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Psychosocial development and the development of problem behaviour during adolescence

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Citation

Ezinga, M. A. J. (2008, November 26). *Psychosocial development and the development of problem behaviour during adolescence*. Retrieved from <https://hdl.handle.net/1887/13289>

Version: Not Applicable (or Unknown)

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Downloaded from: <https://hdl.handle.net/1887/13289>

Note: To cite this publication please use the final published version (if applicable).

3 Early adolescence and delinquency: levels of psychosocial development and self-control as an explanation of misbehaviour and delinquency¹

The objective of this study was to investigate the relevance of Loevinger's perspective of psychosocial development for the explanation of misbehaviour and delinquency next to Gottfredson and Hirschi's theory of self-control. General questionnaires about daily life, school, parents, problem behaviour and various other topics were administered on approximately 800 students (12-13 year old) from secondary school, who also completed a sentence completion test, the ZALC (based on the WUSCT, a test developed by Loevinger). Results indicated that not only low self-control was associated with misbehaviour and delinquency, but also that being in or between the impulsive and self-protective developmental level was associated with misbehaviour. The developmental level of respondents was also associated with level of self-control. Analysis of covariance showed separate effects of being in the self-protective level on moderate and total misbehaviour beyond low self-control. The results indicate a potential additional importance of psychosocial development in childhood and adolescence for the explanation of misbehaviour and delinquency.

3.1 Introduction

Delinquency increases sharply within the age range of 12-14, peaks between 17 and 19 years, and slowly decreases from then onwards (Farrington, 1986; Moffitt, 1993; Tittle, Ward, & Grasmick, 2003). Several studies find that misbehavior in early adolescence precedes delinquency (Angenent, 1991; Gottfredson & Hirschi, 1990; Koops & Slot, 1998). However, a clear explanation of the steep increase of problem behaviour, especially delinquency, in early adolescence is so far not available. While criminological theories offer several explanations for delinquency from personal, interpersonal or sociological perspectives (Akers, 1998; Gottfredson & Hirschi, 1990; Warr, 1993), a convincing answer as to why delinquency becomes more prevalent during the specific period of early adolescence is still lacking.

A prominent and often tested criminological theory on the explanation of individual involvement in crime and other problem behaviours is Gottfredson's and Hirschi's general theory of crime (Gottfredson & Hirschi, 1990). This theory focuses on the level

¹ This chapter has been accepted for publication: Ezinga, M.A.J., Weerman, F.M., Westenberg, P.M., & Bijleveld, C.C.J.H. (2008). *Early adolescence and delinquency: levels of personality development and self-control as an explanation of rule breaking and delinquent behaviour*. *Psychology, Crime, and Law*, 14(4), 339-356.

A revised version of this study is used in combination with chapter two in a book chapter: Ezinga, M., Weerman, F., Bijleveld, C., & Westenberg, M. (2007), *Sociaal-emotionele ontwikkeling, zelfcontrole en probleemgedrag [socio-emotional development, self-control, and problem behaviour]*. In: F. Weerman, W. Smeenk, & P. Harland (Eds.). *Probleemgedrag van leerlingen tijdens de middelbare schoolperiode*. Amsterdam, Aksant.

of self-control, which is seen as an overarching and independent variable that is the main determinant of misbehaviour and delinquent behaviour. Empirical studies show ample evidence of a relation between low self-control levels and a higher prevalence of delinquency (Den Exter Blokland, 2002; Krueger, Caspi, Moffitt, Silva, & McGee, 1996; Longshore, Chang, & Messina, 2005; Polakowski, 1994; Pratt & Cullen, 2000). A major assumption of the theory is that the level of self-control is relatively stable from late childhood onwards (Gottfredson & Hirschi, 1990).

Developmental psychologists assume and find substantial development in psychosocial functioning and also in self-control, particularly during childhood and adolescence (Krueger, Schmutte, Caspi, Moffitt, Campbell, & Silva, 1994; Loevinger, 1976; Westenberg, Jonckheer, Treffers, & Drewes, 1998). Developmental psychological theories explicate the mechanisms and processes by which young people change their thinking and behaviour. As such, these theories may very well offer clues to understand why delinquency increases in early adolescence.

One developmental theory that may be particularly suited for this is Loevinger's theory of psychosocial development² (Loevinger, 1976), because this theory integrates many personality characteristics that are described in the theory of self-control. Furthermore, the early levels of development as described by Loevinger's theory seem to be particularly relevant for the explanation of misbehaviour and delinquency, since characteristics of these early levels resemble risk factors for these kinds of behaviour. In addition, the dynamic perspective of Loevinger's theory of psychosocial development could contribute to the static perspective of Gottfredson and Hirschi's theory of self-control. In other words, Loevinger's theory of psychosocial development may contribute to self-control theory, because that theory is less capable to understand developmental trends in misbehaviour and delinquency.

In this study we seek to address the following issues: First, we investigate to what extent early adolescents in different levels of psychosocial development differ in prevalence of misbehaviour and delinquency. In addition, we try to investigate if there are differences in prevalence of misbehaviour and delinquency between levels of self-control. Second, we investigate to what extent levels of psychosocial development have an effect on delinquent behaviour that is independent from and complimentary to the effect of different aspects of self-control. We first address more in depth the theories of self-control and Loevinger's theory of psychosocial development.

