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Goal Setting and Self-Efficacy Among Delinquent, At-risk and Not At-risk Adolescents

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Abstract

Setting clear achievable goals that enhance self-efficacy and reputational status directs the energies of adolescents into socially conforming or non-conforming activities. This present study investigates the characteristics and relationships between goal setting and self-efficacy among a matched sample of 88 delinquent (18% female), 97 at-risk (20% female), and 95 not at-risk adolescents (20% female). Four hypotheses related to this were tested. Findings revealed that delinquent adolescents reported fewest goals, set fewer challenging goals, had a lower commitment to their goals, and reported lower levels of academic and self-regulatory efficacy than those in the at-risk and not at-risk groups. Discriminant function analysis indicated that adolescents who reported high delinquency goals and low educational and interpersonal goals were likely to belong to the delinquent group, while adolescents who reported high educational and interpersonal goals and low delinquency goals were likely to belong to the not at-risk group. The at-risk and not at-risk groups could not be differentiated. A multinomial logistic regression also revealed that adolescents were more likely to belong to the delinquent group if they reported lower self-regulatory efficacy and lower goal commitment. These findings have important implications for the development of prevention and intervention programs, particularly for those on a trajectory to delinquency. Specifically, programs should focus on assisting adolescents to develop clear self-set achievable goals and support them through the process of attaining them, particularly if the trajectory towards delinquency is to be addressed.

Keywords: adolescents; goal setting; self-efficacy; delinquency

Running Head: Adolescent Goal Setting and Self-Efficacy

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Juvenile offending is one of the most serious contemporary societal problems, with data clearly demonstrating its significant negative impact on educational, health, financial, vocational, and judicial systems (Deutsch, Crockett, Wolff, & Russell, 2012; Kofler-Westergren, Klopff, & Mitterauer, 2010). In the USA, for example, 16% of violent crimes (murder, forcible rape, robbery, and assault) and 26% of property crimes (burglary, motor vehicle theft) respectively are committed by juveniles (Puzzanchera, 2009). In the UK, 12% of assaults, 10% of thefts, 3% of drug trafficking, 2% of vehicle-related thefts, and 1% of burglary/robbery are committed by 10 to 25 year olds (Roe & Ashe, 2008). In Australia, where the current research was conducted, property damage (25.5%), burglary and theft (21.8%), offences against the person (10.9%), offences against good order (9.2% e.g., breaches of orders, resisting arrest), driving and motor vehicle offences (6.5%), and drug offences (4.9%) are the most frequent of delinquent activities (Fernandez, Walsh, Maller, & Wrapson, 2009). That these juvenile offending rates in Australia are generally twice that of adult offenders (Australian Institute of Criminology, 2010) not only signifies the magnitude of the problem, but also highlights that if rates of juvenile offending are to be reduced then there is a need to understand more clearly the motivations of those young people who are involved.

From age 10 to 17 years, juvenile offenders are dealt with by the juvenile justice system (Taylor, 2006) and data show that detention rates in Australia for delinquent adolescents within this age range are 651 per 100,000 (Taylor, 2007). These data also show that Australian males are much more likely to commit crimes than females (see Houghton, Tan, Khan, & Carroll, in press) and that the frequency of crimes increases with age through to late adolescence and then decline thereafter (Australian Institute of Criminology, 2006; Australian Institute of Health and Welfare, 2006; Taylor, 2006). Findings from longitudinal research comparing delinquent institutionalised and non institutionalised youths (Lanctot, Cernkovich, & Giordano, 2007) demonstrate significantly higher rates of negative outcomes for those who are institutionalised, thus, it is important to understand the

goal directed behavior of young people during their formative schooling years as many choose to pursue delinquent behaviors at this time. To achieve this, the present research investigated specific aspects of goal setting (e.g., goal specificity, commitment, and challenges as postulated by goal setting theory; Latham & Locke, 2006), and self-efficacy among high school aged adolescents.

Although many theories of delinquency point to factors associated with an increased likelihood of involvement in offending (e.g., lower socioeconomic status, stressful family, ethnic minority status), few actually address which features of young people's lives motivates such activities, particularly in relationship to goal directed behavior. For example, *Strain Theory* (Agnew, 2006), *Social Control Theory* (Gottfredson & Hirschi, 1990), *Routine Activities Theory* (Cohen & Felson, 1979), *Rational Choice Theory* (Cornish, 1993), and *Social Learning Theory* (Bandura, 1986) all make important contributions to understanding delinquent actions. However, none adequately explain why young people are actually motivated within themselves to offend.

Reputation Enhancement Theory (Emler, 1984; Emler & Reicher, 1995) goes further in explaining the delinquent motivations of young people by positing that delinquency is motivated by social goals and purposeful reputation enhancing strategies. That is, individuals choose a particular self-image they wish to promote before an audience of their peers and this audience then provides feedback so that the individual develops and maintains this social identity within a community. Carroll, Hattie, Durkin, and Houghton (2001) argued, however, that reputation enhancement theory alone is not sufficient to explain the motivations that underpin the behaviors in which adolescents indulge in order to attain their reputation of choice. Rather, there is a purpose to the seeking of reputations, a form of goal directedness and striving that accounts for the mission and a deliberateness that many adolescents display that leads them to act, in some cases with vigour. To account for these motivational and social determinants of delinquent behavior, Carroll et al. (2001) integrated elements of reputation enhancement theory and goal setting theory (Locke & Latham, 1984, 1990a, 1990b, 2006), the latter being based on the proposition that conscious goals regulate human behavior.

