	---			
Perspective	.46**	---		
Responsibility	.29**	.44**	---	
Interp. Skills <sup>+</sup>	.12*	.58**	.28**	---

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\*\*significant at the 0.01 level

\*significant at the 0.05 level

<sup>+</sup> Interpersonal skills was not included in the final 3-factor model of Psychosocial Maturity

Table 5

*Hierarchical Regression Analysis of Demographic and PM Factors on Offending*

Variable	$\beta$	$t$	$p$
Block 1			
Age Group	-0.17	-2.15	0.033
Gender	-0.13	-1.61	<i>ns</i>
Ethnicity	0.19	2.35	0.020
Mother Highest Ed.	0.05	0.53	<i>ns</i>
Father Highest Ed.	0.03	0.31	<i>ns</i>
Block 2			
Age Group	-0.14	-1.84	<i>ns</i>
Gender	-0.14	-1.80	<i>ns</i>
Ethnicity	0.20	2.53	0.013
Mother Highest Ed.	0.04	0.36	<i>ns</i>
Father Highest Ed.	0.01	0.12	<i>ns</i>
Temperance	-0.26	-2.86	0.005
Perspective	-0.08	-0.86	<i>ns</i>
Responsibility	-0.03	-0.32	<i>ns</i>



Table 6

*Block of Psychosocial Maturity Factors as a Predictor of Types of Aggression*

Factor	<i>F</i>	<i>p</i>	<i>R</i> <sup>2</sup>
Reactive	28.88	< 0.001	33%
Instrumental	12.08	< 0.001	17%
Overt	41.52	< 0.001	42%
Relational	13.61	< 0.001	19%