3.2 Gottfredson and Hirschi's theory of Self-Control

Gottfredson and Hirschi define self-control as a set of mechanisms that control delinquency and analogous behaviours. A person with low self-control is not able to resist temptations on a short-term basis. Such a person may try to satisfy his needs in a conven-

² The original title is "theory of ego development". However, the theory is not related to psychoanalytic theories, and therefore we use the phrase psychosocial development. Nowadays, researchers increasingly use the term of psychosocial maturity for the subject of this kind of theories (Steinberg & Cauffman, 1996; Steinberg & Scott, 2003).

tional way but will, when necessary, easily do it in an unconventional or illegal way. Low self-control is an overarching construct that has parallels with concepts such as impulsivity, pleasure seeking, immediate need gratification, adventurousness and other deviant personality factors (Eysenck, 1996; Pratt & Cullen, 2000; Romero, Gomez-Fraguela, Luengo & Sobral, 2003).

Barlow (1991) and Grasmick et al. (1993) identified six dimensions of self-control from the set of mechanisms that are described by Gottfredson and Hirschi. The first dimension is called *Impulsivity*. This refers to Gottfredson and Hirschi's description of a "here and now orientation" in persons with low self-control. The second dimension Grasmick et al. (1993) 'extracted' is called *Risk seeking*. This refers to Gottfredson and Hirschi's description of crimes being "risky, thrilling, and exciting". The third dimension is *Temper*; Gottfredson and Hirschi believe that a person often commits a crime for experiencing "relief of momentary irritation". Here, Gottfredson and Hirschi suggest that a person with low self-control has a minimal tolerance for frustration and "little ability to respond to conflicts through verbal rather than physical means". The fourth identified dimension is *Preference for simple tasks*. According to Gottfredson and Hirschi, people with low self-control have a tendency to avoid complex tasks and lack enthusiasm for work or persistence to finish a task already started. The fifth dimension refers to a tendency to engage in *Physical (risky) activities*. A person with low self-control engages in risky and physical activities rather than cognitive or mental activities. Finally, the last element is the tendency of behaving *Self-centred* rather than taking other people into account and being sensitive to their needs (Barlow, 1991; Grasmick, Tittle, & Bursik, 1993).

With a meta-analysis, Pratt and Cullen showed that the construct of self-control is significantly related to delinquency and analogous behaviours (Pratt & Cullen, 2000). Also, self-control appears to be significantly related to certain risk factors for delinquency, such as peer-relations (Chapple, 2005), elements of social bonding (Polakowski, 1994), as well as certain personality factors (Romero, Gomez-Fraguela, Luengo, & Sobral, 2003; Waugh, 1984). All in all, there is a considerable amount of empirical support for the importance of self-control in (early) adolescence problem behaviour and delinquency. However, there is some doubt where the validity stems from. Grasmick et al. (1993) derived from the origin set of mechanisms six operational dimensions of self-control. An ongoing debate exists about the relevance of using all of these dimensions. Recently, Winfree Jr. et al. (2006) suggested that just two of the six elements (impulsivity and risk seeking) are sufficient in determining the level of self-control, while these seem most prominent and conceptually interesting. For Winfree and colleagues, there are two main reasons to limit self-control as a construct to two elements. First of all, the elements *impulsivity* and *risk seeking* are the only elements of self-control of general relevance. The generalisation gives the opportunity to tie their concepts with other theories (Eysenck & Eysenck, 1985. Cited in Winfree Jr., Taylor, He, & Esbensen, 2006). Secondly, empirical studies showed considerable construct validity and reliability for these elements of self-control in predicting crime and analogous behaviour (LaGrange & Silverman, 1999; Longshore, Turner & Stein, 1996), more than other elements. Additional studies showed that implementing some but not all elements of self-control also leads to satisfactory results (Wright, Caspi, Moffitt & Silva, 1999).

Closely related to the construct validity issue is the assumption that individual differences in self-control remain stable during individual development, the so-called stabil-

ity hypothesis. Studies regarding this hypothesis have found mixed support, and researchers point out that further research is needed (Arneklev, Cochran, & Gainey, 1998; Polakowski, 1994; Turner & Piquero, 2002; Winfree Jr. et al., 2006). Thus, although self-control theory has been enthusiastically received within criminology, more research is needed to unravel its dynamic aspects.

3.3 Loevinger's theory of psychosocial development

Loevinger (1976) views psychosocial development as personal growth experienced by every individual, entailing changes in impulse control, conscious preoccupations, character development and interpersonal orientation (the view on one self, on others and the third-person-view on interaction between two persons). The theory identifies nine developmental levels, each of them having its own unique characteristics. As far as the developmental level of early adolescents is concerned, three levels are most relevant: the so-called Impulsive level (E2), the so-called Self-protective level (E3), and the so-called Conformist level (E4). Before the Impulsive and further levels described above, a child enters the pre-social or Symbiotic level (E1). This level develops throughout the first years after birth and is therefore not measurable. The levels after the Conformist level E4 are the Self-awareness level (E5), the Conscientious level (E6), the Individualistic level (E7), the Autonomous level (E8) and the Integrated level (E9) (see Westenberg et al., 2000 for a detailed description of these levels). As transition from one level to the next is often gradual, also transition levels are identified between each level (Loevinger, 1976). Table 3.1 summarises the characteristics of the three developmental levels that are most relevant for early adolescence.

Table 3.1 Characteristics of the most frequent developmental levels in early adolescence

Impulsive E2	Combination of impulsivity (key factor), vulnerability, dependency and obedience.
<i>E2/E3</i>	
Self-protective E3	Unassailable, opportunistic, instrumental relationships, attempt to control the own impulses and emotions. Hedonistic attitude.
<i>E3/E4</i>	
Conformist E4	Conformity, equality in relationships, pro-social behaviour, social desirability.

