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## **Psychosocial development and the development of problem behaviour during adolescence**

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# Psychosocial Development and The Development of Problem Behaviour during Adolescence

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*voor Maaïke*



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# I General Introduction

## I.1 Introduction

Adolescence is a time of change and transition. In a nutshell: it is the “road towards adulthood”. The adolescent period is characterised by the fastest growth of individual development in psychosocial functioning and personality. Several essential characteristics such as identity formation, moral reasoning and social emotions take huge steps in adolescent development. Also, considerable changes occur regarding peer interactions and peer relations. In early adolescence, youth are largely involved in peer-networks and coping with authority figures. In late adolescence, youth individualise more. They are less affected by peer pressure. Also during adolescence, problem behaviour increases. To a great extent, this problem behaviour appears in the shape of mild antisocial behaviour. This type of problem behaviour is part and parcel of the adolescent “*Sturm und Drang*” period.

Criminological and psychological studies have shown that several individual risk factors play a role in the origin of problem behaviour. These individual risk factors are often related to personality or character; regarding the classical personality traits of the Big Five or other theoretical models of personality, several studies concluded that relations exist between these personality characteristics and antisocial behaviour (Loeber & Farrington, 2000; Miller & Lynam, 2001; Thornberry & Krohn, 2003). Especially the traits described as “conscientiousness” and “agreeableness” are related to antisocial behaviour. Furthermore, it is well known that impulsivity, a lack of conscience development, neuroticism, and a need for excitement relate to (some kinds of) juvenile delinquency (Bijleveld, Bakker, & Hendriks, 1998; Miller & Lynam, 2001).

Research has shown that the personality characteristics that are related to problem behaviour can also be seen as developmental dimensions. In other words, it is possible to explain individual differences in personality partially through individual differences in the *development* of personality characteristics. Individual differences in personality may as such be actually developmental differences. It is therefore important to take the pace of development into account.

Criminological as well as psychological research has shown that in late childhood and early adolescence an increase in the *prevalence* of problem behaviour occurs. Also, these studies show an increase in *severity* of problem behaviour. Explanations are sought in various domains of risk factors. There are stable and changing factors (e.g., respectively temperament and moral reasoning) for the adolescent. Factors can act as either risk or protective factors of personality. Research that employs a developmental approach to study these factors that could explain problem behaviour development is scarce however. So, we are relatively uncertain of the exact relation between individual psychosocial development and the development of problem behaviour. As such, the central question to address in this thesis is as follows: To what extent is there a relation between psychosocial development and the development of delinquent behaviour over and above known criminological risk and protective factors?

This introduction will continue with an elaboration on problem behaviour. Then, development of problem behaviour is discussed. Subsequently, the need for a developmental approach is discussed. Lastly, the outline of the various chapters is provided.

## 1.2 Research on the prevalence of problem behaviour in early adolescence

Research in crime and problem behaviour employs, broadly speaking, two ways of collecting data. These are through the use of self-report questionnaires and through the use of official records. Both types have their advantages, but also their disadvantages. Current thesis uses self-report data. The following paragraph will therefore introduce shortly the findings of recent studies from self-report questionnaire data on problem behaviour prevalence.

A recent study on juvenile self-report problem behaviour was conducted by the WODC (Dutch Research and Documentation Centre) in 2005 (Van der Laan & Blom, 2006). This was a cross-sectional study, repeated every three years, with approximately 1500 respondents in 2005 ranging from 10 to 17 year old. The respondents were asked to report about 33 crimes whether or not they had committed them the previous year and, if so, how many times. The results revealed that more than 50% of the adolescents had committed some sort of offence in the past year. Fare dodging and illegal lighting of fireworks were most often reported. When these two offences were not considered, approximately 40% of the respondents reported a criminal offence. Van der Laan and Blom also mentioned an important difference in gender. Boys committed a criminal offence 1.5 times more often than girls do. Furthermore, they reported significant differences in prevalence between age group of late childhood (10-11) and early adolescence (12-13) and the middle adolescent (14-15) and late adolescent group (16-17).

With respect to frequency, Van der Laan and Blom reported that the most frequent offences (11 or more in a year) were fare dodging, illegal fireworks lighting, verbal discrimination, fighting without injury and graffiti. The study also investigated risk factors and protective factors of delinquency. About 35 factors were investigated related to delinquency; 34 of them were actually related and 23 of them (the majority) could act as either protective or risk factors. Four factors were protective only; seven factors were shown to be a risk factor only. Van der Laan and Blom stated that risk factors were not gender specific as is often thought: In fact, differences between boys and girls were small. One of the most important conclusions Van der Laan and Blom made was that risk and protective factors for delinquency are dynamic, in the sense that the effects of risk and protecting factors on delinquency change with age cohort (e.g., between age 10 and 13) of the adolescent. For instance, the effect of low impulse control as a risk factor for delinquency is different for age 10 compared to age 13, where other risk factors might play a more substantial role at that moment. They also concluded that between early adolescence and middle adolescence some sort of change occurs in delinquency prevalence. From their point of view, suggestions regarding change in school climate and its change of the social influence seemed most likely the reason. They reasoned that with the change in school climate, parental influences become less visible whereas influences from (deviant) peers became more important. This suggestion corresponds with the perspective of Bokhorst and colleagues (2007), who stated that during adolescence the

shift in focus by the adolescent is characterised by less parental dependency and greater interest in spending time with peers (Bokhorst, Sumter, & Westenberg, 2007).

Another national study on self-reported delinquency dates from a relatively longer time ago. In 2003, the Central Bureau of Statistics reported the results of the National Youth study with data from 2002. Here, a sample of almost 10,000 adolescents ranging from 12-18 years old were asked to report about 10 different offences in the past year. Of all students 15% reported that they committed one of the ten offences. The most common offence was a fight outside the school perimeters (14.4%), followed by vandalism and injuring someone who needed medical attention afterwards (9.3%) (CBS, 2003).

Junger-Tas, Haen-Marshall, and Ribeaud (2003) also conducted a self-report study on juvenile crime in various countries in Europe and also The United States. Overall, great similarity was seen between nations in age of offending. Most offending took place between ages 14-18. Furthermore great similarity was seen in the variation of offences adolescents reported. The study followed a categorisation into three clusters of countries. It appeared that adolescents from Northwest European and South European countries had a later age of onset than the adolescents from Anglo-Saxon countries with respect to violence and drug use.

In 2006 "The Home Office", the English governmental statistical research institute, conducted a periodical self-report survey on young people and crime, describing the amount of offending. Among others, they studied antisocial behaviour in the last 12 months (i.e. the year 2005). The results showed that within a proportion of 10-15 year olds a total of 25% of the female sample offended, whereas 30% of the male sample offended. Regarding age we see that respectively from the age of 10-11, 12-13, and 14-15 a total of 20%, 27%, and 34% of the youth committed any type of antisocial behaviour (Wilson, Sharp, & Patterson, 2006).

### 1.3 Development of problem behaviour

In all likelihood, a relatively small part of the population never commits an offence in their life. A large part of the population shows some sort of rule breaking behaviour once or more in their life. Such offences are mostly seen in adolescence, that is, between 11-18 years old. Many studies have shown that a sudden increase in problem behaviour starts in early adolescence. The peak age of offending is observed around the 16<sup>th</sup> to 18<sup>th</sup> year. During this period of adolescence the percentage of youth committing an offence is highest (see for instance Farrington, 1986; Junger-Tas, 1992; Donker, 2004). Most of the youth desist in their criminal behaviour in adulthood (18 years and older).

Thus far, developmental criminology is concerned with three types of theories to explain the age-pattern of problem behaviour: static (i.e., Gottfredson & Hirschi, 1990), dynamic (i.e., Laub & Sampson, 2003), and typological theories (i.e., Moffitt, 1993; LeBlanc, 2005). Static theories are concerned with explaining individual differences in criminal behaviour. The differences can be found in one or more factors that increase the risk for committing a crime. The essence in these types of theories is that the formation of these factors is established early in life and tends to be relatively stable throughout life. Dynamic theories on the other hand aim to study life course dynamics and the influence of life circumstances on behaviour. These circumstances can be increasing the risk

for crime as well as contribute to the desistance of crime. Lastly, criminology uses the typological perspective where qualitative differences between offenders are emphasised. Currently, these theories assume that a large proportion of the offenders are not criminally active and a small proportion is. Each group has distinct mechanisms for their behaviour (Blokland, 2005).

One particular example of a well known typological theory is Moffitt's taxonomic model. Here, the differentiation is made between the "adolescence-limited offenders" and "life-course persistent offenders" (Moffitt, 1993; Donker, 2004). Adolescent-limited offenders are characterised by the fact that they mimic the persistent offenders in their "risky behaviour". Life-course persistent offenders, showing chronically delinquent behaviour, manifest early signs of offending around the age of 8-10 years and do not desist.

The sudden increase in problem behaviour in early adolescence is partially explained through the presence of a so-called "maturity gap", experienced by the adolescent-limited offenders (Moffitt, 1993). This phenomenon occurs in early adolescence and describes the incongruent feelings that adolescents have when they develop to a certain physical maturity, but are not accepted as such by their (adult) environment. This premature pubertal development can result in deviant behaviour and quasi-adult characteristics, such as smoking and promiscuous sexual behaviour. According to Moffitt (1993), adolescence-limited offenders thus mimic the deviant behaviour shown by life-course persistent offenders, which might be a result of experienced peer pressure and desire to belonging to the group.

Next to theoretical explanations, numerous empirical studies have found explanations for the differences and changes in the prevalence of problem behaviour in late childhood and adolescence. Studies from developmental psychology show that (persistent) problematic behaviour already starts in early childhood (Loeber, Green, Lahey, & Stouthamer-Loeber, 1989; Tremblay, 2000). Differences in delinquent behaviour (or inter-individual differences) are often explained through the presence of environmental risk factors (e.g., problematic family situation, negative parental characteristics and the presence of delinquent peers in the neighbourhood or school) and individual risk factors (e.g., low impulse control, neuroticism, and hyperactivity). The change in prevalence of delinquent behaviour (intra-individual difference) is often explained through changes in the adolescent's relations with adults and peers (unravelling relations between youth and parents, and greater focus on peers, start of forming steady relationships). Furthermore, the presence of delinquent peers is considered an important risk factor for delinquent behaviour. Mingling with delinquent peers could be a negative influence in further development. It should be noted that girls are less often and less frequently involved in criminal behaviour; their duration of offending is also shorter than that of boys (see for instance Mertens, Grapendaal, & Docter-Schamhardt, 1998; Nijboer, 1997).

Where developmental criminology uses three types of theories, developmental psychology often uses stage-theories to describe and interpret changes in psychological state and behaviour over time. Stage-driven theories offer a concrete solution to the question as to how the development of general psychological characteristics (such as psychosocial maturity) can be defined. A stage-theory has the capability of operationalising development in disjunctive stages and to monitor transitions in level of development.

#### 1.4 Need for a Developmental Approach

Developmental theories are important to the understanding of psychological cognition and emotion. A lot of contemporary criminological research focuses on cognition, often supported by neurological and neuropsychological findings. However, emotional development is to a considerable deal entwined with overall psychological development and thus also with cognitive development. Studies of the personality development of children and adolescents are therefore important in explaining delinquent behaviour. However, up till now, only few studies have been conducted with respect to the possibilities of psychological theories and the perspectives of personality development for the explanation of problem behaviour. No studies at all have been conducted on the interrelation of personality development with other causal factors. This dissertation has the ambition to further examine these relatively unexplored theoretical crossroads.

Next to the scarce empirical knowledge on the relation between personality development and problem behaviour, there is another reason to relate developmental theory with the study of problem behaviour. Levels of development clearly relate to age-cohorts (see for instance Cohn, 1998). A considerable part of this development takes place between the 8<sup>th</sup> until 23<sup>rd</sup> year. This knowledge interconnects with the findings in criminological research where delinquent behaviour increases in early adolescence and decreases at the end of the adolescent period (often between 18<sup>th</sup> and 25<sup>th</sup> year). The characteristics of the early levels of psychosocial development and later levels of psychosocial development thus appear to follow the development of problem behaviour. The descriptions of the levels resemble known criminological risk factors (e.g., impulsiveness, lack of self-control and an egocentric attitude). During these phases problematic behaviour may increase for a part due to the psychological states that are associated with the levels.

Over the years, many psychologists have debated on how psychosocial maturity develops. Steinberg and Cauffman summarised it in four areas: 1) the ability to control the own impulses and emotions, 2) the development of autonomy of adolescents in relation to their parents and peers, 3) the increasing capacity to sympathise and empathise with others and understand other peoples' differing opinions, 4) an increasing feeling of responsibility to themselves and toward others (Steinberg & Cauffman, 1996). One person who succeeded to develop a theory on psychosocial development in a way that it can be measured is Jane Loevinger. The following paragraph will describe in some more detail her perspective on psychosocial development.

#### 1.5 Psychosocial Development

Loevinger's theory on psychosocial development translates the theory of psychosocial maturity to a measurable construct. Especially regarding the first area that Steinberg and Cauffman describe, her theory made psychosocial development more concrete through carefully designed levels, each having its own qualitatively different characteristics. Westenberg revised Loevinger's theory and created a perspective where psychosocial maturity became related to age-cohorts (Westenberg Drewes, Siebelink, Treffers, Jonckheer, & Goedhart, 2000). As such, it is possible to measure psychosocial development through standardised procedures. At first, Loevinger theorised that the "ego devel-

opment”, her original definition, should be considered as completely independent of age. With the use of age-cohorts, deviance in development became visible. Here the practical value of the revised theory and its instruments is revealed.

Loevinger (1976) described different stages of ego<sup>1</sup>, a term Loevinger used for the developmental framework through which each individual interprets the world. Psychosocial development is viewed 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). A central tenet is that the theory of psychosocial development consists of various levels and that individuals have to go through the levels in a fixed pattern. The theory identifies nine developmental levels<sup>2</sup>, each of them having its own unique characteristics. As far as the developmental levels of *early* adolescents are concerned, three of them are most relevant: the so-called Impulsive level (E2), the Self-protective level (E3), and the Conformist level (E4). Before the Impulsive level 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 following 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 1.1 summarises the characteristics of the five developmental levels that are most relevant from early to mid-adolescence.

**Table 1.1 Levels of Psychosocial Development in Early to Mid Adolescence**

	Description
Impulsive E2	Impulsive, egocentric, dependent, preoccupied with bodily feelings
Self-protective E3	Opportunistic, manipulative, wary, preoccupied with control and “trouble”
Conformist E4	Respect for rules, cooperative, loyal, preoccupied with appearance and correct behaviour
Self-awareness E5	Exceptions allowable, helpful, self-aware, preoccupied with feelings, problems, adjustment
Conscientious E6	Self-evaluated standards, self-critical, intense, responsible, preoccupied with motives, traits, and achievements.

*Note.* Based on Loevinger, J. (1997). Stages of personality development (p. 203). In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of Personality Psychology* (pp. 199-208). San Diego, CA: Academic Press. Reprinted with permission.

1 Loevinger referred in her theory to stages of ego development. This ego is not defined as in the psychoanalytical theories. Nonetheless, current thesis will refer to psychosocial development or psychosocial maturity, which is a satisfying and more concrete definition for the theory.