In *Reputation Enhancing Goals Theory* (see Carroll, Houghton, Durkin, & Hattie, 2009 for a comprehensive review), it is argued that, to build and maintain a reputation, adolescents select and accomplish very specific and challenging goals. According to Carroll et al. (2009), for most adolescents, goals are congruent with those of school, but for others who are delinquent, these types of goals are rejected or devalued. There are also other adolescents, who are in an intermediate transitional state and are “at risk” of delinquent status. For these “at risk” individuals, the setting of and commitment to alternative goals (i.e., delinquency goals – cheat and steal, get money for drugs, rip others off) is becoming more attractive. Moreover, although delinquent, at-risk, and not at-risk adolescents have been found to place the same level of importance on self-presentation, reputation, and career goals (Carroll, Durkin, Hattie, & Houghton, 1997; Carroll, Houghton, Hattie, & Durkin, 1999; Carroll et al., 2009), there are some important differences in other aspects. For example, at-risk and delinquent adolescents place significantly higher importance on freedom/autonomy goals than not at-risk adolescents and as would be anticipated, delinquency goals are significantly more important to delinquents than not at-risk adolescents. Not at-risk adolescents rate interpersonal and educational goals as significantly more important than at-risk and delinquent adolescents, while at-risk adolescents attribute significantly greater importance for educational goals than the delinquent group. Finally, at-risk adolescents place significantly lower importance on physical goals (i.e., sporting achievement) compared to delinquents and not at-risk adolescents (see Carroll et al., 2009).

Clearly, adolescence is a critical stage in the formation of goals. Broadly speaking, adolescent goals are organized around matters of social and personal identity (Berndt, 1979; Durkin, 1995), education (Nurmi, 1987; Wentzel, 1994), career (Langan-Fox, 1991; Nicholls, 1989), sport and leisure (Agnew & Petersen, 1989; Morash, 1983; Sugden & Yiannakis, 1982), and material development (Steinberg & Silverberg, 1986). Furthermore, adolescents rarely pursue only one goal, instead having multiple goals that require a dynamic balance between resources, opposing demands, as well as energy, time, and attention (Louro, Pieters, & Zeelenberg, 2007). From a review of 94 studies, Massey, Gebhardt, and Garnefski (2008) reported that many adolescents formed multiple long-term and short-term goals. According to Wentzel (1999), managing the

competition demands of these multiple goals involves effective goal coordination and retaining focused concentration and attention without becoming distracted or overwhelmed by the task required. Specifically, this skill employs self-regulatory strategies that enable the attainment of multiple goals (Wentzel, 1999). Moreover, characteristic of effective goal setting is specificity, commitment, challenge, and motivation to achieve the outcome (Austin & Vancouver, 1996).

Goal setting theory describes the relationship between goals and behavior with the focus being on a person's choice of goals, their motivation to achieve the goals, and the likelihood that the goals are achieved (Latham & Locke, 2006). There are two major components to this: the content of the goal that is related to its specificity and difficulty; and the intensity of the goal which is related to the effort required, the importance or priority it is given, and a person's commitment to the goal (Locke & Latham, 1990a). The higher the specificity of the goal, the more likely the goal will be achieved, and the higher the commitment to achieve the goal, the more likely it will be achieved. Locke and Latham (2006) proposed that as long as a person is committed to their goal, has the ability to achieve their goal, and has no opposing goals, then there is a positive linear relationship between goal difficulty and performance (Locke & Latham, 2006).

According to Pintrich (2000), adolescents with high mastery and high performance goals (multiple goals) maintain significantly higher levels of self-efficacy compared to those with low mastery and low performance goals. The important relationship between self-efficacy and actual performance and self-efficacy and goal setting behavior has been acknowledged by a number of researchers (see Bandura & Locke, 2003; Bassi, Steca, Delle Fave, & Caprara, 2007; Gonida & Leondari, 2011; Locke & Latham, 1990b; Pomaki, Karoly, & Maes, 2009; Scott, Dearing, Reynolds, Lindsay, Baird, & Hamill, 2008). Nine meta-analyses across a wide variety of fields consistently have demonstrated the significant influence of self-efficacy on motivation and performance (Bandura & Locke, 2003). Pomaki et al. (2009) found that self-efficacy played a moderating role between goal progress and well-being; that is, goal progress with increased self-efficacy and goal attainability led to more positive well-being. Although self-efficacy and goal characteristics have been shown to relate to important affective, motivational, and behavioral

outcomes, few studies have examined these cognitive processes concurrently in the context of delinquency among adolescents.

In summary, while it is known that similarities and differences exist between the relative importance of different goals to delinquent, at-risk, and not-at-risk adolescents, what remains to be explored is *why* and *how* these differences exist. This present study extends earlier research by the current authors by investigating the characteristics of goal setting (namely the type, number, specificity and challenge of goals and the level of commitment towards these goals). Furthermore, it examines levels of self-efficacy among these groups and determines any relationships that might exist between goal setting and self-efficacy.