In the *Impulsive* level (E2), most prevalent until the age of ten, there is a fast admittance to aggressive, but also empathic impulses. Impulsive children expect that others will satisfy their needs and desires. At the same time they expect that parents are giving guidelines of what behaviour is allowed and what is not. This obedience is nevertheless overshadowed by their impulsivity.

The *Self-protective* level (E3) is most prevalent in pre- and early adolescence, from age 10 to age 13, the period in which the steepest increase in prevalence of problem behaviour occurs. Early adolescents in the self-protective level have an ability to manage things independently and they may feel indisputable. This level is qualitatively different from the Impulsive level, which is characterised by dependency on others and in which

autonomous behaviour rarely occurs. In the self-protective levels, rules made by others are meant to be broken, as long as one does not get caught or punished. Reactions of adolescents in this level are often opportunistic; adolescents search for, mostly, instrumental relationships with others. The adolescent attempts to control his/her impulses and emotions, but at the same he/she denies and keeps off negative emotions. As a consequence, the adolescent presents him/herself as being unassailable.

The *Conformist* level (E4) that generally sets in around the age of 12-13 is, unlike the Self-protective level, characterised by the importance given to equality and reciprocity in relationships. Relations to others are goals that are standing alone. This level involves an important shift in thoughts of the adolescent: it is a change from the relatively egocentric character of the previous level into a more pro-social attitude towards the world. However, conformist behaviour is also possible towards non-conventional groups; identification occurs through detecting expressions of social desirable behaviour and criticism or rejection. The prevalence of the Conformist level increases strongly during middle adolescence (Westenberg et al., 2000).

Throughout the years, empirical research support Loevinger's theory of psychosocial development, even though the technique used for collecting the data seems rather controversial. Contemporary review studies have been completed by Lilienfeld and colleagues (2000) and Manners and Durkin (2001) on the validity of the theory and its measurement technique. Manners and Durkin reviewed both the theory and the sentence completion test and conclude that there is substantial support for the construct validity and discriminant validity of ego development. Little research is completed on predictive validity (Manners & Durkin, 2001). In the review of Lilienfeld, it was concluded that the sentence completion test demonstrated impressive construct validity in numerous studies and substantial incremental validity. In short, they argue that this instrument is most likely the most extensively validated projective technique (Lilienfeld, Wood, & Garb, 2000).

3.4 Research on Loevinger's theory of psychosocial development and delinquent behaviour

Studies on Loevinger's theory of psychosocial development and delinquency or misbehaviour are scarce. In the introduction of this theory in the 1970s, Loevinger already suggested associations between lower levels of psychosocial development and misbehaviour or delinquency. A previous study, exploring the dataset used for current article, found several patterns indicating that certain types of misbehaviour at school and delinquency are more or less prevalent in different levels of psychosocial development and (Ezinga, Weerman, Westenberg & Bijleveld, 2006). Adolescents who were lagging behind in psychosocial development given their age, seemed to exhibit more serious types of misbehaviour; adolescents following a normative course of psychosocial development on the other hand seemed to exhibit more often mild to moderate offences (Ezinga et al., 2006).

Earlier, Frank and Quinlan (1976) analysed the relation between female delinquency and levels of psychosocial development. Delinquent females were significantly more often in lower developmental levels (mostly E2) than non-delinquent girls. Non-delinquent girls

were more prevalent in the self-protective level (mostly E3). An additional finding was that reasons for fighting qualitatively differed between the impulsive level and the self-protective level. Impulsive girls fought randomly without a reason, where self-protective girls only fought when they had to (Frank & Quinlan, 1976).

More recently, Krettenauer and colleagues (2003) carried out a longitudinal study on psychosocial development and behavioural problems. They found that psychosocial development predicted externalising problems. The largest prevalence of externalising problems was found among youths in the Impulsive and the Self-protective level. Further results indicated that children with externalising problems had stagnated in their psychosocial development around the 12th year, i.e. in early adolescence (Krettenauer, Ullrich, Hofmann, & Edelstein, 2003). Other studies about conduct disorders and externalising problem behaviour have also confirmed the existence of an association between lower levels of psychosocial development and a higher prevalence of conduct disorder or other problem behaviour (DiNapoli, 2002; Noam, Hauser, Santostefano, Garrison, Jacobson, Powers, & Mead, 1984; Noam, Paget, Valiant, Borst, & Bartok, 1994; Noam, Recklitis, & Frome-Paget, 1991; Recklitis & Noam, 2004).

In sum, previous empirical studies report that delinquent behaviour is related to a stagnating psychosocial development (that is, stagnating in the Impulsive level). A possible explanation is that a stagnating development leads to incongruence with peers and skewed expectations from peers and authorities. Delinquent behaviour also is in line with some personality characteristics in the Impulsive level, for example aggressive behaviour and lack of impulse control. In normal developing children, this will be controlled by parents. However, we also believe that adolescents who grow up in adverse circumstances, for example in families with bad parenting practices, will stagnate in their development. Therefore, a stagnating development is probably related to serious forms of misbehaviour and delinquency.

However, stagnation cannot explain the increase of rule breaking and delinquent behaviour in early adolescence. It is very well possible that relatively mild forms of rule breaking and delinquency, limited to the adolescent period, is associated with a normative psychosocial development. Loevinger's theory of psychosocial development offers clues for this, specifically regarding the Self-protective level, which has several characteristics that are applicable to relatively mild offences. Adolescents in the Self-protective level get more independent from parents and develop feelings of being invulnerable. They strive to fulfil their needs in a calculated way. Rules that stand in the way to obtain these needs are in a sense meant to be broken. Therefore, we expect that mild misbehaviour and delinquency is associated with the normative developmental level in early adolescence.