2 This thesis uses the concept *level* instead of *stage*. Reason to do so is that stage implies a hierarchical tendency in psychosocial development, whereas the theory states that the levels are qualitatively different and one is not per se better than the other. Furthermore the definition of level, when compared to stage, assumes a more gradual development.

In the Impulsive level (E<sub>2</sub>), which is 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 which behaviour is allowed and which is not. This obedience is nevertheless overshadowed by their impulsivity.

The Self-protective level (E<sub>3</sub>) is most prevalent in pre- and early adolescence, from 10-13 years, the same 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 level, 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 (E<sub>4</sub>) 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. Relationships with others have become relevant goals. 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).

In adolescence, the last relevant level is the Self-awareness level (E<sub>5</sub>). Here, the focus is changed to the (inner) Self, instead of the group. Rules are guidelines while in the previous level rule obedience is essential. The personal feelings and characteristics do not have to be in line with the characteristics that are socially desirable. One consequence of the focus towards the own individual is that there is more caution regarding influences by others. This does not imply that the outer world is totally irrelevant; Self-aware individuals are sensitive to appreciation and also concerned with rejection. Unlike the more collective constitution in the Conformist level, fear for loneliness is here seen as the price to be paid when trying to hold on to your own personality.

In order to measure and test her theory, Loevinger constructed a sentence completion test. Persons were asked to complete the incomplete sentences as they wished. Results were then linked to a protocol summing all the most prevalent answers and related the answers to various psychosocial stages. In order to meet the assumptions necessary for empirical testing and complete a protocol, Loevinger developed a core procedure for measuring ego development: micro-validation (see also Westenberg et al., 2000). The essential feature for micro-validation in this instrument is a “feedback loop” between data and theory. This loop allows the model to alter protocol information from the scoring manuals and theory at the same time. Contemporary review studies concluded that the sentence completion test demonstrated impressive construct validity in numerous studies and substantial incremental validity (Lilienfeld, Wood & Garb, 2000; Manners & Durkin, 2001).



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

The relation between level of psychosocial development and problem behaviour has been studied to a limited extent. There are three studies of relevance. Frank and Quinlan (1976) studied the relation between girl delinquency and levels of psychosocial development. Delinquent girls 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 differed qualitatively 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). So, the distinction with psychosocial maturity levels made it possible to distinguish instrumental arguments for committing an offence from (basal) impulsive reasons.

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 12<sup>th</sup> year, i.e., in early adolescence (Krettenauer, Ullrich, Hofmann, & Edelstein, 2003).

Hauser and colleagues (1990, 1991) did not emphasise the possible relation between adolescent psychosocial development and problem behaviour. However, they contributed significantly to the understanding of psychosocial maturity from a developmental point of view. In their studies, particular attention was given to underdevelopment of psychosocial maturity. The developmental aspect that Hauser studied originated from the implementation of paths of psychosocial development instead of studying levels of psychosocial development. The research focussed on the interaction between the adolescent and his parents. Results showed that adolescents on a pre-normative psychosocial path had more superficial and difficult parental relations (Hauser, Borman, Powers, Jacobson, & Noam, 1990; Hauser, Powers, & Noam, 1991). The latter phenomenon has already received support as a risk factor for problem behaviour (Loeber & Stouthamer-Loeber, 1986; Hoeve, 2006).

Next to the studies mentioned above, other studies also showed evidence for 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).

There are several reasons that make the theoretical framework of Loevinger promising for investigating problem behaviour. First of all, the empirical studies described above, showed a relationship between behavioural problems and criminal behaviour on the one hand, and psychosocial development on the other hand. In general the studies revealed that behavioural problems are related to the Impulsive level and Self-protective level (Frank & Quinlan 1976; Krettenauer et al., 2003). It is important however, to acknowledge that the samples used in these studies were entirely "clinical", i.e., the sample existed of patients or delinquents and is rather unrepresentative for the general population.

As such, it is difficult to assess if the relationship between behavioural problems and psychosocial development can be generalised to the population. It is also unknown if more mild delinquent behaviour relates to the Impulsive and Self-protective level. Lastly, within such a clinical sample it is very well possible that the relationship is spurious. This means that certain levels of psychosocial development and problem behaviour are presented simultaneously, but do not necessarily have a relation with each other. The population used could very well already be a high risk group of showing problematic behaviour, due to other factors.

A second and related reason is that, on the one hand, empirical studies reported that serious problem behaviour is related to 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. This social effect does not contribute to a re-boost in psychosocial maturity. There are also results that suggested a negative effect on psychosocial maturity when the cause is found in adverse parental circumstances (e.g., families with bad parenting practices). As a result the children's psychosocial maturity cannot reach its potential and leads to stagnation in their development (Hauser et al., 1990; Hauser et al., 1991). Also, not only environmental factors play a role in deviant psychosocial development. On an individual level, criminological and psychological research clearly points out that several personality characteristics are related to delinquent behaviour (e.g., basal aggressive behaviour, temper, and lack of impulse control) in the Impulsive level. These personality characteristics are factors that relate to the description of the Impulsive level. All these similarities suggest that a stagnating psychosocial development may be related to serious forms of misbehaviour and delinquency. This has however not been studied yet.

On the other hand, stagnation of psychosocial development cannot explain the general increase of milder forms of problem behaviour in early adolescence. From a normative developmental perspective, deviant behavioural outbursts are controlled and corrected by parents and authorities. As such it is very well possible that relatively mild forms of problem behaviour, limited to the adolescent period, associate 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 congruent with relatively mild offences. For instance, adolescents in the Self-protective level become more independent from their parents and develop feelings of being invulnerable. They strive to fulfil their needs in a more calculated way. Rules that stand in the way to obtain these needs are in a sense "meant to be broken". Therefore, it can be suggested that mild misbehaviour and delinquency associates with the normative developmental level in early adolescence. This normative aspect needs also to be studied.

A third reason for investigating the relation between psychosocial development and problem behaviour regards the orientation approach. Either the focus may be laid on a stage-oriented psychosocial development of the adolescent, or on an approach of normativity of development. This stage-oriented approach considers one particular level in an age cohort, mostly the normative level. All other psychosocial levels are considered "deviant". This approach implies that when an adolescent is not in the age-conform level, psychosocial development is not normative. It is rather complicated to implement this approach for studying deviant behaviour. Frank and Quinlan used a stage-oriented approach where the Conformist level was normative in the comparison between delin-

quent and non-delinquent girls (Frank & Quinlan, 1976). Similarly, Hauser used a stage-oriented approach in his longitudinal research.

The concept of creating paths around the Conformist level has however led to interesting results on the study of parent-child interaction (Hauser et al., 1990). The interpretation of this research all focussed on pre-conformist and post-conformist levels of psychosocial development. Krettenauer and colleagues also used a stage-oriented approach in the longitudinal investigation of internalising and externalising problems relating to ego-level attainment (Krettenauer et al., 2003). Although these studies point out which levels are more common in adolescents who exhibit deviant behaviour, they are not able to place these results in a developmental perspective because normativity itself changes over time: the level that is normative changes. Therefore, studying one particular level in deviant behaviour does not seem very helpful.

A normative approach instead focuses more on the development of the adolescent and places relevance more to the relative individual *development* instead to the absolute *level* of psychosocial development. Over time, the normative psychosocial level of the person changes in relation to the age of the adolescents. Subsequently, the deviance of certain behaviours changes over time. This approach of relating development of psychosocial maturity to problematic behaviour therefore is a more promising theoretical perspective. Lastly, problem behaviour has a similar pace of development in early and mid adolescence as psychosocial maturity. They both change a lot from the age of twelve year onwards. This approach can therefore also explain if their changing pace in development relate to each other.

In this thesis various operationalisations of psychosocial development were used. Next to studying variation in *level* of psychosocial maturity, the longitudinal studies also analyses *paths* of psychosocial development from Wave 1 (2002) to Wave 2 (2004). These paths are partly inspired by the work of Hauser and colleagues and the study of Hennighausen and colleagues (Hauser et al., 1990; Hauser et al., 1991; Hennighausen, Hauser, Billings, Schultz, & Allen, 2004). Five different paths are constructed: The Normative path (normal psychosocial development from Wave 1 to Wave 2); The Stagnating path (no development between Wave 1 and Wave 2); The Lagging behind path (delayed development from Wave 1 to Wave 2); The Precocious path (speeded development from Wave 1 to Wave 2); and lastly the Regressing path (a descending development from Wave 1 to Wave 2).

## 1.7 Data in current thesis

In 2002, the Netherlands Institute for the Study of Crime and Law Enforcement (NSCR) started a longitudinal, multi-wave study called the “NSCR School project”. This study involved around 2000 students from 12 different school locations in The Hague and environment. The variety in schools gave the opportunity to achieve enough variation in school contexts. As such, some form of generalisation regarding the results was possible. The project focussed on the average to lower educational type of secondary school

level, called VMBO<sup>3</sup>. Several reasons are based on the notion of choosing these adolescents. First of all, adolescents at this school level are the largest category in secondary school and, secondly, they pose a relatively high risk in The Netherlands for behaving deviant. Completion of the questionnaires was done in the class. The data was collected through a computerised questionnaire. With the completion of the questionnaire, the students received a small incentive (CD coupon of € 5, -). The study's aim was to collect as much data as possible on students' behaviour in school and outside the school. The questions primarily focussed on the behaviour that was (and still is) brought into attention: problem behaviour. The survey contained, next to problem behaviour, also other questions on demographical information, personality characteristics, school climate, parental climate and peer situations.

The project collected data from the entire period that the adolescents undergo their school career at the VMBO level. This was made possible through the use of an accelerated procedure of data collection. The data sample was divided in two cohorts, A and B, and was collected simultaneously. So, in 2002 adolescents in the first (A) and third (B) year of secondary school were asked to fill out the questionnaires. In 2003, the second (A) and fourth (B) year were asked to complete the questionnaire. In 2004 the fourth year of cohort A is for the last time asked to complete the questionnaire. This procedure gave the opportunity to create a perspective on how these adolescents develop. The current study on psychosocial development uses data from cohort A in the first (2002) and third year (2004) the adolescents are in school. The sample distribution can be seen in Table 1.2.

**Table 1.2** Distribution of the Sample in Time 1, Time 2, and Longitudinal after Attrition

	2002	2004	2002 → 2004
Total in sample	1048 (100.0%)	949 (100.0%)	–
Total	811 (77.4%)	868 (91.5%)	539 (100.0%)
Boys	418 (51.5%)	440 (50.7%)	271 (50.3%)
Girls	393 (48.5%)	428 (49.3%)	268 (49.7%)

Each time, the sample of adolescents was tested with two instruments; one instrument regarding the general questionnaire concerning problem behaviour, peer factors, and parental factors, and one instrument concerning the measurement of psychosocial development. The sentence completion test (youth version originally named the “Zinnen-Aanvullijst Curium” (or ZALC) measured the levels of psychosocial development. The time interval between these measurements was relatively short (within approximately two weeks).

3 This school type is most common seen and represents for a considerable part the adolescents present in South Holland. We chose this particular group, because these children are highest in risk of behaving problematic.

### 1.7.1 Variables

The current thesis addresses general problem behaviour. There are differences in frequency and severity between of problem behaviour. In order to make proper interpretations, several distinctions are created throughout the following studies. The first distinction made is between misbehaviour (or rule breaking behaviour) *in* school and delinquent behaviour *outside* school. The “misbehaviour in school” category has 10 items varying from throwing things in class to “threatening the teacher”. Overall, the items are more characterised as rule breaking behaviour. The other category is delinquency outside school. Here, 13 items are asked varying from fare dodging to robbery and car theft.

A second distinction that is made throughout the studies regards severity. There is a rough differentiation made by looking inside school and outside school. However, by viewing the total of 23 items separately on severity, current thesis aims to get more hold on the type of offence in relation to the level of psychosocial maturity. Six criminologists were asked to complete an enquiry on severity. All 23 items were displayed and each respondent was asked if they considered the offence type was mild, moderate or severe. An offence is mild when the criminologists thought the behaviour is really deviant and problematic after the adolescent has committed the offence *six times or more* in a year. An offence is moderately severe when the criminologists evaluated the offence as deviant when it is committed *three times or more* in a year. Lastly, an offence is severe when the criminologists evaluated the offence as deviant when it is committed *one time or more* in a year. All interpretations were analysed. Offences were rated according to the interpretation of the majority, and for some offences the authors decided the category of severity as the criminologists’ decision reached a tie. Table 1.3 gives an overview of the items used and the distinctions made per item on category and severity.

The research question in this thesis also mentions the presence of criminological factors included in the study. These factors will be examined on a psychological level and on a social level. The psychological factor that will be studied is “Low Self-control”, stemming from the General theory of Crime by Gottfredson and Hirschi (1990). This variable consists of three sub dimensions: “Impulsivity”, “Adventure seeking” and “Temper”. These variables are measured by using scales from Grasmick and colleagues (1993), who examined and operationalised the theory of Self-control (Grasmick, Tittle, & Bursik, 1993). The social factors used can be found on two dimensions: One dimension concerns parental influences. Here, the following scales are used: “Parental bonding”, “Parental supervision”, “Experienced warmth by the parents”, and “Time spent with the parents”. The other social dimension is peer influences. For this group we used the variable “Social learning from peers”. It is a combined variable out of two separate scales (“Peers reinforcing deviant behaviour” and “Peer-group pressure”). The second variable is “Delinquency reported of peers”. The last variable is “Time spent with peers”. The scales concerning parents are mostly inspired by the social control theory (Hirschi, 1969) whereas the scales concerning peers were inspired by the social learning theory (Akers, 1998).

**Table 1.3 Types of Problem Behaviour and Severity Rate (Mild Severity = 6; Moderate Severity = 3; Severe = 1)**

<b>Misbehaviour in school</b>	<b>Frequency of behaving problematic</b>
Throw things in class	6 times or more
Verbal bullying	6 times or more
Physical bullying	3 times or more
Graffiti in school	3 times or more
Vandalism	3 times or more
Theft in school < €5, -	3 times or more
Theft in school > €5, -	1 time or more
Fighting with injury	1 time or more
Fighting without injury	3 times or more
Threatening the teacher	1 time or more
<b>Delinquency outside school</b>	
Graffiti	3 times or more
Vandalism	3 times or more
Fare dodging	6 times or more
Shop theft < €5, -	3 times or more
Shop theft > €5, -	1 time or more
Buying stolen goods	3 times or more
Theft of bike/moped	1 time or more
Car theft	1 time or more
Burglary	1 time or more
Robbing	1 time or more
Theft otherwise	1 time or more
Fighting with injury	1 time or more
Fighting without injury	3 times or more

## 1.8 Outline

This thesis aims to examine whether psychosocial development can contribute to the answering of the question why a juvenile offender increases in misbehaviour or even commits an offence. As such, this thesis describes and tests the relation between psychosocial development and the development of problem behaviour from early to mid adolescence. The following paragraph gives a brief description of the four empirical chapters. In Table 1.4 a schematic representation is given of the four chapters<sup>4</sup>.

<sup>4</sup> The definitions on (levels of) psychosocial maturity and problem behaviour are uniformed throughout the thesis in the various chapters.