Hypotheses

To investigate the characteristics of goal setting and levels of self-efficacy among delinquent, at-risk and not at-risk adolescents, four hypotheses are tested. First, group membership (i.e., delinquent, at-risk, and not at-risk) will be predicted by the types of goals set, that is, goals will influence the status that individuals seek to obtain (Hypothesis 1). Second, the three risk level groups (delinquent, at-risk, and not at-risk) will differ in number of goals and the specificity, challenge, and commitment to those goals because these all serve as a clear focus for behavior and the building of identities (Hypothesis 2). Third, the three risk level groups (delinquent, at-risk, and not at-risk) will differ in their academic, self-regulatory, sporting, and social self-efficacy, because one's efficacy in different domains shapes goals and contributes to delinquent and nondelinquent behavior (Hypothesis 3). Finally, risk group membership will be predicted by self-efficacy and the number, specificity, challenge, and commitment to goals, because self-efficacy has both a direct and indirect relationship with achievement and individuals may set alternative goals and challenges for the purposes of achieving a particular group status (Hypothesis 4). Testing these four hypotheses will provide evidence of the the predictive value of goal setting and self-efficacy for risk group (i.e., delinquent, at-risk, and not at-risk) membership.

Method

Participants and Settings

A database sample from a larger study comprising 1,460 individuals (1,328 high school

students and 132 institutionalised youths: 722 males, 738 females) ranging in age from 12.7 to 17 years, attending 10 state high schools and three Australian detention centres in two capital cities of Australia was accessed. From the detention centres, 100 delinquent adolescents were randomly selected and then matched on age (within five months) and gender with 100 at-risk and 100 not at-risk adolescents from the high schools. Because participants in detention centres come from a wide range of geographical locations, the postcode data were not available for them. Therefore, matching the three groups (i.e., delinquent, at-risk, not at-risk) by SES status could not be achieved. Each of the three groups comprised 80 male and 20 females and their mean ages were: delinquent adolescents = 15.62 years ($SD = 1.27$), at-risk adolescents = 15.58 ($SD = 1.22$), and not at-risk adolescents = 15.61 ($SD = 1.26$). Overall, the sample ranged from 12.7 years to 18.1 years ($M = 15.6$ years, $SD = 1.24$).

High school participants were designated as not at-risk or as at-risk based on the Western Australian Legislative Assembly (WALA; 1992) checklist indicators. (Both the at-risk and not at-risk samples came from the original large database.) The WALA is a parliamentary committee established by the Western Australian Select Committee on Youth Affairs to develop a set of accurate indicators to determine the risk status of high school students. These indicators are based on testimony, anecdotal records, and research data from expert witnesses including academic researchers, members of the justice system, educators, and youth workers. The WALA checklist indicators are used extensively as a mechanism for determining risk status (see Carroll et al., 1997; 2009 for a review). The checklist comprises 12 behavioral indicators (e.g., disrupts teaching and learning in the classroom; truants from school; impulsive) and 12 situational indicators (e.g., suspended from school; suspected of stealing, messing up other's property, damaging things; suspected abuse) and is completed by the students' classroom teachers and/or school psychologists. If an individual has at least three of each of the behavioral and situational indicators, they are designated as at-risk. In the present research the mean scores for those assigned to the at-risk group was 9.75 while the mean score for the not at at-risk group was 2.85. (All not at-risk students within the large database had a score of 2 or less.)

Of the larger study, the high school adolescents comprised a representative sample of Australian high school students from schools in the low to high socio-economic status regions as determined by an index defined at the postcode level from the Australian Bureau of Statistics (2003). With the population of Queensland being the third largest and Western Australia the fifth largest in Australia, the capital cities of these two states provide a representation of the social and contextual milieus of Australian cities.

Of the three detention centres involved, one was located in the metropolitan region of the capital city of Perth and two were located in the metropolitan region of the capital city of Brisbane. The Children's Courts admit individuals to these detention centre facilities following conviction for delinquent activities. Typically, individuals detained in these facilities are aged 12 to 17 years and have committed crimes such as assault, break and enter, motor vehicle crimes, through to offences of a sexual nature and murder.

All of the instrumentation was administered to the at-risk and not at-risk participants in their regular schools by a researcher under examination like conditions. In some instances in the schools and detention centres, the instruments were administered to smaller groups of four or six to cater for literacy difficulties. The three group statuses were differentiated using the same criteria as in previous extensive research conducted in primary and high schools and detention centres (see Carroll, Baglioni, Houghton, & Bramston, 1999; Carroll, Green, Houghton, & Wood, 2003; Carroll, Hattie, Durkin, & Houghton, 2001; Carroll et al., 2009; Carroll et al., 1999). In the case of risk status, a score of less than two has been used in previous research to designate individuals as not at risk.

Instrumentation

Goal Types Scale

The types of goals set by adolescents were measured using *The Goal Types Scale* (Carroll, 1995). This asks participants to list up to eight life goals and then to rank them in order of importance. Previous research has identified a variety of goals that are important to many young people (Nurmi, 1989, 1991), with some being more prominent than others. Depending on the risk or

delinquent status of the young person, goals can be educational or career, interpersonal or reputational, and connected to legal or illegal activities (see Carroll et al., 2009 for a review). The Goal Type Scale provides participants with the opportunity to think about a range of goals they may have rather than restricting them to a limited number (e.g., one or two). These goals are subsequently categorised by researchers as educational, career, interpersonal, sporting/health, family-related, freedom/autonomy, delinquency, or reputational. In addition, the scale provides data on the number of goals set (ranging from 0 to 8) and whether goals are specific (i.e., precise, meaningful goal that specifies in detail the main aim, objective or action), targeted (i.e., goal that provides a definite statement of intent but details of the aim, objective or action are lacking), directed (i.e., goal is less precise but guided toward a particular area of interest) or general (i.e., goal that provides a broad category yet there is no specific commitment) (see Carroll et al., 2009). The classification of goal types and specificity were checked by a second rater who categorised 10 percent of the goals according to the criteria described above. There was a 96% inter-rater reliability agreement for goal type and 98% agreement for specificity.