In sum, this article has the following rationale. We test the *complementing* explaining value of the construct psychosocial development beyond the negative relationship between self-control and problem behaviour. Subsequently, we view self-control and psychosocial development as two separate independent variables explaining the prevalence of problem behaviour in early adolescence. We take into account that both independent constructs may overlap. After all, self-control is heavily linked to early levels of psychosocial development. Nonetheless, we choose to view them separately, because self-control in the general theory of crime functions as a stable construct where Loevinger's psychosocial development acts as a changing construct. We believe that the change in

psychosocial development is one of the reasons that a steep increase in problem behaviour occurs in early adolescence.

3.5 Hypotheses

In the introduction we presented two research questions. The first question relates to associations between psychosocial development, self-control and misbehaviour and delinquency. Based on Loevinger's theory of psychosocial development and earlier research we formulated the following hypotheses:

We expect a negative association between self-control and misbehaviour/delinquency, in line with the large amount of empirical support that is already found for Gottfredson and Hirschi's theory of self-control. This means that the lower the child's self-control is, the more he or she conducts misbehaviour/delinquency (*hypothesis I*).

Children whose psychosocial level of development is normative for development exhibit more misbehaviour and delinquency than children who are precocious in development. This is most clear for mild forms of these problem behaviours (*hypothesis II*). We name this hypothesis the normative hypothesis.

Children with a stagnated psychosocial development are more often involved in serious forms of misbehaviour and delinquency than children in a normative or precocious level of development (*hypothesis III*). We name this hypothesis the stagnation hypothesis.

Lastly, we expect clear differences in level of self-control between levels of psychosocial development (*hypothesis IV*). In the impulsive level we expect to find the lowest levels of self-control, especially when it comes to impulse control. In the self-protective level we also expect to find low levels of self-control. In the conformist level on the other hand we expect to find relatively higher levels of self-control.

The second research question relates to possible complementary effects of levels of psychosocial development in addition to the effects of self-control on delinquency. We expect a unique effect of psychosocial development in the prediction of delinquency. We thus formulate the following hypothesis: There is an independent effect of psychosocial development in the prediction of delinquency, after the influence of self-control is taken into account.

3.6 Method

3.6.1 Participants

The data collection took place in 2002 and was part of the NSCR School Study (see Weerman & Smeenk, 2005). About 40 schools for secondary education (comparable to middle- and high schools in the U.S.) were approached to participate. A total of 12 schools located in or near The Hague agreed to participate in this longitudinal study. Survey data were obtained for about 2000 first and third graders. A measurement instrument for psychosocial development was conducted on 1048 first grade students. For 811 students both survey and psychosocial development data were obtained.

The distribution of the sample is well balanced with an almost 50-50 spread between boys and girls. Ages range between 12.5 and 14.5 years, with a mean age of 13.6 years. Most students live in a large city (about 500,000 inhabitants) in the Netherlands (60%), 31% live in two smaller cities (about 150,000 inhabitants) and 9% in smaller towns (about 20,000 inhabitants). Almost one third of the sample consisted of ethnic minorities (non-Dutch descent). The sample may be considered as a rough representation of juveniles in western Holland following low to average levels of secondary education (Harland, Van der Laan, Smeenk, & Weerman, 2005; Weerman, Smeenk, Slotboom, Harland, Den Dijker, Bijleveld, & Van der Laan, 2003).

3.6.2 Variables

Self-control

We used a translated and adapted version of the self-control scale created by Grasmick et al. (1993), which originally consisted of six subscales. For the purposes of the survey this scale had to be somewhat shortened. We used the three most important subscales: impulsivity, adventure/risk-seeking and temper. As mentioned before, earlier research suggests that using only the impulsivity and risk-seeking subscales is sufficient to study self-control (see Winfree Jr. et al., 2006). Also, these scales are conceptually related to personality characteristics from psychological theories such as Eysenck's (Eysenck, 1996). We chose to include the Temper scale also, because this scale appears to predict especially violent offending (Vazsonyi, Pickering, Junger, & Hessing, 2001).

Table 3.2 presents the subscales and its separate items. Combined, they form an overall self-control scale. Each scale has four items, and all were coded in the same manner. In the sample used for this paper, satisfying Cronbach's alpha coefficients of .63, .62, and .68 are found for respectively the subscales impulsivity, adventure/risk seeking, and temper. For the overall self-control scale, there is a good internal consistency with a Cronbach's alpha coefficient of .78.

Misbehaviour and delinquency

The survey contained 10 items on frequency of misbehaviour at school and 13 items on delinquency outside school in *the past school year*. Misbehaviour at school covers the following offences: throwing items in class, verbal bullying, physical bullying, graffiti in school, vandalising school property, stealing something worth < €5,-, stealing something worth > €5,-, fighting without injury, fighting with injury, and threatening at or using violence against a teacher. Delinquency outside school covers the following offences: graffiti, vandalism, dodge faring, shoplifting something worth < €5,-, shoplifting something worth above €5,-, buying stolen goods, stealing a bike or moped, car theft, burglary, robbery, other theft, fighting without injury and fighting with injury. We created two total sum scales for misbehaviour in school and delinquency outside school. These scales measure the number of different types of misbehaviours and delinquent acts that are committed (i.e. 2x stealing, 2x vandalism and 4x violence results in three different types). Research shows that variation scales are a better indication than frequency scales measuring misbehaviour or delinquency (Bendixen, Endresen, & Olweus, 2003).