Table 1.4 Overview of Empirical Chapters

	Chapter 2	Chapter 3	Chapter 4	Chapter 5
<b>Question</b>	To what extent is there a relation between delinquent behaviour and the stage of psychosocial development?	To what extent do levels of psychosocial development have an independent and complimentary effect on delinquent behaviour besides the effect of different aspects of self-control?	How and to what extent are pathways of psychosocial development related to individual differences in involvement and development of problem behaviour in adolescence?	What is the supplemental contribution of psychosocial development on problem behaviour in early to mid adolescence over and above the influence of parent behaviour and peer influence?
<b>Data</b>	– School project Wave 1	– School project Wave 1	– School project Wave 1 & 3	– School project Wave 1 & 3
<b>Dependent variable</b>	– Misbehaviour and delinquency items	– Mild/Moderate/ Severe misbehaviour – Mild/Moderate/ Severe delinquency	– Mild/Moderate/ Severe misbehaviour – Mild/Moderate/ Severe delinquency	– Total scales of problem behaviour
<b>Independent variable</b>	– Levels of psychosocial development	– Levels of psychosocial development – Self-control dimensions	– Regressing path of psychosocial development – Stagnating path of psychosocial development – Lagging path of psychosocial development – Normative path of psychosocial development – Precocious path of psychosocial development	– Precocious path of psychosocial development – Underdeveloping path of psychosocial development – Parental supervision – Parental Bonding – Exp warmth parents – Time spent parent – Time spent peers
<b>Statistical technique</b>	– Chi-square analysis	– Analysis of (co)-Variance	– Analysis of Variance – Paired sampled T-test	– Linear Regression analysis

Chapter two investigates the cross-sectional relation between types of problem behaviour and level of psychosocial development in early adolescence. We look at possible resemblances with earlier studies by Frank and Quinlan (1976) and Krettenauer et al. (2003). In Chapter three the level of psychosocial development is studied with a criminological variable, namely, self-control. This chapter deals essentially with the cross-sectional part of the central research question. The main question is: to what extent do levels of psychosocial development have an independent and complementary effect on delinquent behaviour *over and above* the effect of different aspects of self-control? Gottfredson and Hirschi (1990) view the level of self-control, with impulsivity as a sub trait, as relatively stable over time. They also state that the level of self-control is early established in childhood. The theory of psychosocial development on the other hand views “control over the Self” as a developing impulse control. Chapter four concerns the development of problem behaviour and its relation with the development of psychosocial fac-

tors. This relation is investigated through the implementation of paths of psychosocial maturity. As such, the study is capable of testing levels (on time 2) and paths (from time 1 to time 2) of psychosocial maturity in relation to the way problem behaviour develops. It is expected that a deviant, troubled psychosocial development associates with serious problem behaviour. At the same time, it is expected that differences are seen in level of problem behaviour between the normative development and deviant development. Although one would expect little or no problem behaviour occurring in a normative development, we tested this as a hypothesis. In Chapter five the longitudinal effect is studied of psychosocial development, peer factors and parental effects on the development of problem behaviour. This chapter represents to a great deal the central research question from a longitudinal perspective: To what extent is there a relation between psychosocial development and problem behaviour in early to mid adolescence *over and above* the influence of parent behaviour and peer influence? Chapter six gives a summary of the findings presented in each chapter. Furthermore, we recapitulate the interpretations of the various research questions that have been answered. With the answers found on the various research questions that will be addressed, this thesis aims to provide future theoretical and empirical directions in field of developmental criminology and developmental psychology.

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## 2 The relation between levels in psychosocial development and delinquent behaviour in early adolescence<sup>1</sup>

*In this article we investigate the relation between psychosocial development levels and delinquency in young adolescents. Questionnaires were administered to approximately 800 (12-13 year old) students who also completed a sentence completion test, the ZALC (based on the WUSCT, a test developed by psychologist Jane Loevinger). The results show a clear pattern over different offences, although strong statistical evidence is lacking for the separate items. First, a relation is found between being in the "Self-protective level" and prevalence of different types of misconduct at school and less serious types of delinquency. Also a clear association between being in the "Impulsive level" and serious and violent delinquency was found. Adolescents with a socio-emotional development below the Self-protective level have a 1.5 to 4-fold increased risk of committing aggressive misconducts and offences.*

### 2.1 Introduction

Research has shown that delinquent behaviour increases sharply in early adolescence (starting at 12 years old), peaks around 17-19 years, and from then onwards slowly decreases (see also Farrington, 1986; Moffitt, 1993). Up till now a general agreement exist on the shape of the curve. However, many of the factors that contribute to the particular shape of the curve remain unclear. Hirschi and Gottfredson (1983) suggest that the relation between age and delinquent behaviour is the same for everyone, rendering the relation invariant. They argue that only the differences in delinquency require an explanation. This point of view is incongruent with mainstream criminological perspectives, as most authors agree that an explanation is needed for the development and change in criminal behaviour over time (see for instance Farrington, 1986, 2003; Moffitt, 1993; Warr, 1993). One issue of importance is the increase in delinquent behaviour in early adolescence.

Recently, developmental and life-course criminology has paid considerable attention to: a) the development of problem behaviour and delinquency, b) the risk factors for developing a criminal career and c) the effects of certain life experiences on the course of

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<sup>1</sup> This chapter has been published in Dutch as an article: Ezinga, M.A.J., Weerman, F.M., Westenberg, P.M., & Bijleveld, C.C.J.H. (2006). De relatie tussen stadia in de persoonlijkheidsontwikkeling en delinquent gedrag in de vroege adolescentie [The relation between levels of personality development and delinquent behaviour in early adolescence]. *Tijdschrift voor Criminologie*, 43(3), 259-274.

A revised version of this study is used in combination with chapter three 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.

criminal careers (Donker, Kleemans, Van der Laan, & Nieuwbeerta, 2004; LeBlanc & Loeber, 1998). Relatively little attention has been paid to the explanation of the sharp increase in delinquent behaviour at the beginning of the adolescent period. One exception in developmental criminology is Moffitt's 'taxonomic' model. Here, Moffitt offers suggestions to clarify the development of delinquent behaviour in adolescence. She suggests that a large group of adolescents starts with relatively mild forms of delinquencies. Eventually, these same adolescents end with this behaviour (Moffitt describes this group as *adolescence-limited* or *adolescence-onset*). Along with the main group of limited offenders, a small subgroup exists that is active in relatively serious delinquent acts. These adolescents are called *life-course persistent* (Donker, 2004; Moffitt, 1993).

Delinquent behaviour of persistent offenders can be explained by innate factors, problematic parenting strategies and the interaction between these two attention areas that leads to an escalation of problem behaviour. According to Moffitt, adolescent-onset crime originates from imitating persistent offenders. This imitation takes place when we are faced with a 'maturity gap'. This occurs when young adolescents seem to grow to physical maturity, but do not get that mature treatment by others in their immediate environment. Persistent offenders seem to have this status (they own a relative autonomic attitude, possess enough money and are often experienced in sexuality). According to Moffitt this is reason enough for adolescence-onset offenders to imitate the persistent offenders in their criminal behaviour (Moffitt, 1993).

Developmental criminology offers, along with models for the development of delinquent behaviour in different trajectories, many perspectives about risk factors for developing delinquent behaviour. Well known examples are studies on problematic parenting, low socio-economic status in the family (SES), delinquent peers and a negative school- and neighbourhood climate (see Farrington, 2003). Empirical research also shows that personality factors such as impulsivity and thrill seeking (Bijleveld, Bakker, & Hendriks, 1998; Heaven, 1996), ego resilience (Westenberg & Block, 1993), lack of empathic reflections (Carlozzi, Gaa, & Libermann, 1983), and a lagging moral development (Blasi, 1980; Brugman & Aleva, 2004; Nelson, Smith, & Dodd, 1990), play a critical role as risk factors for delinquent behaviour.

These studies assume personality factors to be relative static constructs. At the same time, recent studies show considerable development in moral reasoning, identity and social emotions during adolescence (Meeus, 1993; De Wit, Van de Veer, & Slot, 1995). Theories concerned with the relation between personality characteristics and delinquent behaviour (for instance Eysenck, 1964; Hirschi & Gottfredson, 1990) hardly take into account this developmental trend. Moffitt's taxonomic model also uses personality factors to explain the behaviour of persistent offenders, thus assuming they are static in nature. It may be quite possible that personality development in adolescence is related, to a certain extent, to the strong increase in delinquent behaviour during that particular period. Then, a dynamic or development-orientated theory of personality could contribute to the explanation of a strong increase of delinquency in adolescence.

One such psychological theory on personality development is Loevinger's developmental theory on psychosocial maturity (1983). This theory differentiates several levels related to personality characteristics, such as impulsivity, egocentrism, morality and conformism. These same personality characteristics have appeared to be related to delinquency, as described above. With current information, this developmental theory seems likely

to contribute a possible explanation for the changing character of delinquency in adolescence.

The current paper is based on data collected from approximately 800 adolescents, and tries to explore a possible relation between delinquent behaviour of early adolescents and the level of psychosocial development they are presently in. In the next paragraph we describe Loevinger's theory of psychosocial development. Subsequently, we formulate two hypotheses according to the theory and existing empirical results:

- We expect a relation between a stagnating developmental level and serious problem behaviour.
- We expect a relation between a normative developmental level and milder delinquent behaviour.

## 2.2 Psychosocial development and delinquency

Loevinger's developmental theory concerns the personal growth of impulse control, interpersonal relations, character development and abstracting self-consciousness. The theory is not necessarily concerned with moral development or attachment, but seems most appropriately characterised as a holistic framework of personal growth (Westenberg, Blasi, & Cohn, 1998). Loevinger spoke, therefore, about ego development and the development of the central framework of references, on which each individual relates himself with another individual. Considerable research is carried out by Loevinger (and in The Netherlands by Westenberg and colleagues). Each time her theory is, with the help of empirically founded results, extensively studied and optimised.

The original theory distinguishes nine levels of developmental levels (each of which is labelled with E#, the abbreviation of Ego). Empirical studies showed that five developmental levels exist that are most prevalent with the cohort of 8-25 year olds. These are the Impulsive (E2), the Self-protective (E3), the Conformist (E4), the Self-awareness level (E5) and the Conscientious level (E6) (Westenberg, Drewes, Siebelink, Treffers, Jonckheer, & Goedhart, 2000). The Conscientious level is relatively scarce in the adolescent period and will be left out in this paper. Table 2.1 briefly describes the four remaining levels that are relevant for adolescence.

**Table 2.1 Characteristics of the most frequent developmental levels in early adolescence**

Impulsive E2	Combination of impulsivity (key factor), vulnerability, dependency and obedience.
Self-protective E3	Unassailable, opportunistic, instrumental relationships, attempt to control own impulses and emotions. Hedonistic attitude.
Conformist E4	Conformity, equality in relationships, pro-social behaviour, social desirability.
Self-awareness E5	Self-aware, emphasizing the singularity, personal relation. Tolerance towards other opinions.

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 will give 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 beyond reproach. 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 level, 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, mainly, instrumental relationships with others. The adolescent attempts to control his/her impulses and emotions, but at the same time he/she denies and fends 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 with others are goals that are stand-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.

Lastly, the *Self-awareness level* is characterised by a focus on the inner self. There is attention to the own experienced feelings, even when they are not socially desirable. Singularity and sincerity are important, just like accepting each others feelings and opinions.

Before the Impulsive level there is a level called pre-social, or the Symbiotic level (E1). This level is experienced throughout the first years after birth and is therefore not measurable. The levels after the Self-awareness level are the Conscientious level (E6), the Individualistic level (E7), the Autonomous level (E8) and the Integrated level (E9)<sup>2</sup>. Large-scale research on Dutch children and adolescents showed that the Impulsive level is most prevalent until the age of 10; in early adolescence, an increase in prevalence occurs towards the Self-protective level. Prevalence of the Conformist level increases rapidly in mid-adolescence, whereas the Self-awareness level increases during late adolescence (Westenberg et al., 2000).

The relation of psychosocial development with delinquency during the adolescent period could relate in several ways. First of all, we could presume that delinquency relates with stagnation in development (stagnation hypothesis); in that case, delinquency would be more prevalent in the Impulsive level in early adolescents. This approach is most often used within problem behaviour research in developmental psychology. For instance, research showed that problem behaviour relates to lagging behind in moral development (Brugman & Aleva, 2004). However, the stagnation hypothesis is not capable of explaining why (mild) delinquent behaviour increases in a large group of early adolescents, and decreases afterwards (adolescent-onset delinquency). Nonetheless, the stagnation hypothesis seems useful in explaining more serious and life-course persistent delin-

<sup>2</sup> A clear description of the stages prior to and after the adolescent period can be found in Loevinger, (1983) and Westenberg et al. (2000).

quency. Perhaps, a joint cause exists for a consistently low psychosocial level and serious delinquency, such as bad parenting. This is a factor that has an empirically established relationship with delinquency (Loeber & Stouthamer-Loeber, 1986).

A second possibility is that adolescent-limited delinquent behaviour relates to normative psychosocial development (normative hypothesis). Loevinger's theory offers several supporting arguments for this postulation. For instance, the self-protective level is normative in early adolescence. Self-protective individuals establish themselves as independent and they decide for themselves what is good and what is wrong. They regard themselves as inviolable and are opportunistic in their actions. Rules are meant to be broken, as long as one does not get caught or punished. These characteristics are normative, developing throughout adolescence, but simultaneously they fit rather well with norm breaking behaviour. Although the previous level has impulsive behaviour as a key character, this individual is compliant at the same time. Parents or teaching authorities should be able to correct them effectively when something wrong is then forbidden. In short, regarding normative psychosocial development we expect at adolescents more problem behaviour and in specific mild problem behaviour, when these adolescents arrive in the self-protective level in early adolescence.

Relatively little research is done regarding the relation between rule breaking behaviour and delinquent behaviour. Frank and Quinlan (1976) showed in their study that delinquent institutionalised girls found themselves in a lower level of psychosocial development than girls not institutionalised or girls doing a leadership course. An additional conclusion was that the origin of violence differed considerably in the various levels. Adolescent girls in the Impulsive level acted violently rather impulsively and randomly. Girls in the Self-protective level used violence only when it was considered necessary.

Krettenauer and colleagues (2003) showed in their longitudinal study that psychosocial development could predict externalising problems. These problems occur most in the second and third level; respondents who showed externalising problems stagnated in the development around the age of 12 (early adolescence) (Krettenauer, Ullrich, Hofmann, & Edelstein, 2003).

Furthermore, several studies investigated the relation between the developmental levels and variables concerned with externalising problem behaviour (i.e. dysfunctional family configuration, deviant coping strategies and negative stressors). With this information it can be concluded that psychosocial development relates negatively with externalising problem behaviour (Noam, Paget, Valiant, Borst, & Bartok, 1994; Novy, Gaa, Frankiewicz, Liberman, & Amerikaner, 1992; Recklitis & Noam, 1999); Westenberg & Block, 1993).