In the present study, the main goal was the focus of the data analyses because participants set a varying number of goals (range = 1 – 8). This main goal was rated on a 10-point scale by seven educational psychologists and/or educational researchers according to how challenging they believed the goal to be (1 = least challenging, 10 = most challenging). Overall, there was 89% agreement across the seven educational psychologists/researchers on their ratings. For the purposes of data analysis, an average was calculated from these data to create an overall average challenge score.

Goal Commitment

Goal Commitment was measured via a nine-item self-report scale adapted from Hollenbeck, Williams, and Klein (1989). For each of the nine item statements, participants are asked to respond on a four-point pictorial/word Likert scale ranging from strongly disagree to strongly agree to how committed they feel about their most important (main) goal with five of the nine items requiring reverse scoring. Examples of items include: “I really want to get this goal”; “I don’t care if I get this

goal”; “I am willing to put a lot of effort beyond what I’d normally do to get this goal”. Responses subsequently are averaged over the nine questions to create a mean commitment score for the participants’ primary goal. The measure was found to have satisfactory reliability, $\alpha = .74$ in the present study.

Children’s Self-Efficacy

Self-efficacy was measured using *The Children’s Self-Efficacy Scale* (Bandura, 1990; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996), which comprises 37 items measuring three efficacy domains: academic (i.e., children’s perceived capability to judge their own learning, master academic subjects, and fulfil personal, parental, and teacher’s academic expectations); self-regulatory (i.e., children’s perceived capability to resist peer pressure and to engage in high risk activities); and social self-efficacy (i.e., children’s capability for peer relationships, self-assertiveness, and leisure time activities). For each item, participants rate their belief in their level of capability to execute the designated activities using a six-point response scale ranging from 1 = Not at all, to 6 = Extremely well.

An exploratory Principal Components Analysis (PCA) with oblimin rotation revealed that 11 of the 37 self-efficacy items had low factor loadings. The remaining 26 self-efficacy items, identified four factors which collectively represented 57.70% of the variance (academic self-efficacy, 12 items, $\alpha = .91$; sport self-efficacy, 2 items, $\alpha = .92$; self-regulatory efficacy, 5 items, $\alpha = .82$; and social self-efficacy, 7 items, $\alpha = .83$). From this, four variables were created using the mean scores for each factor.

Procedure

Ethics approval for the study was obtained from the Human Research Ethics Committees of the administering institutions. Ten state schools in Brisbane (Queensland) and Perth (Western Australia) then were selected randomly from a list of schools to attain a representative sample of Australian high school students. The principals of all schools were contacted by the researchers to ascertain if they were interested in being involved in the research. All principals agreed to participate and so an information sheet explaining the purpose and nature of the research along with

a consent form and assurance of confidentiality was sent to them, with the request that they send copies home to the parents of all students in each of a number of randomly selected classes. Overall, there was a 72% positive response rate from parents for their son/daughter to participate in the study. Immediately prior to the administration of the protocol, all participants were assured verbally by one of the researchers of the confidentiality and anonymity of their responses. A similar procedure was followed in the detention centres once informed consent had been obtained from the Heads of the Centres, their ethics boards, the participants, and where possible, their parents/guardians.

Results

Of the original 300 participants, 20 were dropped from the analysis due to missing data. The remaining 280 cases comprised 95 not at-risk, 97 at-risk, and 88 delinquent adolescents.

Hypothesis 1: Group membership will be predicted by the types of goals set

Descriptive statistics for the *type of goals* articulated by participants as their main goal in each of the three risk level groups are provided in Table 1. For the delinquent group the highest goal types were interpersonal goals (30%) (e.g., “Get a woman and have kids”) and career goals (23%) (e.g., “To have a job”); the lowest goal types were freedom/autonomy goals (1%) and educational goals (4%). For the at-risk group, career goals (31%) (e.g., “To get a good job”) were the highest goal type cited and delinquency goals (0) (e.g., “To rip others off”; “To cheat and steal”) the lowest. For the not at-risk group, career goals (38%) (e.g., “To become a nurse”) and educational goals (29%) (e.g., “To get good marks at school and university”) were the highest cited and delinquency goals (0%) and freedom/autonomy goals (1%) the lowest. In summary, all groups identified career goals as a high priority, and both the at-risk and not at-risk groups did not identify delinquency goals.

Insert Table One here

A Pearson’s correlation demonstrated low to moderate correlations between most goal types. The highest positive associations occurred between academic and interpersonal ($r = .70$),

reputation and sporting ($r = .54$) and reputation and delinquency ($r = .46$). A negative association occurred between delinquency and interpersonal ($r = -.17$) measures.