Table 3.2 A description of the variables, items, codes for each item and the variable's Cronbach's alpha

Variables	Items	Codes	Cronbach
Impulsivity	jy1: I often act without thinking first.	agree, slightly agree, don't agree/disagree, slightly disagree, disagree	α .63
	jy4: If there is a possibility to have fun, I will take it, even if it will get me into trouble		
	jy7: I say immediately what comes up in my mind, also when it is not sensitive to do		
	jy10: I often do things I like instantly.		
Adventure/Risk	jy2: I enjoy participating in exciting and adventurous activities	agree, slightly agree, don't agree/disagree, slightly disagree, disagree	α .62
	jy5: I enjoy scary things		
	jy8: I like to do dangerous activities.		
	jy11: I think it's stupid to do something for fun when you might get hurt.		
Temper	jy3: It is best for others to keep away when I'm angry.	agree, slightly agree, don't agree/disagree, slightly disagree, disagree	α .68
	jy6: When I'm angry at others, I prefer to slap someone instead of talking.		
	jy9: I'm capable of settling an argument quietly.		
	jy12: I get angry fast.		
Total self-control	Sum of the scales above		α .78

Next to the total sum scales of variation, we also constructed categorical scales based on the severity of the offences. In preparation, we asked six criminologists, not involved in the present study, to rate the severity of the offences. This resulted in six categorical sum scales: mild misbehaviour at school (items perceived as deviant after 6 or more times in a year committed), moderate misbehaviour (items rated as deviant after 3 or more times in a year committed), severe misbehaviour (items rated as deviant after 1 or more times in a year committed), and mild delinquency, moderate delinquency and severe delinquency outside school. Table 3.3 displays all categories of dependent variables and the items related to these scales.

Psychosocial development

The Sentence Completion Test for Youth (SCT-Y) consists of 32 sentence stems, such as "My conscience bothers me if..."; "My father..."; or "When people are helpless...". There are modified forms for boys and girls. Students were instructed to complete the sentences freely. Using an empirically based scoring manual, each student receives a score of psychosocial development. This ranges between E2-E6. Each number stands for a particular level of psychosocial development (e.g. E2 is the Impulsive level, E3 is the Self-protective level). Using the specific scoring protocol for the SCT-Y, each sentence is rated according to the levels of psychosocial development. This results in 32 different scores ranging from 2 to 6 (for details see (Westenberg, 2002; Westenberg et al., 2000).

Table 3.3 Categorisation of misbehaviour and delinquency

Scale	Items related to the scale
Misbehaviour in school:	
Total misbehaviour	All 10 items concerning misbehaviour in school
Mild misbehaviour	Throw things in class, verbal bullying,
Moderate misbehaviour	Physical bullying, graffiti in school, vandalising property of school, stealing something worth < €5,-, fighting without injury
Severe misbehaviour	Stealing something worth > €5,-, fighting with injury, threatening at or using violence against a teacher
Delinquency outside school:	
Total delinquency	All 13 items concerning delinquency outside school
Mild delinquency	Dodge faring
Moderate delinquency	Graffiti, vandalism, shoplifting something worth < €5,-, buying stolen goods, fighting without injury
Severe delinquency	Shoplifting something worth > €5,-, stealing a bike or moped, car theft, burglary, robbery, theft otherwise, fighting with injury

A sentence completion was given a missing when it could not be traced to a particular level or appeared to be nonsensical.

Two trained raters scored each sentence independently and discussed and resolved any differences. The current study has an interrater agreement of 86% at the initial interpretation of each sentence. After scoring each sentence a final score is calculated according to standard procedure. Two types of final categorisations are available. The first is the automatic total score, that gives only the distinct levels (i.e. second, third or fourth level). The second is called the borderline score and returns also transition levels. The latter possibility results in for example the level E2/E3, when a student is already progressing to the third level but has not yet arrived there completely.

Lilienfeld et al. (2000) published a review of the reliability and validity of projective techniques, including the sentence completion test. According to this study, the sentence completion test has proven to reach the scientific standards for zero order and incremental validity. Internal consistency and test-retest standards appeared reliable (see for more detail (Lilienfeld, et al., 2000).

3.6.3 Procedure

For both instruments (survey and SCT-Y) a strict protocol was at hand. At least two staff members of the research team had to be present in the class, in order to give instructions and answer questions students could have. All students were explained what study was going to be carried out, together with the necessary rules of participation. Also information was given about confidentiality regarding the results. The survey was self-administered and completed electronically on a computer. The SCT-Y was self-administered using paper and pencil. Students received a small compensation (CD voucher for €5,-) to stimulate present and future participation.

3.6.4 Analysis

To answer our first research question, we explored univariate associations between the two independent variables (psychosocial development and self-control) and the dependent variables (misbehaviour in school and delinquency outside school). For associations between self control and the dependent variables, we used correlation techniques to test associations. We chose to use Kendall's Tau-b correlation coefficients, because the distribution of rule breaking behaviours appeared to be non-normal. For the other associations, we chose to compare means with a post-hoc test (Dunnett C), because the measure of psychosocial development is categorical.

Our second research question relates to the role of psychosocial levels in addition to the effect of self-control on misbehaviour and delinquency. We therefore analysed psychosocial development as an independent variable with self-control as a covariate in an ANCOVA predicting misbehaviour and delinquency.

3.7. Results

Table 3.4 gives the distribution and mean scores (with standard deviations between brackets) for all misbehaviour and delinquency categories, as well as for psychosocial development and the scales of low self-control.