Previous research supports the stagnation hypothesis – an increased risk of problem behaviour is found when an individual is lagging behind in psychosocial development. The normative hypothesis has yet not been studied extensively. The current paper investigates which problem behaviours in early adolescence relate to a stagnating development (that is lower than the Self-protective level), and which problem behaviours relate to normative psychosocial development (students have to be present in the Self-protective level). Before testing our hypotheses, we present several descriptive results on misbehaviour and delinquency, as well as the distribution of psychosocial development. Previous research showed differences in sex on problem behaviour (see Moffitt, Caspi, Rutter, & Silva, 2001) and psychosocial development (Cohn, 1991). This will also be investigated.



## 2.3 Method

Data collection took place in 2002 and was part of the NSCR School Study (see Harland, Van der Laan, Smeenk, & Weerman, 2005). A questionnaire was given for three consecutive years, with the baseline starting in 2002. This questionnaire collects data from students in secondary education (comparable to middle- and high schools in the U.S.). The data collected is about misbehaviour in school, delinquency outside school, friends, lifestyle, and bonding. A portion of the sample filled out the ZALC (ZinnenAanvullijst Curium, Westenberg et al., 2000), a sentence completion test measuring psychosocial development according to established criteria. Through the combination of both datasets we were able to analyse the relation between psychosocial maturity and delinquency.

### 2.3.1. Participants

A total of 12 schools located in or near The Hague agreed to participate in this longitudinal study. Several factors were taken into consideration when approaching the schools, including type of education (technical vs. non-technical education, like health care, economical and business) and denomination. Survey data was obtained from first and third grade students in the first wave. The sentence completion test is only obtained from first graders, due to the intensive work. This resulted in three schools dropping out of the sample. Two of these participated only with third grade students and one school insisted only to participate in the survey. The final sample consists of students from nine different schools. Table 2.2 shows which students participated in the final sample.

**Table 2.2 Response rate**

No participation	0,7%	(7)
SCT-Y only	6,6%	(69)
Survey only	15,4%	(161)
Participated in both	77,4%	(811)
Total 1 <sup>st</sup> graders	100,0%	(1.048)

The remaining schools produced a sample of 1.048 students from the first grade. The table shows a total of 811 students who reached the final sample. This is more than 77% of the total first grade-students. They completed both the survey as well as the SCT-Y (correctly).

The SCT-Y is filled out at a different time from the survey. Both questionnaires consisted of a thorough test procedure. All students were given information on the background of the study and the discrete handling of the acquired information. The emphasis was put on the individual response in the questionnaires. When the questionnaires were filled out correctly, students received a music compact-disc coupon (€5,-).

The sample is evenly distributed between boys and girls (approximately 51% boys against 49% girls). The mean age of the students is 13.6 years old; most students are between 12.5 years and 14.5 years old. 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

was from ethnic minorities (non-Dutch descent).<sup>3</sup> The sample may be considered as a rough representation of juveniles in western Holland following low to average levels of secondary education (see also Weerman, Smeenk, Slotboom, Harland, Den Dijker, Bijleveld, & Van der Laan, 2003; Harland et al., 2005).

### 2.3.2 Rule breaking behaviour and delinquency

We used 23 self-report questions on rule breaking behaviour and delinquency to answer our research questions. Earlier reports from the NSCR-school project (see Harland et al., 2005) use the definition of rule breaking behaviour in school as misbehaviour, and outside school as delinquency (for a detailed description of the questionnaire, see Weerman et al., 2003). This method of data collecting is commonly used in criminological studies. In the past, self-report methods were questioned on the basis of validity and reliability (Bruinsma, 1994; Van der Heijden, Sijtsma, & Hart, 1995; Swanborn, 1996). Nowadays most researchers are convinced of the method and its useful results when executed in a proper manner (see for instance Thornberry & Krohn, 2000). We gave particular attention in this study to under- and over reporting, by cleaning the data carefully. We consequently deleted useless answering patterns (see Harland et al., 2005).

The current paper used questions on frequency of misbehaviour and delinquency: How many times did the students commit a delinquent act or misbehaviour in the past school year (response categories were 0, 1, 2, 3-5, 6-10, more than 10 times). The answers of the students were heavily skewed; we therefore chose to dichotomise them. We also chose to differentiate in behaviour that is considered a normal frequency and a deviant frequency, instead of yes/no (i.e. it is relatively normative behaviour for the age group of early adolescence). After all, our goal was to investigate the relation between psychosocial development and deviant behaviour.

The dichotomisation was achieved by conducting a small enquiry with six criminologists, not involved in the present study. This enquiry gave us the opportunity to carry out an inter-rater reliability test on the chosen dichotomisation. For each item we determined the best border between deviant and relatively normal behaviour. Six criminologists, not involved in the present study, rated the severity of the offences. This resulted in six categorical subscales: mild misbehaviour, moderate misbehaviour, severe misbehaviour, mild delinquency, moderate delinquency and severe delinquency. Mild offences were rated at *six* or more times committing in a year (fare dodging). Moderate severe offences are deviant after they have been committed *three* times or more (fighting without injury). Severe offences are deviant when committed just *one* or more times a year (car theft). There was a unanimous decision, or majority, for twenty of the offences and the misbehaviours. These offences were scaled in one of the three groups of severity at once. Three offences (verbal bullying, stealing property in school worth <€5,-, buying stolen goods) had an equal distribution between two scales. These items were subsequently placed in a group determined by the authors.

3 We followed the definition according to the CBS (Central Bureau for Statistics). This means that a respondent is categorized as ethnic minority when at least one parent is born in a foreign country.

The original instrument measuring psychosocial development is the Washington University Sentence Completion Test Youth (WUSCT-Y; Loevinger, Wessler, & Redmore, 1970). In 2000, Westenbergh and colleagues developed a Dutch version, called the ZALC. This instrument consists of 32 incomplete sentences. Subjects (with the age range of 8-25) are then asked to complete these sentences from their own point of view. 'My father...'; 'when they avoided me...'; 'raising children...' are a couple of examples of incomplete sentences. Each completion can be related to a certain level of psychosocial development. Two qualified researchers using a detailed manual independently determined this item score. Following on the scoring is the comparison between the two raters. A definitive score is determined when scores between raters are not conclusive. It is also possible that no score can be found for a sentence completion. These scores are counted missing and do not weigh into the total score of level of psychosocial development. At the initial interpretation of the sentence completions in this study, a total agreement percentage of 86% was reached.

The distribution of the definitive item scores leads to an ultimate level of psychosocial development. There are two ways of calculating the definitive item scores. The first is called the automatic score. Respondents are distributed in one of the levels. The other is called the borderline score. This is a scoring technique that is more precise, because it uses transition levels between the normal psychosocial levels. In this way, individual subjects can be seen as developing from one to the other level.

The reliability of the ZALC has been tested on a regular basis. This is especially important, because its method of collecting data (sentence completion) is not free from scepticism. The test-retest reliability, as well as the internal consistency and stability of the scores, have shown during time that the overall reliability is sufficient.

In a critical review on projective techniques by Lilienfeld Wood and Garb (2000), research showed that the use of the sentence completion method by Loevinger is one of the most validated techniques that exist. Furthermore, the technique approaches standards on the academically accepted scale of zero-order and incremental validity (for an overview see also Lilienfeld et al., 2000).

### 2.3.3. *Analyses*

We based our analyses on cross-sectional data. This means that we look at differences in psychosocial development of adolescents in the same age-cohort. We limit ourselves by investigating only the relation between levels of psychosocial development and the prevalence of misbehaviour or delinquent behaviour. Consequently, we are not able to make any comments on the relation between psychosocial development and changes in problem behaviour. That would require longitudinal data.

We chose to use non-parametric tests to investigate the relation between psychosocial development and misbehaviour and delinquency. These are relatively easy to perform and do not make any assumptions regarding the distribution. By means of Chi-square analysis we investigated the relation between levels of development and dichotomised items of prob-

lem behaviour. We also used odds-ratios to investigate the extent to which misbehaviour or delinquent behaviour is more prevalent in a certain level compared to the other.<sup>4</sup>

## 2.4 Results

Table 2.3 shows the total sample and the prevalence and mean variation (number of different types) of misbehaviours in school and delinquent behaviour outside school, for both male/female. According to the table, quite a few students misbehave and commit offences. However, the mean number of committed offences is not that high. As is often found in criminological research, more boys than girls misbehave and commit offences. Boys also report more variation in misbehaviour and delinquency (see Harland et al., 2005 for detailed descriptive on each item).

Table 2.3 Prevalence of misbehaviour in school and delinquency outside school

Prevalence	Total (n=811)	Mean variation	Boys (n=418)	Mean variation	Girls (n=393)	Mean variation
Misbehaviour in school	87,1% (706)	2,21	93,3%*** (390)	2,67***	80,4% (316)	1,73
Delinquency outside school	56,5% (458)	1,17	62,0%** (259)	1,28*	50,6% (199)	1,05

\*: p<.05 \*\*: p<.01 \*\*\*: p<.001

Table 2.4 shows the distribution of the students with respect to the levels of psychosocial development. The upper section shows the distribution according to the automatic scores (levels only). The section beneath shows the distribution according to the transition levels (borderline score). Upcoming analyses will make use of the borderline score distribution.

Table 2.4 Distribution of students between levels of psychosocial development

	Total (n=811)	Boys (n=418)	Girls (n=393)
<i>Automatic score</i>			
Impulsive level E2	10,9% (88)	16,5% (69)	4,8% (19)
Self-protective level E3	64,5% (523)	72,2% (302)	56,2% (221)
Conformist level E4 and higher	24,7% (200)	11,2% (47)	38,9% (153)
<i>Borderline score</i>			
Impulsive level E2	5,8% (47)	8,1% (34)	3,3% (13)
Transition level E2/E3	12,3% (100)	16,5% (69)	7,9% (31)
Self-protective level E3	49,0% (397)	58,6% (245)	38,7% (152)
Transition level E3/E4	18,9% (153)	12,0% (50)	26,2% (103)
Conformist level E4 and higher	14,1% (114)	4,8% (20)	23,9% (94)

4 We also performed multivariate analyses, but these did not show a clearer view than the calculations based on chi-square analysis and odds ratios.

In accordance with earlier studies we see that the majority of the students are located in the Self-protective level (E3) (64.5 percent). There is a remarkable difference in the pace of development between boys and girls. Almost 40 percent of the girls are located in the Conformist level (E4), compared to 11 percent of the boys. This difference is significant, with  $F ((df 1,809) 105.272; p<.000)$ . The mean difference is approximately half a level. Such a difference is also found in previous studies on psychosocial development. These studies also show that the difference slowly disappears over time (see for instance Cohn, 1991).

Tables 2.5 and 2.6 show how often the various items of misbehaviour occur within a certain (transition) level of psychosocial development.<sup>5</sup> Table 2.5 shows the separate items of misbehaviour in school, and Table 2.6 the separate items of delinquency outside school. Both tables are similar in the utilization of dichotomised variables of misbehaviour and delinquency (i.e. normative and deviant; for more details see the method paragraph).<sup>6</sup> The second column shows, for each item, the limit that resulted from the small enquiry completed with the six criminologists. The following columns show, for each transition level, the percentage of students that are prevalent (i.e. deviant of normative frequencies) in misbehaviour or delinquent acts. The bold numbers are the highest percentages within each item of misbehaviour. The last column shows the chi-square and significance for differences between levels of psychosocial development.

**Table 2.5 Misbehaviour in school related with levels of psychosocial development**

	Border	Impulsive		Self-protective		Conformist		Chi <sup>2</sup>
		E2	E2/E3	E3	E3/E4	E4	E4	
Throw things in class	6+	21,3%	20,0%	32,2%	22,1%	17,5%	15,338**	
Verbal bullying	6+	6,4%	8,0%	10,3%	6,5%	8,8%	2,527	
Physical bullying	3+	14,9%	14,0%	15,4%	7,2%	6,1%	11,707*	
Graffiti in school	3+	4,3%	2,0%	5,3%	1,3%	3,5%	5,916#	
Vandalism	3+	0,0%	1,0%	3,3%	0,0%	0,0%	11,436#*	
Theft in school <€5,-	3+	0,0%	1,0%	2,5%	2,0%	0,0%	4,659#	
Theft >€5,- in school	1+	0,0%	0,0%	1,5%	1,3%	0,9%	2,344#	
Fighting with injury	1+	10,6%	8,0%	10,1%	4,6%	5,3%	6,247	
Fighting without injury	3+	6,4%	6,0%	7,6%	2,0%	1,8%	6,904*	
Threatening/using violence against a teacher	1+	4,3%	7,0%	3,8%	2,0%	0,0%	9,377#	

\*:  $p<.05$  \*\*:  $p<.01$

#: Insufficient cell filling

As can be seen from Table 2.5, three out of ten variables have a significant difference between levels of psychosocial development. With two items, no significance was found. The other items of misbehaviours all had a low cell filling, so it appeared not possible

5 We also calculated results for total scale and for the variation scales of problem behaviour prevalence. This showed no significant relation. Nonetheless, these analyses showed the same pattern of results as seen in the presented tables.

6 Calculations of which we used simple yes/no dichotomizations showed similar but less distinctive results.

to analyse possible significance. However, the results in the table show a clear pattern. The Self-protective level E3 is the level with the highest percentages (7 out of 10 items). Students in the Conformist level E4 show a consistent low prevalence in misbehaviour, as do the students in the transition level E3/E4.

Table 2.6 Delinquency outside school related with levels of psychosocial development

	Border	Impulsive		Self-protective		Conformist		Chi <sup>2</sup>
		E2	E2/E3	E3	E3/E4	E4		
Graffiti	3+	4,3%	4,0%	7,3%	9,2%	6,1%	3,228	
Vandalism	3+	6,4%	1,0%	3,8%	1,3%	0,1%	7,819#	
Fare dodging	6+	14,9%	10,0%	13,6%	10,5%	9,6%	2,636	
Shop theft <€5, -	3+	6,4%	5,0%	5,3%	3,9%	4,4%	0,726	
Shop theft >€5, -	1+	2,1%	3,0%	3,5%	1,3%	1,8%	2,630#	
Buying stolen goods	3+	6,4%	4,0%	2,3%	1,3%	0,9%	6,351#	
Theft bike/moped	1+	6,4%	1,0%	3,8%	3,3%	0,9%	5,682#	
Car theft	1+	0,0%	0,0%	0,3%	0,0%	0,0%	1,044#	
Burglary	1+	2,1%	0,0%	1,0%	0,0%	0,0%	5,019#	
Robbing	1+	2,1%	0,0%	0,8%	0,0%	0,0%	4,935#	
Theft otherwise	1+	4,3%	1,0%	2,0%	2,6%	0,0%	4,597#	
Fighting with injury	1+	10,6%	3,0%	7,1%	5,2%	3,5%	5,647	
Fighting without injury	3+	10,6%	4,0%	7,3%	3,9%	1,8%	8,814	

#: Insufficient cell filling

As can be seen from Table 2.6, none of the delinquency items show a significant result between the levels of psychosocial development. However, 8 of the 13 items have a cell filling too low to analyse. Especially the items more severe in character, such as robbery, burglary, car theft and theft otherwise, are too low in incidence to implement in the analysis. Nevertheless, this table has a pattern. Respondents in the Impulsive level are more prevalent in 10 of the 13 items than students in other levels. Again, the lowest percentages are found in the transition level E3/E4 and the Conformist level E4, with the exception of the item *graffiti*.