To examine whether group membership can be predicted by the types of goals set by each of these three adolescent groups, discriminant function analyses were performed. Two discriminant functions of the predictor variables significantly discriminated the groups ($\chi^2(16) = 98.74, p < .001$). Function one accounted for 96% of the explained variability, and therefore is the most important function in predicting group allocation. The structure matrix suggests that the best predictors for distinguishing between the groups are educational goals, delinquency goals, and interpersonal goals. The function scores at group centroids show that adolescents who have high delinquency goals and low educational and interpersonal goals are likely to belong to the delinquent group (score = -0.834). Adolescents who have high educational and interpersonal goals and low delinquency goals are likely to belong to the not at-risk group (score = 0.743). This illustrates the differences between the three adolescent groups. As expected, delinquent and not at-risk adolescents are differentiated the most, with at-risk adolescents not distinguishable by this function. As the at-risk group was collected from a general school based sample, it is not surprising that this group is more similar to the not at-risk group. Hypothesis 1 is therefore supported.

Hypothesis 2: The three risk level groups will differ in their goal setting

The mean number of goals set by participants, their level of commitment to, and the challenge presented by their main goal, and the group means are presented in Table 2. As can be seen, the not at-risk group had the highest mean score for the number of goals, commitment to goals, and challenge presented by goals, followed by the at-risk and delinquent groups, respectively. Commitment to goals was significantly higher for the not at-risk group compared to both the at-risk and delinquent groups, the number of goals was significantly lower for the delinquent group compared to the not at-risk group, and the challenge of goals was significantly lower for the delinquent group compared to both the at-risk and not at-risk groups.

Insert Table Two here

A Chi-squared test for independence was conducted to examine whether the three adolescent groups differed in the specificity of goals (specific, targeted, directed and general) they set. The Chi-squared test revealed a significant association between adolescent groups and specificity, ($\chi^2_6 = 13.23, p = .04$). The not at-risk group was identified as having the most specific goals with the at-risk group having more specific goals than the delinquent group. This trend also occurred with targeted goals; however, the difference was not as marked (See Table 3). Therefore, Hypothesis 2 is partially supported in that there were clear differences between the delinquent and not at-risk groups only on the mean number of goals; there were clear differences between all three groups on the commitment to goals; and, there were clear differences between the delinquent and the at-risk and not at-risk groups, but not between the at-risk and not at-risk groups for goal challenges.

Insert Table Three here

Hypothesis 3: The three risk level groups will differ in types of self-efficacy

To test for associations among the three scale measures of self-efficacy, a Pearson's correlation matrix was computed. This shows low to moderate correlations between all self-efficacy subscales. The highest positive associations occurred between academic self-efficacy and self-regulatory efficacy ($r = .52, p < .01$), while self-regulatory efficacy and sporting self-efficacy showed the lowest correlation ($r = .18$). Differences in scale measures among groups, therefore, were tested using separate analyses.

One way ANOVAs (see Table 4) revealed significant differences between the adolescent groups for both academic self-efficacy ($F(2,284) = 12.15, p < .001$) and self-regulatory efficacy ($F(2,278) = 30.38, p < .001$). No significant group difference was found for sporting self-efficacy ($F(2,282) = .40, ns$) or social self-efficacy ($F(2,282) = 1.36, ns$).

Follow-up post hoc Scheffe tests identified significant group differences in academic self-efficacy. Specifically the not at-risk group ($M = 4.06; SD = .92$) rated higher on academic self-efficacy compared to the at-risk group ($M = 3.61; SD = .88, p = .012$) and the delinquent group ($M =$

3.32; $SD = 1.27, p < .001$). Follow-up post hoc Scheffe tests also identified significant group differences in self-regulatory efficacy. Specifically, the not at-risk group ($M = 4.97; SD = .92$) rated higher on self-regulatory efficacy compared to the at-risk group ($M = 4.11; SD = 1.10, p < .001$) and the delinquent group ($M = 3.71; SD = 1.29, p < .001$). Hypothesis 3 is partially supported as there were differences in two of the four types of self-efficacy according to risk group status. For academic and self-regulatory efficacy, the not at-risk group was different than the at-risk and delinquent groups.

Insert Table Four here

Hypothesis 4: The number, specificity, challenge, and commitment to goals, and self-efficacy will predict risk group membership.

A multinomial logistic regression analysis was used to assess the overall multivariate relationship between the adolescent group and the various factors considered in this study. Sex was included in a preliminary analysis; however, it was found not to be significantly associated with adolescent risk group. This may be a consequence of the relatively small number of females present in the final sample for each group (less than 20%) compared to males. Therefore, the final analysis does not include a term for sex but because the three groups are well matched on the ratio of males to females (4:1), the results for each group are comparable on sex. Included in the analysis were variables that were found to be useful in predicting group, namely challenge of goal, number of goals, commitment to goals, academic self-efficacy, self-regulatory efficacy, specificity (specific, targeted, directed, and general), and goal types (educational, career, interpersonal, sporting/health, and an 'other' category which groups delinquency, family-related, freedom and reputational goals). For the specificity variable, the general category was defined as the reference category, and for the goal type variable, career was defined as the reference. Seventy-four cases had missing data, as explained through the inability to access raw data. The analysis, therefore, included 226 adolescents: 60 delinquent, 80 at-risk and 86 not at-risk.