Table 3.4 Descriptive of the dependent and independent variables

Misbehaviour and delinquency	N	Prevalence	Range	Mean (sd)
Dependent:				
Total misbehaviour	706	87.1%	0-8	2.21 (1.66)
Mild misbehaviour	660	81.4%	0-2	1.16 (.71)
Moderate misbehaviour	406	50.1%	0-5	.82 (1.02)
Severe misbehaviour	85	10.5%	0-3	.13 (.40)
Total delinquency	458	56.5%	0-11	1.17 (1.60)
Mild delinquency	344	42.4%	0-1	.42 (.49)
Moderate delinquency	288	35.5%	0-5	.59 (.99)
Severe delinquency	79	9.7%	0-6	.15 (.54)
Self-control				
Independent:				
Scale Impulsivity	769		0-16	9.58 (3.63)
Scale Adventure/Risk-seeking	777		0-16	9.39 (3.63)
Scale Temper	762		0-16	8.19 (4.04)
Total scale of low self-control	721		1-48	27.26 (8.70)
Psychosocial development				
Independent:				
Psychosocial development	811		2-4	3.12 (.51)
Impulsive level E ₂	47	5.8%		
Transition level E ₂ /E ₃	100	12.3%		
Self-protective level E ₃	397	49.0%		
Transition level E ₃ /E ₄	153	18.9%		
Conformist level E ₄	114	14.1%		

Note: prevalence of problem behaviour is measured as one or more offences committed during the past school year.

All dependent variables of misbehaviour and delinquency are positively skewed. The independent variables (i.e. self-control scales and psychosocial development) have a relatively normal distribution.

3.7.1. Hypothesis 1

For the first hypothesis, we calculated the univariate association between self-control and problem behaviour (i.e. misbehaviour in school and delinquency outside school). Using Kendall's Tau-b correlations, we analysed associations for the three subscales of self-control as well as for the combined scale of self-control. The results are presented in Table 3.5.

Table 3.5 Correlation matrix of self-control scales and categories of misbehaviour and delinquency

Kendall's Tau-b correlation	Impulsivity (N=769)	Risk-seeking (N=777)	Temper (N=762)	Total low self-control (N=721)
Total variation misbehaviour	.259	.273	.340	.376
Misbehaviour mild	.208	.222	.251	.301
Misbehaviour moderate	.196	.218	.274	.286
Misbehaviour severe	.128	.165	.198	.192
Total variation delinquency	.224	.236	.226	.299
Delinquency mild	.174	.181	.104	.197
Delinquency moderate	.209	.209	.247	.283
Delinquency severe	.178	.154	.204	.228

Note: All correlations are significant at $p < .01$ (2-tailed)

All scales of misbehaviour and delinquency are positively related to the subscales of low self-control (Table 3.5). For each category of problem behaviour, there is a clear significant positive relation with (elements of) self-control. In other words, high impulsivity, adventure seeking and temper are related to a high level of mild/moderate/severe misbehaviour and delinquency (significant at $p < .01$, two-tailed). These results imply that our first hypothesis is supported.

3.7.2 Hypothesis 2 and 3

The second and the third hypothesis state that we expect to find mean differences in prevalence of misbehaviour and delinquency between levels of psychosocial development. The second hypothesis focuses on the expectation that the self-protective level is positively related to misbehaviour in school. The third hypothesis states that we expect the impulsive level to have a higher frequency of serious delinquency outside school. The results are shown in Table 3.6.

Table 3.6 Differences in mean score of misbehaviour and delinquency for each level of psychosocial development

	Misbehaviour in school (0- 8)	Delinquency outside school (0-11)
	Mean (sd)	Mean (sd)
Impulsive level E2	2.09 (1.44)	1.23 (1.95)
Transition level E2/E3	2.24 (1.74)	.99 (1.28)
Self-protective level E3	2.45* (1.77)	1.30 (1.75)
Transition level E3/E4	1.95 (1.45)	1.05 (1.39)
Conformist level E4	1.78 (1.37)	1.03 (1.33)
Total	2.21 (1.66)	1.17 (1.60)
F	5.044**	1.459

Note: mean score in bold shows the highest mean

* $p < .05$; ** $p < .01$

According to Table 3.6, levels of psychosocial development differ significantly in variety of misbehaviour in school ($F = 5.044$; $df = 4$; $p < .01$). Post-hoc tests show that students in the Self-protective level E3 scored significantly higher than those in E3/E4 and those in the Conformist level (E4). We also conducted analyses for different category scales of problem behaviour. Significant differences in mean scores were found for mild misbehaviour ($F = 3.559$; $df = 4$; $p < .01$). E3 students scored significantly higher than E4 ($p < .05$). Significant differences were also found for the category of moderate misbehaviour ($F = 5.384$; $df = 4$; $p < .01$). Here, post-hoc analyses displayed significant higher scores for E3 compared to E3/E4 and E4.

Altogether, it seems that students in the Self-protective level clearly have a higher score in mild misbehaviour in school compared to students from other developmental levels. This is partly in line with hypothesis 2, although we found no relation with mild forms of delinquency. The Impulsive level (E2) does not relate to misbehaviour in school, or to delinquency outside school in this sample, which implies that hypothesis 3 is not supported. Delinquency outside school, as total scale, or in categories of mild, moderate and severe was not associated with any levels of psychosocial development.

3.7.3 Hypothesis 4

The fourth hypothesis states that we expect differences in self-control between levels of psychosocial development. This would imply that we should find higher degrees of low self-control for early levels of psychosocial development, and vice versa, small degrees of low self-control for normative or precocious psychosocial levels. Results are shown in Table 3.7.