The Stagnation hypothesis and Normative hypothesis are specifically tested by combining various developmental levels and subsequently comparing them. This action leads to a contrasting variable 'Impulsive level E2 vs. not-Impulsive level' (stagnation hypothesis) and a variable called 'Self-protective level E3 vs. not Self-protective level E3' (normative hypothesis). We also created a third variable, based on the patterns found in the previous analyses. This is a variable that combined lower developmental levels (Self-protective and lower) vs. higher developmental levels (higher than Self-protective).

Table 2.7 shows the results through odds ratios of the combined recoded variables. Only significant odds ratios<sup>7</sup> are shown, together with the 95%-reliability interval.

7 The criterion is the 95% reliability interval, where the number 1 is not allowed to be comprised in the interval. For some (more severe) items no incidence was found. Therefore, it was not always possible to calculate the odds ratios. Consequently these results are not shown either.

**Table 2.7 A comparison between categories of developmental levels: significant odds ratios for misbehaviour and delinquency**

Misbehaviour/Delinquency items		Impulsive (E2) versus not impulsive	Self-protective (E3) versus. not Self-protective	Self-protective and lower ( $\leq E3$ ) vs. Higher than Self-protective ( $>E3$ )
Border		Odds ratio	Odds ratio	Odds ratio
<i>Misbehaviour in school:</i>				
Throw things in class	6+	–	1,842 (1,340-2,531)	1,577 (1,112-2,237)
Physical bullying	3+	–	1,746 (1,138-2,678)	2,457 (1,441-4,184)
Graffiti in school	3+	–	2,256 (1,049-4,854)	–
Vandalism	3+	–	13,982 (1,820-107,388)	–
Fighting with injury	1+	–	–	2,110 (1,129-3,937)
Fighting without injury	3+	–	2,336 (1.219-4.474)	4,049 (1.577-10,417)
Threatening/using violence against a teacher	1+	–	–	4,065 (1,212-13,699)
<i>Delinquency outside school:</i>				
Fighting without injury	3+	–	–	2,433 (1,117-5,291)

The comparison of Impulsive level versus not-Impulsive level (stagnation hypothesis) results in no significant values on all items of misbehaviour and delinquency, or it may be that the cell is not sufficiently filled. There are five significant odds ratios found for the comparison of self-protective and not self-protective (normative hypothesis). The significance is mostly related to vandalism and aggressive items. Here, odds ratios show scores around 2 (twice as large a chance of committing the misbehaving item). For vandalism, an odds ratio of 14 is found, but has also a reliability interval that is equally as wide. The last comparison between the self-protective, and lower and higher than the Self-protective level (added comparison) shows six significant odds ratios. Noteworthy is that relatively low levels of development relate to more aggressive items of problem behaviour. The odds ratios vary between 1.5 and 4; students located in a relatively low level of psychosocial development have a chance of 1.5 to 4-fold increased risk to behave more aggressively than students located in a relatively higher level of psychosocial development.

## 2.5 Discussion

In this article we explored a possible relationship between levels of psychosocial development and problem behaviour in and outside school. We had two expectations concerning this relation.

The first thing we expected was that a stagnated development would relate to serious delinquent behaviour. The results showed moderate support for this expectation, i.e. the more aggressive offences seem to be related to the lowest Impulsive level (E2). Although no real significant results were found, the tables with chi-square analyses showed clear patterns in offences outside school. The highest percentages of prevalence were found at the Impulsive level, with ten out of thirteen offences.

Our second expectation was that a normative psychosocial development relates to more mild delinquent behaviour. This expectation is largely supported, however only at those offences considered to be mild. The results showed five significant odds ratios between the comparison of the Self-protective level and the combined category of not Self-protective level. We also found a pattern in adolescents from the self-protective level, showing the highest prevalence of misbehaviour in school and showing offences outside school more often.

In conjunction with the two main expectations, we found evidence of clear differences between the combined categories of relatively low and relatively high developmental levels. Results suggest that, alongside a stagnated and a normative hypothesis, a third type of relationship may also exist. Higher levels of psychosocial development have a protective influence regarding the prevalence of problem behaviour. Our results show mainly a protective influence for misbehaviour (in school).

The results regarding the stagnation hypothesis generally support earlier findings in empirical studies by Frank and Quinlan (1976) and Krettenauer and colleagues (2003). They also support the expectation that a normative ego development relates with an increase in misbehaviour or delinquency. This implies that a theory of psychosocial development can add supplemental value to Moffitt's dual taxonomy model, and explain the adolescent onset offending.

At the same time we are aware that numerous factors play a considerable role in the development of delinquency and psychosocial maturity, such family factors and peer influence. Our intention for this study was not to bring out an exclusive explanation of the prevalence of delinquent behaviour. We did this study as an exploration of the relation between psychosocial development, as defined by Loevinger's theory, and misbehaviour and delinquency.

One important limitation of this study was that the respondents' mean age was too low for the offences asked about. Offences outside school in particular, such as car theft or burglary, will have a later onset than the respondents' age in this study (mostly 13 year olds). This means that low incidence was often found, thereby limiting the number of reliable statements that could be made. Also little variation was found in the development of psychosocial maturity. We think, therefore, that a strong stagnated development is harder to observe. Most students just progressed to the Self-protective level. Possible differences between studying, staying behind and students progressing normatively, are small.

All in all, research in prevalence of misbehaviour and delinquency related to psychosocial development is more complicated than it seems. We therefore suggest further research and optimisation of the methods currently applied. Future research should get a better perspective of the development by using longitudinal data. Also a sample somewhat older in age could create a more diverse distribution over the levels of psychosocial development and a greater dispersion in prevalence of misbehaviour and delinquency.

This study showed that several levels of psychosocial development are related to misbehaviour and delinquency in the early adolescence. The analyses result in clear patterns that support the stagnation hypothesis (in delinquency) and the normative hypothesis (for misbehaviour). The third possibility suggested, of a protective element of misbehavi-



our and delinquency through presence in higher levels, calls for further research into the relationship between psychosocial development and misbehaviour and delinquency.

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### 3 Early adolescence and delinquency: levels of psychosocial development and self-control as an explanation of misbehaviour and delinquency<sup>1</sup>

*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

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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 development<sup>2</sup> (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-

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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 12<sup>th</sup> 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	$\alpha$ .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	$\alpha$ .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	$\alpha$ .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		$\alpha$ .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)
<b>Dependent:</b>				
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)
<b>Self-control</b>				
<b>Independent:</b>				
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)
<b>Psychosocial development</b>				
<b>Independent:</b>				
Psychosocial development	811		2-4	3.12 (.51)
Impulsive level E <sub>2</sub>	47	5.8%		
Transition level E <sub>2</sub> /E <sub>3</sub>	100	12.3%		
Self-protective level E <sub>3</sub>	397	49.0%		
Transition level E <sub>3</sub> /E <sub>4</sub>	153	18.9%		
Conformist level E <sub>4</sub>	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**

	<b>Impulsivity</b>	<b>Risk seeking</b>	<b>Temper</b>	<b>Total low self-control</b>
	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.

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## 4 Pathways of psychosocial development and problem behaviour from early to mid-adolescence<sup>1</sup>

*This study examines the longitudinal relation between psychosocial development and the development of problem behaviour of adolescents. We use a two-wave sample of 539 adolescents. They were asked to complete a self-report questionnaire on problem behaviour and a sentence completion test on psychosocial development. We identified five pathways of individual development: normative, lagging, stagnating, regressing and precocious development. Adolescents in non-normative developmental pathways (i.e. a lagging behind, stagnating, and regressing pathway) were more involved in problem behaviour at Wave 2 than adolescents with a normative or precocious psychosocial development. A decrease in problem behaviour was found for adolescents with a normative psychosocial development, but adolescents with a lagging psychosocial development was characterised by an increase in more severe problem behaviour. We discuss theoretical implications.*

### 4.1 Introduction

Problem behaviour<sup>2</sup> changes dramatically in prevalence throughout childhood and adolescence. Research has shown that the prevalence of delinquency increases strongly from the age of 12 years onwards, with a peak around 17-19 years, and a slow decrease afterwards (Farrington, 1986, 2003; Blokland, 2005). Misbehaviour already starts in childhood while delinquency usually develops during adolescence, especially more serious forms of it (Coté, Tremblay, Nagin, Zoccolillo, & Vitaro, 2002; LeBlanc & Frechette, 1989; Loeber & Farrington, 2000). Criminological studies also showed that light or moderate forms of delinquency start earlier than more serious forms, for instance shoplifting is committed before burglary which in turn is typically committed before robbery (LeBlanc & Frechette, 1989; see also Farrington, 2003).

Despite the general development of problem behaviour, considerable variability exists at the individual level (Westenberg & Block, 1993; Romero, Luego & Sobral, 2001). While non-normative behaviour is not uncommon or atypical in adolescence, only a small part of the early-adolescent population develops further into more severe forms of delinquent behaviour (Weerman, 2007). Studies on psychosocial development show that moral reasoning, social emotions and social identity develop, changing over time throughout childhood and adolescence. Psychological and psychosocial factors also play a considerable role in the occurrence and development of problem behaviour (Brugman & Aleva, 2004; Romero et al., 2001; Westenberg, 2002). A well-known theory that considers these changes in combination is Loevinger's theory of psychosocial -or socio-emotional- development (Loevinger, 1976). This theory views psychosocial development as personal

<sup>1</sup> This chapter has been submitted for publication.

<sup>2</sup> *Problem behaviour* is in this paper defined as both *delinquent offences outside school* and *misbehaviour/delinquent offences in school*. When we refer to problem behaviour we mean both categories.



growth, entailing changes over time in the perception of the Self (personality characteristics), others (relations) and the environment (influential factors on behaviour). The theory incorporates changes in a wide array of variables such as impulse control, conscious preoccupations, character development and interpersonal orientation. The theory has proven its value in explaining several developmental and behavioural problems. For example, empirical studies using the theory of psychosocial development have shown that levels of development are related to separation anxiety related issues (Westenberg, Siebelink, Warmenhoven & Treffers, 1999), and to suicidal tendencies (Borst & Noam, 1993). With respect to problem behaviour, research has shown that low levels of psychosocial development associate with the prevalence of rule breaking behaviour. Respondents who lag behind in psychosocial development exhibit more serious problem behaviour (Ezinga, Weerman, Westenberg & Bijleveld, 2006; Frank & Quinlan, 1976; Krettenauer, Ullrich, Hofmann, & Edelstein, 2003). However, most research until now has been cross-sectional, which does not contribute to understanding *changes* in problem behaviour during adolescence. Therefore, the present study examines the longitudinal relation between psychosocial development of adolescents and the development of problem behaviour. To analyse changes, we differentiate between pathways of psychosocial development. This enables us to interpret possible relations between problem behaviour and psychosocial development. We seek to answer the following question: How and to what extent are pathways of psychosocial development related to individual differences in involvement and development of problem behaviour in adolescence?

## 4.2 Psychosocial development and problem behaviour: theoretical background

### 4.2.1 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 levels of psychosocial development. A revised theory of Loevinger is put forward by Westenberg and colleagues (Westenberg, Drewes, Siebelink, Treffers, Jonckheer & Goedhart, 2000), in which eight levels of psychosocial development are identified, each having its own unique characteristics. As far as the developmental level of early-mid adolescents is concerned, four levels are most relevant: the Impulsive level (E2), the Self-protective level (E3), the Conformist level (E4), and the Self-awareness level (E5).

The Impulsive level is characterised by high impulsivity and dependence and obedience. In the Self-protective level, feelings of independence develop, and may reach a level of indisputability. Adolescents in the Self-protective level try to control their impulsive behaviour, although they often do not succeed. In the Conformist level, impulse control is reasonably developed. Bonding and social behaviour are important. Equality has a large influence within relationships with others. The last relevant level in adolescence is the Self-awareness level where the focus has changed to the (inner) self, instead of the group. Rules are guidelines while in the previous level rule obedience was essential.

Between each level, Loevinger identified transitions levels or so-called *borderline*<sup>3</sup> levels. These “in-between” levels have characteristics of both the previous level as well as the oncoming level. Two particular elements of Loevinger’s psychosocial theory are important in the psychosocial development of early- and mid-adolescence: impulse control and social behaviour. These elements go through a huge change when adolescents develop from the third, Self-protective level to the Conformist level. From there on, other people’s opinions are taken into account. According to Loevinger, the levels do not strictly correspond with age. However, it is possible to relate age-cohorts to the various levels (Westenberg et al., 2000).

The approach of Loevinger and Westenberg resembles the person-oriented approach of Bergman and Magnusson (1997). They emphasised the importance to look at the person as a whole and from a dynamic perspective. An in-depth study on the person oriented approach as a research strategy for developmental psychopathology was conducted by Von Eye and Bergman (2003). This paper stressed the necessity to view psychosocial development from the individual’s perspective instead of variables (Bergman & Magnusson, 1997; Von Eye & Bergman, 2003).

Existing research on the relation between psychosocial maturity and problem behaviour has been cross-sectional. Krettenauer et al. (2003) showed that a delayed developmental level increases the chance of problem behaviour and externalising problem behaviour (Krettenauer et al., 2003). Already in 1976, Frank and Quinlan showed that delinquent girls were more often in the early developmental levels, compared to non-delinquent girls who experienced a more advanced development (Frank & Quinlan, 1976). Earlier cross-sectional analysis of the sample used in this paper also showed that adolescents in pre-normative as well as in the normative levels (Self-protective level) at that age reported relatively more problem behaviour. This indicated that *normative* development could be related to problem behaviour as well (Ezinga et al., 2006).

#### 4.2.2 Pathways

Development can be studied longitudinally in several ways. Often, longitudinal studies focus on the relation between changing variables. However, distinguishing pathways of development is also possible and in some cases more useful. For instance, within criminology there are several important contributions that originate from the use of pathways. Moffitt identified distinct paths of adolescent delinquent development (i.e. adolescence onset offenders and life-course persistent offenders) (Moffitt, 1993). Loeber identified several distinct pathways of serious delinquency (Loeber et al., 1998). In developmental psychology, studies on pathways of psychosocial development are also not uncommon. An article by Noam and colleagues on maladaptation and adjustment within a group of hospitalised adolescents, led to the identification of two pathways: progressors and non-progressors. Results showed that progressors in psychosocial development significantly decreased in psychiatric symptoms, and coped better with stressors and defence proc-

3 This term is not referred as the clinical disorder, but used for describing the event of being in transit from one psychosocial stage to the other.

esses, compared to those not progressing in psychosocial development (Noam, Recklitis & Frome-Paget, 1991).