There was good discrimination among groups with the model correctly classifying 61.1% of cases ($\chi^2_{24} = 106.12, p < .001$). The model was best at predicting not at-risk adolescents (72.1% correct), then delinquent adolescents (61.7% correct), followed by at-risk adolescents (48.8% correct).

Regression results presented in Table 5 show that three variables were associated significantly with the odds of being in the delinquent group (relative to the not at-risk group). These variables were self-regulatory efficacy (odds = 0.48, $p = 0.001$), commitment (odds = 0.30, $p = 0.013$) and goal type. For goal type, the odds of being in the delinquent group relative to the not at-risk group were higher when interpersonal goals were identified as important (odds = 5.821, $p = 0.006$), and also goals that fell in the “other” category (odds = 9.284, $p = 0.001$). These results also indicate that a lower likelihood of being in the delinquent group is associated with higher values of self-regulatory efficacy, and higher importance on career goals, educational goals and sporting/health goals. Self-regulatory efficacy was the only predictor significantly associated with being in the at-risk group relative to not-at-risk adolescents (odds = 0.58, $p = 0.003$), indicating that the likelihood of being in the at-risk group is lower with higher values of self-regulatory efficacy. Hypothesis 4 is therefore partially supported in that self-regulatory efficacy, goal commitment, and goal type were the best predictor variables for risk group membership.

Insert Table Five here

Discussion

The present research investigated goal setting and self-efficacy among not at-risk, at-risk, and delinquent adolescents. Findings demonstrate that, of the three groups, only delinquent adolescents cited delinquency goals and that, for these adolescents, goals of an interpersonal nature were their main goal. Conversely, both not at-risk and at-risk adolescents most often reported career goals as their main goal. These findings pertaining to self-generated goals are consistent with previous theorising that delinquent adolescents set goals related more to a social/reputational image, while not at-risk adolescents set goals related to an academic image (see Carroll et al., 2009).

At-risk adolescents reported a greater number of sporting-related goals compared to the other two groups. This finding is encouraging in terms of interventions for high school students who are at-risk. According to Agnew and Petersen (1989), participation in highly structured leisure activities such as sport is linked to low levels of antisocial behavior, while participation in activities with low structure (e.g., peer-oriented social activities, watching television) is associated with high levels of antisocial behavior. According to Mahoney and Stattin (2000), “the issue is not whether an individual is engaged in an activity – the issue appears to be *what* the individual is engaged in, and *with* whom. In terms of antisocial behavior, it may be better to be uninvolved than to participate in an unstructured activity, particularly if it features a high number of deviant youth” (p. 123).

That the delinquent group reported a greater number of family-related goals (N = 12.5%) compared to the other two groups (At-risk = 6.3%; Not at-risk = 3.1%) is important since supportive others play a vital role in encouraging and sustaining a healthy lifestyle (Institute of Medicine Committee on Health and Behavior, 2001) and the presence of positive social support reduces the likelihood of adverse outcomes (Petit, Grover, & Lewinsohn, 2007). On the other hand, as argued by Selective Theories, risk factors such as family members in conflict, criminal or antisocial parents, or inter-parental violence increases the likelihood that children/adolescents will also become involved in delinquent activities (see Farrington, 2005). It may be that delinquent adolescents are striving for alternative family interactions in terms of their control and supervision, support, care and trust, and communication and this is reflected in their goal setting behavior. As indicated by Cernkovich and Giordano (1987), family interaction and attachment are highly prominent in terms of the quality of relationships and involvement in delinquency.

A discriminant analysis revealed that the best predictors for distinguishing between the three adolescent groups were academic goals, delinquent goals, and interpersonal goals. Not surprisingly, not at-risk adolescents were high in academic and interpersonal goals and low in delinquency goals, while delinquent adolescents were high in delinquency goals and low in academic and interpersonal goals (congruent with an academic image and a social image, respectively, see Carroll et al., 2009). Of particular note, at-risk adolescents scored in between the two other groups, thereby tentatively

suggesting that these individuals may be in a state of transition on their trajectories towards delinquent status.

It should be noted that there are some often unmet assumptions regarding the use of discriminant function analysis. In this study, however, a number of issues were addressed. For example, although 20 cases were dropped from the analysis due to missing data, this was appropriate since the missing data were scattered over the predictors and groups in a random fashion. Although this meant that there were unequal sample sizes in the three groups, this presented no special problems as the overall sample size (and the sample sizes in each group) remained robust. Moreover, the sample sizes were large enough to suggest that there would be no distortion of the results due to a failure of multivariate normality. That the delinquent sample was randomly selected, thereby giving some inference regarding causality, also must be mentioned. A strict matching procedure (against the delinquent group) was instigated for the other two groups (at risk and not at risk); however, and in doing so a degree of experimental control was facilitated. As a result, the classification rate in our analyses was satisfactory, suggesting that we had addressed many of the assumptions associated with this procedure. However, longitudinal research is needed to investigate further the transition from at-risk to delinquency status.

Not at-risk adolescents reported more self-generated goals compared to delinquents and a significant relationship was found between the number of goals and academic self-efficacy. According to Pintrich and Garcia (1991) and Pintrich (2000) adolescents with a positive belief in their academic ability are increasingly likely to set more goals. This trend was not found with any other aspects of self-efficacy, however.