Table 3.7 Differences in mean score of self-control between each level of psychosocial development

	Impulsivity	Risk seeking	Temper	Total low self-control
	Mean (sd)	Mean (sd)	Mean (sd)	Mean (sd)
Impulsive level E2	10.00 (3.58)	10.25* (3.52)	9.33 (4.78)	29.55* (8.58)
Transition level E2/E3	9.64 (3.94)	9.31 (3.47)	8.67 (4.18)	27.78 (9.11)
Self-protective level E3	9.75 (3.66)	9.90* (3.53)	8.49* (4.05)	28.21* (8.70)
Transition level E3/E4	9.27 (3.64)	8.66 (3.74)	7.49 (3.66)	25.61 (8.08)
Conformist level E4	9.15 (3.21)	8.32 (3.67)	7.14 (3.75)	24.54 (8.34)
Total	9.57 (3.63)	9.39 (3.63)	8.19 (4.04)	27.26 (8.70)
F (df)	1.007 (4,768)	6.462** (4,776)	4.616** (4,761)	5.587** (4,720)

Note: mean scores in bold are highest mean

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3.7 shows significant differences between psychosocial levels on the following scales: risk seeking ($F = 6.462$; $df = 4,776$; $p < .001$), temper ($F = 4.616$; $df = 4,761$; $p < .01$) as well as on the sum scale of low self-control ($F = 5.587$; $df = 4,720$; $p < .01$). Post-hoc comparisons reveal significant higher mean scores for the Self-protective level E3 in contrast to E3/E4 and E4. Altogether, students in the Impulsive level (E2) and the Self-protective level (E3) show more adventure and risk seeking behaviour and have, on average, higher scores on temper in contrast to students in the E3/E4 level and the Conformist level (E4). Also, students in the Self-protective level (E3) have a higher mean score on temper than students in the Conformist level (E4). Lastly, students in the Impulsive level (E2) and the Self-protective level (E3) have a significantly higher mean score on low self-control than other students. In general, these results support hypothesis 4. The Impulsive level and the Self-protective level have significantly elevated scores on adventure seeking, high temper and total sum scale of low self-control, suggesting a clear relation between low self-control and differential levels. Surprisingly, however, impulsivity is not relatively high in the Impulsive level of psychosocial development.

3.7.4 Hypothesis 5

According to this hypothesis, we expect an effect of psychosocial development on misbehaviour and delinquency, independent from the effects of self-control. However, because we did not find univariate associations between developmental levels and delinquency, we decided to limit the multivariate analyses to misbehaviour at school.

We conducted an analysis of variance with the implementation of a covariate (ANCOVA). Our dependent variables included not only the general variation scale of misbehaviour but also the category scales of misbehaviour (mild/moderate/severe). The independent variable is level of psychosocial development, and the covariate, of which the effect is controlled for, is total level of self-control. The results are presented in Table 3.8.

Table 3.8 Analysis of covariance predicting the effect of psychosocial development on misbehaviour, controlled for the effect of self control

		Misbehaviour			
		Total	Mild	Moderate	Severe
Total self-control	(df = 1,715)	217.31**	128.87**	107.18**	51.76**
Psychosocial development	(df = 4, 715)	1.73	.85	2.23	.42

Note: all four analysis have a significant effect for the covariate total self-control at $p < .01$

As can be seen, psychosocial development showed no significant effects on the total misbehaviour scale when the effect is controlled for self-control. However, possible heterogeneity within the variable self-control and misbehaviour lead us to investigate the effect of psychosocial development with one subscale of self-control at a time. This analysis revealed that psychosocial development did show a significant effect on moderate misbehaviour when using impulsivity ($df = 1,763$; $F = 4.40^{**}$), adventure seeking ($df = 4,771$; $F = 3.10^*$) and temper ($df = 4,756$; $F = 3.24^*$) as covariate. Also significant effects of psychosocial development on general misbehaviour were found when we controlled for impulsivity ($df = 4, 763$; $F = 3.94^{**}$) and temper ($df = 4,756$; $F = 2.68^*$).

Previous results (Table 3.6) indicated that there is a clear association between misbehaviour in school and the self-protective level. Most likely, the effect of being in the Self-protective level is responsible for this independent effect on misbehaviour in school. Unfortunately post-hoc tests are unavailable in ANCOVA, due to statistical limitations. Therefore, definitive conclusions with regard to this cannot be made.

3.8 Discussion

In this study we set out to explore the effects of psychosocial developmental levels according to Loevinger's theory on misbehaviour in school and delinquency outside school in combination with the effects of self-control as described by Gottfredson and Hirschi. We used a self-report questionnaire to collect data on misbehaviour and delinquency, and levels of self-control. We used a sentence completion test to measure psychosocial development. Our first goal was to associate the two variables (psychosocial development and low self-control) separately with misbehaviour and delinquency, and with each other. Our second goal was to analyse the effect of psychosocial development on misbehaviour, controlling for self-control.

Our first hypothesis was supported: we found clear relations between low self-control and misbehaviour and delinquency. These results are similar to conclusions from existing studies (Grasmick et al., 1993; Romero et al., 2003; Tittle et al., 2003). The associations remained after disaggregating the different categories of misbehaviour and delinquency (mild, moderate en severe).

Our second hypothesis about a possible association between the normative, self-protective, level of psychosocial development and misbehaviour/delinquency was partly supported. The results indicated a significantly higher prevalence of moderate misbehaviour in school among students in the self-protective level. Post-hoc analyses revealed that significant differences only appeared in contrast to the higher levels (post self-protective) and not in contrast to the lower levels of psychosocial development (pre self-protective).