Hauser and colleagues (1990, 1991) studied the relation between pathways of psychosocial development and family interactions. In this study eight different pathways of development were identified (Hauser, Borman, Powers, Jacobson, & Noam, 1990; Hauser, Powers & Noam, 1991). Hauser's results showed that adolescents within a pathway leading to the so-called pre-conformist levels exhibited a more basal, aggressive way of interacting with parents than adolescents within a conformist pathway. More recently Hennighausen and colleagues (2004) used these eight pathways to study the association between adolescent psychosocial development and young adult relationship outcomes (Hennighausen, Hauser, Billings, Schultz & Allen, 2004). The pathways of Hauser and Hennighausen concentrated around one particular level of psychosocial development. So, instead of using a normative approach, Hauser and Hennighausen used a stage-specific approach. However, Ezinga et al (2006) in empirical research on psychosocial development and problem behaviour, showed support for relating "normal", age-appropriate development to problem behaviour, thus focusing on normative development. Another important argument for supporting a so-called normative approach is that development itself is dynamic. The normative level of psychosocial maturity changes constantly. For instance, an eight-year-old child in the Impulsive level is normative for its psychosocial development, and its corresponding behaviours. Subsequently, a fifteen-year-old adolescent in the Conformist level is also in a normative psychosocial level for its age. The normative level changes throughout development. Misbehaviour is thus not determined through one specific level, but with changing perspectives on development. This dynamic perspective is also the main reason to use paths of development. Through constant change of normative levels, the dynamics become visible. Therefore, it is not only important to analyse individuals in their absolute level of psychosocial development but also with regard to their relative level. Thus, not the level itself but whether the level is normative has its own theoretical relevance as will.

As discussed earlier, the use of pathways with Loevinger's theory of psychosocial development has already been explored by Hauser and Hennighausen (Hauser et al., 1990, 1991; Hennighausen et al., 2004). Hauser's eight different pathways, all concentrated around the fourth, so-called Conformist level. Our study uses similar pathways as Hauser did, but differs in three ways. First, our analysis emphasises the normativity of the development for the age under consideration. Second, Hauser based his theoretical pathways on more than two waves of data, giving him the opportunity to observe a moratorium pathway<sup>4</sup>. Third, the psychosocial development in the current study is measured at the age of thirteen and at the age of fifteen. Hauser on the other hand describes his pathways from a baseline starting at 14 years until 17 years. Table 4.1 shows the pathways described by research until now.

4 The psychosocial moratorium, originally stems from Erikson's (1959) definition where an individual at first decreases and then increases in levels of ego development (Erikson, 1959).

Table 4.1 Pathways of Psychosocial Development

Noam et al., 1991	Hauser, 1990; Hennighausen et al., 2004
Non-progressors	Profound arrest: Remain in a pre-conformist level during adolescence
Non-progressors	Steady conformists: Starts at the conformist level and remain there during adolescence
Non-progressors	Accelerated development: Starts in a post-conformist level and remain there during adolescence
Progressors	Early progression: From a pre-conformist level to a conformist level
Progressors	Advanced progression: From a conformist level to a post-conformist level
Progressors	Dramatic progression: From a pre-conformist level to a post conformist level
Progressors	Regressing development: Shifting downward from levels during adolescence
	Psychosocial moratorium: Decreasing and increasing dramatically in levels during adolescence

The first column shows the first differentiation of Noam and colleagues between *progressors* and *non-progressors*. The second column shows the pathways studied by Hauser et al. (1990) and more recently by Hennighausen et al. (2004). Hauser also placed an emphasis on progression, but identified rather detailed types of progressing development. He identifies an *early progression*, an *advanced progression* and a *dramatic progression*. Next to progressing Hauser identified a *regressive pathway* (declining in psychosocial development) and the pathway of *psychosocial moratorium* (progressing and regressing dramatically over time) (Hauser et al., 1990; Hennighausen et al., 2004). Both types however seem to be controversial, especially because they are rarely observed.

### 4.3 Hypotheses

We try to relate five different pathways of psychosocial development to (the development of) problem behaviour. Recalling from the introduction, our main research question is to what extent paths in psychosocial development relate to the prevalence and development of problem behaviour from early to mid adolescence. This paper investigates the effect of psychosocial development on the development of problem behaviour. As such, the paper is testing a unidirectional relationship.

Our expectations are differentiated in pathway differences in prevalence of problem behaviour in Wave 2, and also in increase or decrease of problem behaviour within the pathways. The following pathways are identified in this paper with a lag of 2 years between Wave 1 and Wave 2: the *stagnating pathway* (no progression between the two waves, which means that the level becomes pre-normative), the *normative pathway* (progression from a normative level in Wave 1 to a normative level in Wave 2), the *precocious pathway* (developing from a (post)-normative level to a post-normative level), the *lagging pathway* (adolescents progress from a pre-normative level in Wave 1 to another pre-normative level in Wave 2), and finally the *regressing pathway* (declining from a normative level in Wave 1 to a pre-normative level in Wave 2). For each path we have a specific hypothesis.

- The prevalence of problem behaviour in Wave 2 among adolescents with a normative development (i.e. adolescents who develop from E3 to E4) is lower than the prevalence

of problem behaviour among adolescents with a regressing, stagnating or lagging personality development. According to the theory, being in and moving to the conformist level leads to more conforming behaviour and obedience towards the rules society has. This is in contrast with those paths that end up in Wave 2 at a lower (less than normative) level. Here, adolescents seem less concerned with rules, are egocentric and less capable of controlling their impulses. Also, normative development is characterised by a *decrease* in problem behaviour in from Wave 1 to Wave 2. Regarding more serious problem behaviour a slight *increase* is expected. We see this as a normal development of problem behaviour. We expect a slight increase of more serious problem behaviour because we also want to acknowledge the fact that those adolescents who do commit an offence behave to more “grown up” offences. This group will be small. This is in line with the general “age-crime curve”, where mild misbehaviour decreases and more serious problem behaviour increases.

- Adolescents with a stagnating personality development (i.e. adolescents who retain in the borderline level E2/E3 or self-protective level, E3) have a higher prevalence of problem behaviour than adolescents who have a normal or a precocious development of personality. Also, adolescents who stagnate in their personality development are characterised by an *increase* in prevalence of problem behaviour from Wave 1 to Wave 2. We have several theoretical considerations to expect this. First of all, we believe that adolescents present in non-normative levels are experiencing discrepancies with their peers. They will therefore seek other adolescents with a similar, more egocentric and low impulse control like attitude. This process is expected to increase the chances for delinquent behaviour. Furthermore, we expect an increase in delinquent behaviour because the adolescents become over time more distanced from normative psychosocial development.
- Adolescents with a lagging psychosocial development (i.e. developing upwards from a pre-normative baseline level to a higher but still pre-normative level in Wave 2) have a higher prevalence of problem behaviour than adolescents having a normal or precocious personality development. Secondly, a lagging development relates to a *continuation* of problem behaviour from Wave 1 to Wave 2. The theoretical considerations for this type are more or less the same on those in the previous hypotheses. However, we now expect a continuation in prevalence of delinquency, because the adolescent does develop although at a slower pace. The distance from the normative developing adolescents stays the same.
- A regressing development (a negative personality development with a baseline at the normative level -E3- or lower) leads to a higher prevalence in Wave 2 than the prevalence of the other developmental paths. Regression in personality development also relates to an *increase* of more serious problem behaviour from Wave 1 to Wave 2. Again we refer to the previous hypotheses. Also, we expect an increase in more serious problem behaviour, because the regressing development leads to the first levels of psychosocial development where no or minimal impulse control exist. The susceptibility for delinquent behaviour is enhanced by the adolescent’s environment that does expect some sort of independent behaviour and control over the self.
- Adolescents with a precocious development (higher than normative in Wave 2) have less problem behaviour than those who are normative, lagging, stagnating or regressing in development. Also, their prevalence of problem behaviour *decreases* even fur-

ther. The theoretical argument for expecting less problem behaviour is the fact that the presence of adolescents in levels above normative is characterised by good impulse control, self-awareness, understanding of moral behaviour and empathic feelings. These adolescents reached or developed to a level that is characterised by mature behaviours and reflection on feelings of others. Deviant behaviour is now acknowledged as something that is not fruitful in socio-emotional processes.

## 4.4 Method

### 4.4.1 Procedure

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 for participation. 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 administered for 1048 first grade adolescents. For 811 adolescents both survey and psychosocial development data were obtained. The data collection was conducted in the classroom. All information was treated with confidentiality, including offences.

Studies have shown that the interval of two years is acceptable to investigate psychosocial development (Westenberg & Gjerde, 1999). The current study is related to a larger research project studying the early adolescent problem behaviour development over a four-year interval. We implemented psychosocial measurement in the first and third wave. Measuring every year would be too soon to investigate psychosocial development.

### 4.4.2 Sample characteristics

This paper uses a sample that has been studied over two waves. The first wave (baseline) consists of 811 adolescents. In the second wave, approximately 66.5% (539 adolescents) participated again. This longitudinal sample consists of 271 boys (50.3%) and 268 girls (49.7%). The majority is of Dutch origin (69%) whereas roughly one-third of the sample had a non-Dutch ethnic background. At the second wave, the mean age was 15.6 years ( $SD = 0.54$ ).

There are significant differences between our final sample and the dropouts in age with  $\chi^2(5, 809) = 15.1, p < .01$ , ethnicity with  $\chi^2(1, 811) = 16.4, p < .001$ , misbehaviour with  $F(1, 810) = 4.0, p < .05$ , delinquency with  $F(1, 810) = 22.5, p < .001$  and psychosocial development with  $\chi^2(4, N = 811) = 11.1, p < .05$ . In other words, the attrition analyses show that older adolescents, adolescents coming from an ethnic minority and being more prevalent in problem behaviour in Wave 1, participate less often in Wave 2. The results also show that these dropouts have a psychosocial level that is relatively often pre-normative in Wave 1.

### 4.4.3 Measures

#### *Problem behaviour*

The survey contained 10 items on the frequency of misbehaviour in school and 13 items on delinquency outside school, all in *the past school year*. These frequency variables show how often the adolescent committed the offence in one year. Misbehaviour in school includes the following offences: throwing items in class, verbal bullying, physical bullying, graffiti in school, vandalizing 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 includes the following: graffiti, vandalism, fare dodging, 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. With the frequency variables we employed variation scales that indicate the number of different offences committed. Research has shown that such variation scales are a more reliable indication of intensity than frequency scales measuring misbehaviour or delinquency (Bendixen, Endresen, & Olweus, 2003). The internal consistencies of the scales for both misbehaviour and delinquency were sufficient with a Cronbach's alpha of respectively .65 and .74 at the baseline in 2002 and .62 and .68 at the second wave in 2004.

Next to variation scales, we also constructed categories and subscales based on the severity of the offences. Six criminologists, not involved in the present study, independently rated the severity of the offences. This resulted in six categorical subscales: mild misbehaviour, moderate misbehaviour, severe misbehaviour, mild delinquency, moderate delinquency and severe delinquency. The intraclass correlation coefficient analysis for interrater agreement was .61, so there was some discussion about the severity of the items. Table 4.2 displays all categories of dependent variables and the respective items.

**Table 4.2** Categorization of Misbehaviour and Delinquency by Severity

Scale	Items in the scale
<i>Misbehaviour in school:</i>	
Total misbehaviour	All 10 items concerning misbehaviour in school;
Mild misbehaviour	Throw things in class, verbal bullying;
Moderate misbehaviour	Physical bullying, graffiti in school, vandalizing 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;
<i>Delinquency outside school:</i>	
Total delinquency	All 13 items concerning delinquency outside school;
Mild delinquency	Fare dodging;
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.

### *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...”. Adolescents were instructed to complete the sentences freely. There are modified forms for boys and girls. Using an empirically based scoring manual, each student receives a score of psychosocial development that ranges between 2 and 6. Each number stands for a particular developmental level (e.g. E2 is the Impulsive level, E6 is the Conscientious level). All sentence completions are rated according to the levels of psychosocial development. Eventually this results in 32 different scores ranging from 2 to 6 (for details see Westenberg, 2002; Westenberg et al., 2000). A sentence completion was given a missing when it could not be traced to a particular level or was nonsensical. The levels for the 32 item scores are counted (so, all E2s, E3s, E4s, E5s, and E6s are counted). A weight procedure leads to a final score of psychosocial development.

For each wave two trained raters independently scored all sentences and discussed and resolved any differences. Interrater agreement at the initial interpretation of each sentence was 86% in the first wave and 91% in the second wave. Two types of final categorizations are available. The first is the automatic total score. Here the main levels are identified (i.e. second, third or fourth level). The second is called the borderline score and identifies also transition levels. The latter option results, for example, in the level E2/E3 when a student is already progressing to the third level but has not yet arrived there completely.

Regarding the reliability and validity of the instrument, Lilienfeld and colleagues (2000) published a review of projective and semi-projective techniques including the sentence completion test. According to this study, the sentence completion test has attained the scientific standards for ‘zero order’ (construct validity; does the test measure what is meant for) and ‘incremental’ validity (does the test measure something extra, besides for instance intelligence measures and personality measures). Also internal consistency, and test-retest standards are judged as reliable (see for more detail Lilienfeld, Wood, & Garb, 2000).

Table 4.3 displays the distribution of psychosocial development in total and disaggregated for gender over the first and second wave (respectively 2002 and 2004).

**Table 4.3 Prevalence over the Levels of Personality across a Two-Wave Study (N=539)**

	<b>Total T1</b>	<b>Total T2</b>	<b>Boys T1</b>	<b>Boys T2</b>	<b>Girls T1</b>	<b>Girls T2</b>
Impulsive level	3,9%	0,2%	4,8%	0,0%	3,0%	0,0%
E2/E3	12,2%	4,6%	15,9%	7,0%	8,6%	2,2%
Self-protective level	50,5%	34,5%	62,4%	48,0%	38,4%	20,9%
E3/E4	19,5%	25,4%	12,2%	28,0%	26,9%	22,8%
Conformist level	13,9%	31,9%	4,8%	14,8%	23,1%	49,3%
E4/E5	0,0%	2,8%	0,0%	1,8%	0,0%	3,7%
Self-awareness level	0,0%	0,6%	0,0%	0,4%	0,0%	0,7%

*Note:* All bold number show the two largest percentages for each column.



Each column has two bold numbers that indicate the two largest prevalences. In the total sample (the first columns) it can be seen that from Wave 1 to Wave 2 a shift is made from E3/E4 to E4 as second most prevalent level. Furthermore, percentages for the levels below the Self-protective level E3 decrease strongly in prevalence. In total, the mean level of psychosocial development increases half a level from Wave 1 to Wave 2, from 3.14 (SD = 0.49) to 3.47 (SD = 0.51). The following columns show percentages for boys and girls respectively. In the second wave, approximately 50% of the boys-sample can be found in the Self-protective level. Girls however, are faster in development and move already towards the Conformist level (E4). This difference in pace between boys and girls is normal and in line with Loevinger's theory. This result implies that boys are present more in underdeveloped paths and girls more in the precocious path.

4.4.4 Plan of analysis

First we will present frequency scores of adolescents developing to another psychosocial level from Wave 1 to Wave 2. Following this, we test significant differences in prevalence of problem behaviour between the psychosocial paths on Wave 2 with an ANOVA test and Dunnett- C post-hoc analysis. Our last analysis tests if prevalence of problem behaviour significantly increased or decreased in four different psychosocial paths. We use a Paired-sample T-test. All the analyses are conducted with SPSS.

4.5 Results

We outlined five different developmental pathways in psychosocial maturity: the normative, stagnating, lagging, regressing and precocious pathway. We expect for the majority of the sample a normative development, and thus progress from the self-protective level to the conformist level (or at least the borderline level E3/4). Table 4.4 shows in detail which changes in personality development occur, and how many adolescents follow the different pathways.