Not at-risk adolescents had higher levels of academic self-efficacy compared to the at-risk and delinquent groups. Not at-risk adolescents also reported higher self-regulatory efficacy compared to the at-risk and delinquent groups, while the at-risk group reported higher self-regulatory efficacy compared to the delinquent group. It seems, therefore, that delinquents have the lowest belief levels in their ability in the academic and self-regulatory areas. Whether this belief is an accurate appraisal is an important area for consideration given the positive relationship between

high self-efficacy and motivation and performance (Bandura & Locke, 2003). Since delinquent adolescents have lower self-efficacy in academic and self-regulatory areas, they are less likely to be motivated towards and less likely to perform well in these areas. The belief is more than likely to become a self-fulfilling prophecy.

The findings of the present research provide evidence of *why* differences in goals exist between delinquent, at-risk, and not at-risk groups. Primarily, the type of goals set by individuals predicted their likelihood of belonging to one of the three groups. For example, young people who set interpersonal goals and “other” goals (i.e., reputational, delinquency, freedom/autonomy) as important identified with delinquent group status. Conversely, those who placed greater importance on career, educational, and sporting/health goals identified with not at-risk status. Therefore, it seems that why a specific goal is set is linked to the type of status an individual seeks. For those designated as at-risk, the type of goal set did not predict group status as clearly as the other two groups. This may be because at-risk adolescents are in an intermediate transitional state and although the setting of delinquency-type goals is becoming more attractive to them, it is not at this stage their main goal (see Carroll et al., 2009 for a review).

The regression analysis explaining the relationships of variables according to group membership found only self-regulatory efficacy differentiated at-risk and not at-risk adolescents. While this is congruent with the discriminant analysis, it is not surprising given that the samples were both school-based. The regression model, however, was able to differentiate delinquent adolescents from not at-risk adolescents on the basis of low self-regulatory efficacy, low commitment, low career goals and low educational goals. This is in line with previous research in which self-regulatory efficacy was found to be related positively to goal achievement and high goal commitment (Zimmerman & Schunk, 1989) and that the presence of career goals is a protective factor against a delinquent trajectory (Fleming, Woods, & Barkin, 2006).

As with most research, there are some limitations associated with the present research and these need to be acknowledged. For example, the sample size was relatively small and participants were recruited from only two states in Australia. Recruiting samples of adolescents from a range of

Australian states would provide greater diversity, which in turn would enhance grounds for generalization of the findings. Thus, replication with a much larger sample of adolescents is warranted. It is acknowledged that all of the data were generated by self-reports and, while this is powerful by providing the first person perspective, multiple informants such as parents and teachers may be beneficial. Finally, the research was cross-sectional in design and as such provided information at that point in time. Longitudinal investigations would be helpful in facilitating an understanding of the critical periods of goal formation and in doing so assist in the development of interventions.

The findings from this research have a number of implications for the advancement of theoretical understanding of adolescents generally, and in particular those who are at risk of delinquency or who have transitioned to delinquent status. There are also consequential implications arising for the development of more efficacious targeted service provision. For example, assisting young people to make the right goal choices as they navigate their life trajectory is important since without this guidance some will choose a pathway to delinquent status. For those who choose the status of “delinquent”, merely having positive future goals may not be sufficient to break that trajectory. Rather, adolescent risk-taking and offending needs to be understood in relation to the social purposes it serves and the goals that are met by undertaking it. Thus, for delinquents and those “at risk” of delinquency educators must factor in the influence of like-minded peers because this translates inclination (goal setting) into action (goal performance) (see Emler, Reicher, & Ross, 1987; Emler & Reicher, 2005).

The challenge for educators is to present feedback so that it is used by young person’s at risk to evaluate their performance relative to their goals, in such a way that the goals are redirected into more conforming activities. This challenge also applies to the development of programs for young people “at risk” or who are delinquent. It is clear from this present research that specific types of goals can be targeted and that any programs developed must include reinforcement for young people who attain the goals that they set for appropriate conforming outcomes.

These present findings are in line with other research showing that adolescence is a developmental period crucial not only for the setting of goals, but also for setting specific types of goals that shape a young person's trajectory towards a particular group to which they wish to affiliate themselves. That the type of goals set by adolescents differ according to preferred group affiliation is significant because it provides those who seek to prevent or reduce delinquent behaviors with the opportunity to focus more specifically their strategies in areas that might maximize outcomes. For example, interpersonal (i.e., reputational) and family-related goals figure most prominently in the lives of adolescent delinquents and so working within the family context to shape these goals more appropriately may hold great potential in preventing delinquent behaviors for both the adolescent and any other family members with whom they interact. Similarly, that some adolescents set goals that identify them as being on a trajectory towards delinquent status (i.e., at risk) also provides opportunities for reducing rates of juvenile offending, but in a more preventive manner during the transitory phase. What also must be considered in any attempts to reduce delinquent behavior, however, is self-regulatory efficacy given that adolescents with lower levels are less likely to be motivated and hence less likely to perform well in pursuit of their goals. In short, our study indicates that the setting of goals is vitally important for adolescents during a critical phase of their personal development. Given the potential ramifications of these goals to the young person and also to society at large, however, it is crucial that support is provided to ensure that any goals are socially conforming, congruent with those of mainstream society, and also enhance personal self-efficacy for the development of future life goals.