The third hypothesis that a stagnating development is associated with more serious offences in and outside school was not supported. Results indicated no significant differences between levels of psychosocial development. An explanation for this might be that the relevant types of offences are not that prevalent yet within this age cohort (11-13 years old). The fourth hypothesis about an association between psychosocial levels and self-control was supported by our results. We found significant associations between being in the Impulsive and Self-protective level with higher rates of low self-control. The self-control scale impulsivity had no clear association with the Impulsive level of psychosocial development. This is somewhat surprising, and it indicates that 'impulsive' does not refer to the same characteristic in the two contexts. Students in the Impulsive and Self-protective levels had significantly higher scores on adventure seeking, temper and the combined low self-control scale, but not on impulsivity. From Loevinger's theory it is understandable why these relations were found. Adolescents in the Impulsive level are expected to admit quickly to aggressive and other impulses, which explain why they score higher on the risk-seeking and temper subscale. Adolescents in the Self-protective level are expected to present themselves as tough and they try to be invulnerable to emotions. Everything must be in favour of him/her and concerns for feelings of others are less important. These characteristics are also in line with high levels of temper and risk seeking.

After these univariate, we analysed whether a separate effect exists of psychosocial development (specifically the Self-protective level) on misbehaviour. We chose to focus on misbehaviour only, because delinquency outside school had no significant associations with psychosocial development. No significant results were found when we used the total self-control as a covariate. However, when separate scales of self-control are implemented as covariate, we found significant effects of level of psychosocial development on moderate misbehaviour. Moderate misbehaviour can be seen as behaviour that is essentially deviant and problematic, but not so much to be uncommon in a sample (which is the case with severe misbehaviour). These results suggest that a developmental effect may exist with regard to this type of misbehaviour next to the effects of the various self-control dimensions.

In the current study we approached (scales of) self-control and psychosocial levels as independent of each other. However, moderating effects between these two personality constructs may also be possible. Additional exploratory analyses that we conducted offer some indications for this. For each psychosocial level, we correlated self-control with misbehaviour and delinquency. It appeared that the correlation of self-control and misbehaviour decreased slowly among levels of psychosocial development. For the total scale of delinquency we found some evidence for a contrast between the Impulsive level and the other levels. Self-control and delinquency had a considerable correlation in the Impulsive level but a less high correlation in the other levels.

The results of this study have several implications. Firstly, although self-control showed the strongest correlations with problem behaviour, the significant association of psychosocial development with especially moderate misbehaviour and general misbehaviour indicate that psychosocial developmental aspects indeed may play an important role in the understanding of problem behaviour. Our results support recent findings from developmental psychology and criminology on the onset of offending in relation to deve-

developmental psychosocial factors (Brugman & Aleva, 2004; Moffitt, 1993). Our results and these other studies suggest that developmental factors are important for the aetiology of moderate problem behaviour.

Secondly, the results show that Loevinger's theory can only partly explain the prevalence of misbehaviour. Additional effects appeared only at the moderate severe category of misbehaviour when controlled for sub dimensions of self-control. Most probably there is a single level of psychosocial development that has a significant effect on predicting moderate misbehaviour next to impulsivity, adventure seeking and high temper. From the earlier univariate analysis it seems that it is the Self-protective level in which students have the strongest involvement in misbehaviour within the moderate category. We expected from Loevinger's theory that these students are pushing the line of their behaviour into acting problematic but because their development is normative their problematic behaviour will not become very serious. Our findings with regard to their behaviour fits with this supposed development. An important consequence would also be that their problematic behaviour has a temporary character (Ezinga et al., 2006; Loevinger, 1976). This reminds us to Moffitt's dual taxonomy in which problem behaviour is divided into adolescent limited offending and life-course persistent offending (Moffitt, 1993; Donker, 2004). We suggest that adolescent limited offending is partly due to adolescent psychosocial development. It may be a temporary period of offending where the characteristics of the Self-protective level play an important role in the increase in problematic behaviour. As such, Loevinger's theory of psychosocial development may add to the understanding of Moffitt's adolescent limited offenders.

Moreover, our analyses indicate a non-linear relation between psychosocial development and relatively mild and moderate forms of misbehaviour. The third, Self-protective level is associated with the highest prevalence for this type of problem behaviour, more than the second (impulsive) and fourth (conformist) level. Our results further suggest that not all types of mild misbehaviours and delinquency ought to be considered as pathologic, since some of them may be quite normative for adolescent development. The modest moderating effects between self-control and levels of psychosocial development suggest that there may be more complex interactive relations between the self-control constructs and levels of psychosocial development. This implies that complementary effects of psychosocial development on the increase of delinquent behaviour in early adolescence are not completely crystallised yet.

3.8.1 *Limitations and implications for future research*

Criminological studies have started just recently to acknowledge possible dynamic effects of psychosocial development on delinquency (Romero et al., 2003). Still, comparing a 'static' theory such as the self-control theory and a dynamic theory like the theory of psychosocial development is more complicated than it seems on first sight. We used cross-sectional data, which does not give us the opportunity to study within-individual changes. With our sample we were only able to study inter-individual differences. Also, the distribution of levels of psychosocial development within this age group has a small range, limiting the possibility to find significant differences between the psychosocial levels on self-control, misbehaviour and delinquency. Nevertheless, taking these limita-

tions into account, we found several important results in this study, well worth to investigate further. Most importantly, we showed that developmental differences in psychosocial level have a small but significant contribution to the explanation of misbehaviour. It can thus be concluded that the developmental level in which adolescents find themselves has implications for their behaviour. It is also possible that psychosocial development contribute to misbehaviour and delinquency through an indirect effect via levels of self-control with which it is clearly associated.

Future research should consider using longitudinal data with a wider distribution of levels of psychosocial development and more equally distributed prevalence rates of misbehaviour in school and delinquency outside school. Also our exploration of moderating effects show that further research on this matter is warranted.

3.9 References

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