Table 4.4 Developmental Change in Psychosocial Levels

		T2						
		E2	E2/E3	E3	E3/E4	E4	E4/E5	E5
T1	E2	–	.6% (3)	2.0% (11)	1.1% (6)	–	.2% (1)	–
	E2/E3	–	1.3% (7)	5.9% (32)	3.3% (18)	1.7% (9)	–	–
	E3	–	2.4% (13)	21.5% (116)	12.8% (69)	13.0% (70)	.7% (4)	–
	E3/E4	.2% (1)	.4% (2)	3.3% (18)	5.6% (30)	8.7% (47)	.9% (5)	.4% (2)
	E4	–	–	1.7% (9)	2.6% (14)	8.5% (46)	.9% (5)	.2% (1)
		Lagging	Normative			Precocious		
		Stagnating						
		Regressing						

In Table 4.4, the percentages in the white cells represent adolescents who develop normatively; these comprise 57.3%. This immediately confirms our expectation that the majority of the adolescents have a *normative* personality pathway. The lightly shaded group at the far right is the group of adolescents whose pathway is *precocious* (3.3%,  $N=18$ ). The third group consists of adolescents who do develop, but not enough to reach a normative level. These adolescents have a *lagging* development of personality (8.5%,  $N=46$ ). The fourth group is a group (two cells) of adolescents who remain at their first wave level and have a so-called *stagnating* development (22.8%,  $N=123$ ). This is the second largest group. Lastly, a group of adolescents *regress* in development (8.0%,  $N=43$ ). These adolescents move back from a normative or advanced level in Wave 1 to a pre-normative level in Wave 2.

We also analysed the changes in prevalence of problem behaviour. With respect to problem behaviour we expect an increase in more severe delinquency. This expectation is based on the general idea of increasing prevalence of problem behaviour over time in adolescence. Milder problem behaviour is likely to continue or decrease. We tested the significance of changes in prevalence with the Wilcoxon test, a non-parametric test (Sheffield, 2000). Earlier, we introduced the severity categories of problem behaviour. Table 4.5 shows the changes in prevalence for these categories of problem behaviour.

**Table 4.5** Change in Prevalence for each Category of Problem Behaviour

	2002	2004
Overall misbehaviour	87.8% (473)	80.9% (436)***
Mild misbehaviour	82.7% (446)	75.9% (409)**
Moderate Misbehaviour	48.6% (262)	44.5% (240)
Severe Misbehaviour	7.8% (42)	9.5% (51)
Overall delinquency	52.3% (282)	54.0% (291)
Mild delinquency	38.6% (208)	41.2% (222)
Moderate Delinquency	31.9% (172)	30.8% (166)
Severe delinquency	7.1% (38)	10.9% (59)*

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

A significant decrease is found for overall misbehaviour. This can be attributed mainly to a decrease in mild misbehaviour. An increase is found for overall delinquency outside school (but not significant). There is a small but significant increase in severe delinquent behaviour.

Our main research question focuses on the relation between psychosocial pathways and problem behaviour in the second wave. We used the five pathways as introduced earlier in this paper. First we associated these paths with the level of misbehaviour and delinquency in Wave 2. Because both variation scales for total misbehaviour and delinquency, as defined in the method section, were heavily skewed to the right we *logtransformed* them. Next to the total variation scales, we used the subscales of severity in problem behaviour (mild/moderate/severe). We calculated the differences in mean scores for each pathway of psychosocial development. Differences were tested with a variance analysis with multiple comparisons (We used a Dunnett-C post-hoc test because we assume no equal variance, which was confirmed after the Levene's test, measuring the homogeneity of variance). Table 4.6 shows the results of this analysis. The second column displays

the mean severity scores (the average number of problem behaviours for all categories of severity) for each pathway. A mean score can be shaded; this indicates a significantly higher mean, compared to the others. The third column shows the results of a post-hoc analysis, which identifies where the difference can be found ( $p < .05$ ). The abbreviations stand for Stagnated (S), Regressing (R), Normal (N), Lagging (L), and Precocious (P). The fourth column shows a comparison between the normative pathway and the stagnating, lagging and regressing pathways.

**Table 4.6 A Comparison of Means of Problem Behaviour in Wave 2 between Personality Paths with Post-hoc Test**

	Normative (N) (n=309)	Stagnating (S) (n=123)	Lagging (L) (n=46)	Regressing (R) (n=43)	Precocious (P) (n=18)	F (4,534)	N compared with S,L,R (n=212)	F (1,519)
Misbehaviour (log)	.71 (.43)	.90 (.36) <sup>N</sup>	.82 (.47)	.79 (.40)	.75 (.35)	4.87**	.86 (.40)	16.33***
Mild (range 0-2)	.94 (.71)	1.25 (.67) <sup>N</sup>	1.09 (.78)	1.05 (.79)	1.06 (.54)	4.36**	1.17 (.72)	13.65***
Moderate (range 0-5)	.59 (.90)	1.04 (1.28) <sup>N</sup>	1.21 (1.35) <sup>N</sup>	.72 (1.12)	.44 (1.04)	6.78***	1.01 (1.27)	20.37***
Severe (range 0-3)	.07 (.28) <sup>P</sup>	.17 (.46) <sup>P</sup>	.26 (.61) <sup>P</sup>	.16 (.53)	.00 (.00)	3.89**	.19 (.51)	11.42**
Delinquency (log)	.44 (.46) <sup>P</sup>	.55 (.48) <sup>P</sup>	.61 (.52) <sup>P</sup>	.54 (.45) <sup>P</sup>	.15 (.30)	4.45**	.56 (.48)	7.94**
Mild (range 0-1)	.39 (.49)	.46 (.50)	.44 (.50)	.49 (.51)	.22 (.43)	1.32	.46 (.50)	2.25
Moderate (range 0-5)	.44 (.83) <sup>P</sup>	.66 (1.05) <sup>P</sup>	.87 (1.28) <sup>P</sup>	.53 (.93) <sup>P</sup>	.00 (.00)	4.39**	.68 (1.08)	8.37**
Severe (range 0-7)	.11 (.53) <sup>P</sup>	.24 (.68) <sup>P</sup>	.56 (1.33) <sup>P</sup>	.26 (1.09)	.00 (.00)	4.60**	.31 (.95)	9.26**

Note. N= Normative; S=Stagnated; L=Lagging behind; R=Regressing; P=Precocious; Superscript = post-hoc significance of lower mean  
 \*:  $p < .05$ ; \*\*:  $p < .01$ ; \*\*\*:  $p < .001$

The results in Table 4.6 show that there are significant differences between the different pathways. These differences are first observed in the overall scale of misbehaviour with  $F(4, 534) = 4.87$  ( $p < .01$ ). Post-hoc tests revealed a significantly higher mean for the adolescents in the stagnating pathway compared to the adolescents with a normal development. In other words, adolescents with a stagnating psychosocial development report more misbehaviour in the second wave than adolescents who have a normal development. Also the total scale of delinquency was analysed. Here, all pathways are significantly different from adolescents with a precocious development with  $F(4, 534) = 4.45$  ( $p < .01$ ). This means that adolescents with a faster than normal psychosocial development have a lower mean of delinquency outside school than adolescents who have a regressing, stagnating, lagging or a normal psychosocial development.

Further, in most categories of problem behaviour, the highest means are found for adolescents with a stagnating development and for adolescents with a lagging development. Post-hoc analyses show that these stagnating and lagging groups differ significantly from the normative group regarding mild problem behaviour. For the categories severe misbehaviour, moderate delinquency and severe delinquency on the other hand, the precocious developmental group has significantly lower scores than the other developmen-

tal paths. Summing up, adolescents experiencing normative personality development show less problem behaviour than adolescents experiencing a lagging, regressing or stagnating development of personality. Adolescents experiencing a precocious development show less serious problem behaviour than the others. They seem to be protected by their advanced psychosocial level.

We also tested the differences in mean between the normative pathway and a combined pre-normative group. This pre-normative group consists of all adolescents lagging behind, stagnating and regressing in development. Significantly higher means are found for the pre-normative group on all subscales of problem behaviour, with the exception of the mild delinquency subscale.

In the next step we analysed the changes in mean from the first to the second wave within each psychosocial path. We used paired samples T-tests, to test whether changes in mean per problem behaviour category were significant. Noteworthy is that that level of the first wave can be calculated by subtracting the score in Table 4.6 of the corresponding mean change in Table 4.7.

**Table 4.7 Mean Changes of Misbehaviour and Delinquency Categories within Personality Pathways**

Mean change T2-T1	N (n=309)	T	L (n=46)	T	R (n=43)	T
Misbehaviour	-.09 (.49)	-3.36**	-.07 (.39)	-1.14	-.07 (.40)	-1.14
Mild misbehaviour (range 0-2)	-.19 (.79)	-4.19***	-.04 (.89)	-.330	-.23 (.95)	-1.61
Moderate misbehaviour (range 0-5)	-.14 (1.11)	-2.21*	.50 (1.49)	2.28*	-.09 (1.19)	-.51
Severe misbehaviour (range 0-3)	-.00 (.39)	-.15	.13 (.62)	1.43	.02 (.67)	.23
Delinquency	-.01 (.62)	-.18	.15 (.67)	1.55	.07 (.51)	.90
Mild delinquency (range 0-1)	.02 (.57)	.50	.11 (.57)	1.30	.00 (.57)	.00
Moderate delinquency (range 0-5)	-.05 (.99)	-.86	.46 (1.26)	2.46*	-.02 (.86)	-.18
Severe delinquency (range 0-7)	.06 (.55)	1.98*	.48 (1.30)	2.51*	.09 (.75)	.81
	S (n=123)	T	P (n=18)	T		
Misbehaviour	-.03 (.34)	-1.07	.11 (.58)	-.81		
Mild misbehaviour (range 0-2)	-.02 (.83)	-.32	.17 (.71)	1.00		
Moderate misbehaviour (range 0-5)	.14 (1.30)	1.18	-.06 (1.26)	-.19		
Severe misbehaviour (range 0-3)	.07 (.47)	1.52	-.06 (.24)	-1.00		
Delinquency	.02 (.54)	.33	-.06 (.54)	.44		
Mild delinquency (range 0-1)	.03 (.56)	.65	.00 (.49)	.00		
Moderate delinquency (range 0-5)	.03 (1.23)	.29	-.06 (.24)	-1.00		
Severe delinquency (range 0-7)	.04 (.89)	.51	-.06 (.24)	-1.00		

Note. N= Normative; S=Stagnated; L=Lagging behind; R=Regressing; P=Precocious

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

Table 4.7 shows that a normative personality development is associated with a decrease in misbehaviour ( $p < .01$ ) but an increase in severe delinquency ( $p < .05$ ). A lagging personality development associates with an increase in the moderate category of misbehaviour as well as the moderate and severe category of delinquency. No significant changes

in problem behaviour prevalence are found for adolescents experiencing a stagnating personality development.

#### 4.6 Conclusion and discussion

In this study we analysed the relation between psychosocial development and problem behaviour. The subjects were categorised in five different pathways of psychosocial development. Each path was compared with the other paths on mean level of problem behaviour at the second wave. Also, the development of problem behaviour within each path was analysed. The descriptive results suggest that the majority of the sample had a normative psychosocial development. Mild problem behaviour decreased and more serious problem behaviour increased.

Our first hypothesis about adolescents with a normative development is partially supported. The mean rate of their problem behaviour in Wave 2 is lower than that of the stagnating, lagging or regressing developmental paths. However, when severity increases, differences between normative and stagnating, lagging and regressing paths are smaller. In line with the hypothesis, adolescents with a normative development decrease in their level of mild problem behaviour, but increase in more severe types of problem behaviour. This can be interpreted as maturation of problem behaviour from mild to more “grown-up” misbehaviour.

Our second hypothesis concentrated on those who stagnated in their development. Adolescents with a stagnating development had relatively high mean scores at Wave 2 on all types of problem behaviour, which is in line with our hypothesis. However they did not show a significant increase over time on all severity subscales of problem behaviour. This is a somewhat surprising result because these adolescents remained in their self-centred level, and the gap with their peers who did develop increased. Such an incongruity in psychosocial thinking can be expected to result in an increase of problem behaviour.

The third hypothesis focused on adolescents who lagged behind in their psychosocial development. These adolescents developed from a pre-normative level in Wave 1 to a still pre-normative level in Wave 2. Adolescents with a lagging development had the highest mean scores on more severe problem behaviours in comparison with the other developmental paths, which is in line with our expectation. We also hypothesised that the levels of their problem behaviour would increase. This was partially supported. Problem behaviour increased significantly over time but mainly in the serious categories of problem behaviour.

The fourth hypothesis focused on adolescents regressing in psychosocial development. We hypothesised an increase in serious types of problem behaviour. The results however show no clear evidence for this expectation. The only difference found is with adolescents in a precocious development. High mean levels are present for regressing adolescents, but only significantly higher regarding general delinquency and moderate delinquency. The regressing group is rather small, and a possible explanation for our (lack of) results is that these adolescents actually were coincidentally categorised in a higher level in Wave 1, or lower level in Wave 2, than they ought to be in, due to measurement error.

The fifth and final hypothesis about adolescents who are precocious in their psychosocial development was supported. The mean level of problem behaviour was lowest when

compared to the other paths. We also expected no serious difference in their prevalence over time. This expectation was supported, although a small increase in mild misbehaviour is seen.

Our results are in line with previous studies. In 1976, Frank and Quinlan already found an association of early developmental levels with problem behaviour in girls. Krettenauer et al. (2003) found an association between early developmental levels and externalising behaviour. Previous, cross-sectional analyses on this sample also showed a modest relation between the early psychosocial levels and the prevalence of problem behaviour (Ezinga et al., 2006). The current paper also shows clear associations between early developmental levels and problem behaviour. This supports our general assumption that pre-normative psychosocial maturity places adolescents at risk for problem behaviour. Research until now has hardly reported anything on pathways of psychosocial maturity, with the exception of Hauser's work. The results in this paper show clear support for differences between various pathways of psychosocial maturity. Adolescents who are lagging behind, stagnating or regressing in their development of psychosocial maturity show more problem behaviour than adolescents with a normative psychosocial development. Lower levels of problem behaviour are found for students with a precocious psychosocial development. Noteworthy is the result concerning changes in problem behaviour within the developmental pathway of lagging behind. It appeared that this group develops significantly more problem behaviour over time. We believe that this is most likely due to their enduring exposure of pre-normative experiences in psychosocial development.

Our results were less clear on the hypothesis that tested the mean changes over time within the other pathways of psychosocial development. This could imply that psychosocial pathways are mainly important because they lead to different levels, but also that the short-term development is not so relevant. In other words, the trend is already set and continues into mid-adolescence.