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Table 1

Percentage and Frequency (in brackets) of Adolescents by Main Goal and Each Risk Level Group

Goal Category	Delinquent	At-risk	Not at-risk	Total
Educational	3.8% (3)	21.1% (20)	29.2% (28)	18.8% (51)
Career	22.5% (18)	30.5% (29)	37.5% (36)	30.6% (83)
Interpersonal	30.0% (24)	9.5% (9)	14.6% (14)	17.3% (47)
Sporting/health	12.5% (10)	20.0% (19)	9.4% (9)	14.0% (38)
Family-related	12.5% (10)	6.3% (6)	3.1% (3)	7.0% (19)
Freedom/autonomy	1.3% (1)	3.2% (3)	1.0% (1)	1.8% (5)
Delinquency	7.5% (6)	0% (0)	0% (0)	2.2% (6)
Reputational	10.0% (8)	9.5% (9)	5.2% (5)	8.1% (22)
Total Count	80	95	96	271

Table 2

Descriptive Statistics for Measures of Commitment, Number of Goals and Challenge of Goals by Risk Level Group and T-tests for Pairwise Difference in Group Means

Measure	Risk Level Group (I)	Mean (SD) N	Risk Level Group (J)	
			At-risk	Not at-risk
			Mean Difference (I-J)	
Commitment	Delinquent	3.19 (0.58) 88	-0.24**	-0.38***
	At-risk	3.43 (0.45) 98		-0.14*
	Not at-risk	3.57 (0.41) 97		
Number of Goals	Delinquent	2.93 (1.49) 67	-0.30	-0.58*
	At-risk	3.22 (1.32) 86		-0.28
	Not at-risk	3.51 (1.55) 89		
Challenge	Delinquent	5.00 (2.03) 69	-0.73*	-0.96***
	At-risk	5.73 (1.67) 85		-0.23
	Not at-risk	5.96 (1.46) 89		

NB: The t-test is used to examine statistical evidence that the difference between group means is different from zero. Statistical significance is indicated by one or more *:

*** $p < 0.001$, ** $0.001 \leq p < 0.01$, * $0.01 \leq p < 0.05$

Table 3

Associations Between Adolescent Groups and Four Levels of Goal Specificity

Goal Category	Delinquent	At-risk	Not at-risk	Total
Specific	11.6%	15.1%	24.7%	17.6%
% within group	(8)	(13)	(22)	(43)
Targeted	34.8%	36.0%	37.1%	36.1%
% within group	(24)	(31)	(33)	(88)
Directed	37.7%	20.9%	22.5%	26.2%
% within group	(26)	(18)	(20)	(64)
General	15.9%	27.9%	15.7%	20.1%
% within group	(11)	(24)	(14)	(49)

Table 4

Results from One-Way ANOVAS Testing for Differences Among Adolescent Risk Level Groups on Measures of Academic Self-Efficacy, Self-Regulatory Efficacy, Sport Self-Efficacy, Social Self-Efficacy and the Challenge of Goals Scales

Source	Partial SS	DF	MS	F-statistic	P-value
<i>Academic self-efficacy</i>					
Group	25.93	2	12.96	12.15***	p<0.001
Residual	303.07	284	1.07		
Total	329.00	286	1.15		
N=287, RMSE=1.03, R ² =0.08					
<i>Self-regulatory efficacy</i>					
Group	77.88	2	38.94	30.38***	p<0.001
Residual	356.33	278	1.28		
Total	434.21	280	1.55		
N=281, RMSE=1.13, R ² =0.18					
<i>Sport self-efficacy</i>					
Group	1.59	2	0.79	0.40	p=0.67
Residual	563.04	282	2.00		
Total	564.63	284	1.99		
N=285, RMSE=1.41, R ² =0.003					
<i>Social self-efficacy</i>					
Group	2.63	2	1.32	1.36	p=0.26
Residual	273.95	282	0.97		
Total	276.58	284	0.97		
N=285, RMSE=0.99, R ² =0.01					

Table 5

Strength of Relationship Between Predictor Variables and Adolescent Groups

Adolescent Group		B	Std. Error	P-value	Odds ratio
Delinquent	Intercept	7.966	1.964	<0.001	
	Challenge	-.200	.136	.141	.819
	Number of goals	-.111	.152	.468	.895
	Commitment	-1.234	.496	.013	.291
	Academic SE	-.207	.245	.398	.813
	Self-reg SE	-.725	.212	.001	.484
	Specific	.249	.779	.750	1.282
	Targeted	.498	.636	.433	1.646
	Directed	.986	.616	.109	2.681
	General	0	-	-	-
	Educational	-1.467	0.888	.098	.231
	Interpersonal	1.762	.643	.0006	5.821
	Sporting/health	.837	.716	.243	2.309
	Other	2.228	0.659	0.001	9.284
	Career	0	-	-	-
	At risk	Intercept	4.340	1.673	.009
Challenge		-.086	.118	.465	.917
Number of goals		-.085	.124	.491	.918
Commitment		-.071	.429	.868	.931
Academic SE		-.108	.211	.610	.898
Self-reg SE		-.539	.183	.003	.583
Specific		-1.038	.616	.092	.354
Targeted		-.470	.530	.375	.625
Directed		-.531	.540	.325	.588
General		0	-	-	-
Educational		-.468	.476	.325	.626
Interpersonal		-.521	.596	.382	.594
Sporting/health		-.653	.564	.247	1.921
Other		.759	.580	.191	2.135
Career		0	-	-	-

a. The reference category is: non delinquent.