#### 4.6.1 *Limits and implications for future research*

There are some limitations to this study that should be mentioned. First of all, the study is limited to two measurements. Therefore, we were not able to investigate other possible pathways such as a moratorium development, which Hauser et al. (1990) and Hennighausen et al. (2004) already suggested. Secondly, there are possibilities of measurement errors in the determination in level of psychosocial development. This could explain the vague results on the adolescents with a regressing development. A third limitation is the relatively large attrition in Wave 2. The questionnaires were filled out class-wise but still voluntarily. Reasons for dropping out were truancy, illness, and personal circumstances. In the attrition analysis we found that this group participated significantly more in problem behaviour in Wave 1 than the other that did not dropped out. It could thus very well be that our results are an underestimation, and more problematic behaviour relates even stronger to non-normative pathways. Future studies should consider the design to be focusing more on attrition and the possibility of missing data analysis. This was not possible in the current design. A fourth limitation is the small group of adolescents with a precocious psychosocial development. A small sample

makes it hard to find differences. Nevertheless, we did find less problem behaviour when compared to the other groups.

Despite these complications, we showed that a pre-normative psychosocial maturity relates significantly to problem behaviour development. Of particular interest is the relation between a lagging psychosocial development and serious growth in problem behaviour, and the absence of such a change in problem behaviour for a stagnating psychosocial development. Also, the low mean level of problem behaviour in the precocious development is of particular interest. We find that being ahead in development protects the adolescent for problem behaviour. A caveat is that prevailing internalising disorders should also be taken into account. It could very well be that this small group of adolescents is developing too fast too soon, making themselves an isolated group, with low peer support. Our analyses also showed that normative development is related to some form of deviant behaviour. This does not implicate that the theory is wrong in its descriptions of adolescent psychological development; it only presumes that some form of deviant behaviour is connected to pre-to-mid adolescent years. Finally, future studies could consider gender as a function of psychosocial development. We did not disaggregate our analyses, but do note that precocious adolescents are mainly girls. Boys on the other hand are the majority of the sample present in the underdeveloped paths.

With respect to implications of the results into applied developmental psychology, we can conclude that an underdeveloped psychosocial development suggests a possible problem within the adolescent, such as negative interactions and escalating conflicts (Westenberg et al., 2000). Professionals can intervene with this knowledge, and as such, stimulate the development, for instance by social skills training and special education. Furthermore, although the theory states that a Precocious development makes an adolescent vulnerable in peer relations, helps to abstain from delinquency. This underlines the statement that a precocious development is not problematic per se (Westenberg et al., 2000).

These findings and suggestions warrant future study and suggest that the relative level of psychosocial maturity is crucial, together with the length of the period an adolescent stays behind.

#### 4.7 References

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## 5 The Effect of Psychosocial Development on Problem Behaviour beyond Environmental Factors<sup>1</sup>

*The present study examines the effect of psychosocial development of adolescents on the development of problem behaviour beyond the effect of parental and peer factors. We used a two-wave sample of 539 adolescents. They were asked to complete a self-report questionnaire on problem behaviour and the environmental factors and a sentence completion test on psychosocial development. We investigated two non-normative types of development (underdeveloped and precocious). The effect of an underdeveloped psychosocial development (including the lagging behind, stagnating, and regressing pathway) on problem behaviour beyond environmental factors was not found. However, a significant protective effect was found for female adolescents showing a precocious psychosocial development.*

### 5.1 Introduction

Psychosocial developmental theories have proven to be of great importance in developmental psychology (Noam, Young & Jilnina, 2006). Research indicates that non-normative development of psychological maturity can have a risk effect, but also a protective effect on problem behaviour. On the one hand, there is a considerable body of evidence showing that lower levels of psychosocial maturity are associated with problem behaviour and delinquency in adolescence. Several studies have shown that lower levels of moral reasoning and psychosocial development are associated with a higher prevalence of problem behaviour (Brugman & Aleva, 2005; Colby, Kohlberg, Gibbs, & Lieberman, 1983; Langford, 1995; Ezinga, Weerman, Westenberg & Bijleveld, 2006; Frank & Quinlan, 1976). On the other hand, psychosocial development can also restrain the adolescent from behaving problematic. That is, higher levels of psychosocial and socio-moral development might act as a protective factor against the development of problem behaviour (Ezinga, Weerman, Westenberg & Bijleveld, submitted; Hauser, Borman, Powers, Jacobson, & Noam, 1990; Hennighausen, Hauser, Billings, Schultz & Allen, 2004). At the same time, adolescent problem behaviour and delinquency is related to multiple factors in childhood and adolescence (Farrington, 2005; Loeber & Farrington, 2000). For instance, parenting behaviour is very important in predicting problem behaviour (Hoeve, 2006; Le Blanc, McDuff & Kaspy, 1998; Loeber & Stouthamer-Loeber, 1986). Loeber and Stouthamer-Loeber (1986) showed that disrupted family characteristics and poor parental behaviour are important explanations of problem behaviour. Next to parental behaviour, peer relations and peer influences are related to adolescent problem behaviour. These peer factors, such as social learning (or group pressure), the amount of time spent with peers and peer delinquency are also important predictors of adolescent problem behaviour (Agnew, 1991; Akers, 1998; Hartjen & Priyadarsini, 2003; Hirschi, 1969; Warr, 1993). Empirical research focusing on problem behaviour in relation to psychosocial development on the one hand, and parent behaviour and peer influences on the other hand, has largely been separated up till now.

<sup>1</sup> This chapter has been submitted for publication.

In this paper we investigate the supplemental contribution of psychosocial development on problem behaviour in early to mid adolescence over and above the influence of parent behaviour and peer influence. There are two possibilities. First of all, the influence of psychosocial development may be present but diminishes when other factors are taken into account, i.e. the effect of psychosocial development is explained by another factor such as peer and/or parental factors. Second, psychosocial development may have a *supplemental* effect on problem behaviour, next to parental behaviour and peer influences. This supplemental effect can move in two directions. The first is a protective effect, where the more developed psychosocial path leads to less prevalence of problem behaviour. The second is a risk effect where underdeveloped paths of psychosocial development lead to of greater prevalence of problem behaviour.

We will further add to our understanding of the supplemental effect of psychosocial development on problem behaviour by taking gender into account. Studies have shown that the effect of factors differs between boys and girls when the prevalence of problem behaviour is concerned. Previous studies considering differences in gender showed variability in their results regarding the effect of psychosocial level, parental behaviour and peer factors (Cohn, 1991; Ezinga et al., submitted; Hoeve, 2006). The hypotheses will therefore be tested for the total sample but also separately for the male and female sample. Before we test our hypotheses, we will explain the theoretical background of the psychosocial and environmental factors concerning this study.

## 5.2 Literature Review

### 5.2.1 Psychosocial development and problem behaviour

A theory focusing on psychosocial development is Loevinger's theory of ego development (Loevinger, 1976). Loevinger defines ego development as personal growth experienced by every individual, entailing changes in impulse control, conscious preoccupations, character development and interpersonal orientation. The theory identifies nine levels of psychosocial development, each of them having its own unique characteristics. As far as the developmental level of early-mid adolescents is concerned, four levels are most relevant: the Impulsive level (E2), the Self-protective level (E3), the Conformist level (E4), and the Self-awareness level (E5). Table 5.1 summarises the characteristics of the four developmental levels that are most relevant for adolescence.

**Table 5.1 Levels of Ego Development in Early to Mid Adolescence**

	Description
Impulsive E2	Impulsive, egocentric, dependent, preoccupied with bodily feelings
Self-protective E3	Opportunistic, manipulative, wary, preoccupied with control and "trouble"
Conformist E4	Respect for rules, cooperative, loyal, preoccupied with appearance and correct behaviour
Self-awareness E5	Exceptions allowable, helpful, self-aware, preoccupied with feelings, problems, adjustment

*Note.* Based on Loevinger, J. (1997). Stages of personality development (p. 203). In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of Personality Psychology* (pp. 199-208). San Diego, CA: Academic Press. Reprinted with permission.

The Impulsive level is characterised by high impulsivity and a dependent character; this person may react aggressively if dependency needs are violated. These individuals rely on their environment to restrain their impulsivity. At the Self-protective level, feelings of independence develop, and may reach a level of indisputability. Adolescents in the self-protective level try to keep their own impulses in check and will try to manipulate their environment. Their main preoccupation is to get what they want but stay out of trouble. In the Conformist level, impulse control is reasonably developed. Bonding and social behaviour are important. Equality has a large influence within relationships with others. The last relevant level in adolescence is the Self-aware level where the focus is changed to the (inner) self, instead of the group. Rules are guidelines while in the previous level rule obedience is essential. Between successive levels, Loevinger posited transitions levels or so-called *borderline*<sup>2</sup> levels. These “in-between” levels have characteristics of both the previous level as well as the upcoming level. Two elements of the ego development levels are specifically relevant with respect to problem behaviour: impulse control and social behaviour. These aspects change dramatically when adolescents develop from the third, self-protective level to the conformist level. From here on, respect for rules is coupled with an appreciation of other people’s interests.

Much existing research on Loevinger’s model of psychosocial development and problem behaviour has been cross-sectional. Already in 1976, Frank and Quinlan showed that delinquent girls were more often in the early developmental levels, compared to non-delinquent girls who experienced a more advanced development. More recently Krettenauer and colleagues (2003) showed that a delayed developmental level increases the chance of problem behaviour and externalising problem behaviour (Krettenauer, Ullrich, Hofmann & Edelstein, 2003). In addition, Ezinga et al. (2006) revealed that not only underdeveloped levels associate with more serious problem behaviour, but also that the normative levels are associated with so called tolerated problem behaviour. In a recent study we have observed a supplemental effect of low ego level on problem behaviour after individual differences in self-control had been accounted for (Ezinga et al., in press).

The cross sectional results are in line with the few longitudinal studies on psychosocial development and externalising behaviour (Noam, Recklitis, & Frome-Paget, 1991; Hauser et al., 1990). Noam and colleagues found that a decrease in externalising symptoms over time was significantly larger in those adolescents who progressed in psychosocial development, than in those who did not show considerable progress (Noam et al., 1991). Following Hauser et al. (1990), Ezinga et al. (submitted) investigated the effect of paths of psychosocial development on problem behaviour in a 2-year follow-up study: the *stagnating* pathway (no progression between the two waves, which means that the level becomes pre-normative), a *normative* pathway (progression from a normative level in Time 1 to a normative level in Time 2), a *precocious* pathway (developing from a (post)-normative level to a post-normative level), a *lagging* pathway (adolescents progress from a pre-normative level in Time 1 to another pre-normative level in Time 2), and finally a *regressing* pathway (declining from a normative level in Time 1 to a pre-normative level

2 This term is not referred as the clinical disorder, but used for describing the event of being in transit from one psychosocial stage to the other.

in Time 2). The results showed that underdeveloped paths of psychosocial development (such as regressing or stagnating over time) were associated with more problem behaviour than the normative path and precocious path. Also, the precocious path was associated with less problem behaviour than the normative path.

Summing up, cross-sectional and longitudinal studies indicate that relatively low levels of psychosocial development relate to higher prevalence of problem behaviour. Moreover, a few studies suggest that relatively high levels might act as a protective factor against serious problem behaviour, whereas normative levels are associated with relatively mild behaviour problems. However, evidence on the supplemental effect of psychosocial development on problem behaviour is lacking.

### 5.2.2. *Parenting behaviour and problem behaviour*

For already a considerable period, criminological research has acknowledged the importance of parenting behaviour in the understanding of problem behaviour prevalence (Loeber & Stouthamer-Loeber, 1986). Perspectives on parenting in relation to the presence of problem behaviour are partly derived from the classic control theories (Hirschi, 1969). Nowadays, parental behaviour (the general definition of parenting), as a correlate with problem behaviour, is in contemporary research often divided in three relatively independent dimensions: behavioural control (i.e. monitoring), psychological control (i.e. inducing feelings of guilt) and parental bonding (De Kemp, Scholte, Overbeek, & Engels, 2006). Gray and Steinberg (1999), and more recently Bean and colleagues (2006), showed that behavioural control negatively associates with delinquency (Bean, Barber, & Crane, 2006). Also parental bonding shows considerable and consistent evidence for being an essential feature in the individual development (Galambos, Barker, & Almeida, 2003; Gray & Steinberg, 1999). There is less agreement regarding the psychological control dimension of parental behaviour effecting on adolescent behaviour. Studies report a negative impact of psychological control on adolescent development (Hauser, Powers, Noam, Jacobson, Weiss, & Follansbee 1984) and even a promoting trend towards delinquent behaviour (De Kemp et al., 2006). Among others, Ellis and Walsh revealed that, although a modest amount of research is completed, a warm and loving environment is negatively associated with problem behaviour (Ellis & Walsh, 2000; De Kemp et al., 2006; Wilson & Herrnstein, 1985). Parents, who do not show parental bonding and try to control their children directly by restraining, even spur greater misbehaviour and not less (Wright, Cullen, & Wooldredge, 2000).

In short, the association between poor parental behaviour and problem behaviour is well reported. Also, more and more consensus is reached on the association of parental bonding and experienced warmth on problem behaviour. Although some elements of parental behaviour act as protecting in problem behaviour, it could very well be that psychosocial development can supplement its effect for problem behaviour.

### 5.2.3 *Peer factors and problem behaviour*

Criminological research is consistent in finding a strong correlation between peer factors and adolescent delinquency (Dishion, Nelson & Bullock, 2004; Reed & Rose, 1998; Warr, 1993; Weerman, 2003; Weerman & Smeenk, 2005). Generally seen there are three

views on the relationship between peer association and delinquent behaviour: (1) control and propensity theories, claiming that peers do not cause delinquency, but view the relationship in terms of spuriousness, social selection and response effects; (2) learning and group process theories, that focus on the causal efficacy of delinquent peers in transmitting (or learning) delinquency to members and; (3) integrated theories who emphasise explicitly both social selection and causality from a development perspective.

Although strong relations have been found, recent studies show mixed support and pose questions to the causality of the peer delinquent behaviour and own delinquent behaviour (Weerman, 2003; Weerman & Smeenk, 2005). Where there is a causality problem in delinquency prevalence, more latent peer factors also prove to explain (partially) the prevalence of delinquent behaviour of the adolescents. Several studies show support for an effect of learning by peers on the delinquent behaviour of the adolescent. Social reinforcement, as part of social learning, is an acknowledged characteristic in influencing the adolescent's behaviour. Studies of Agnew in 1991 and Rebellon in 2006 show support for reinforcement by peers in the adolescents' deviant behaviour (Agnew, 1991; Rebellon, 2006). Also group pressure on the adolescent's deviant behaviour is proven to have an effect on the adolescent (Agnew, 1991; Reed & Rose, 1998).

Summarising, studies investigating the effect of peers on delinquency seem rather consistent in their findings upon the association of peer and delinquency prevalence. However, the main effect in combination with possible moderation of more latent factors is less well investigated and poses questions whether these peer learning effects relate to the adolescent psychosocial development.

#### 5.2.4 *Psychosocial development, parental behaviour and peers*

Considerable research has been conducted on parenting or parental behaviour and its effect on psychosocial development (e.g. Hauser et al., 1990; Hauser, Powers & Noam, 1991; Newman, Tellegen, & Bouchard, 1989; Von der Lippe, 2000; Von der Lippe & Møller, 2000). Hauser and colleagues (1990) were one of the few who studied the relation between pathways of psychosocial development and family interactions. They identified eight different pathways of psychosocial development. The results showed that adolescents within a pathway staying at the so-called pre-conformist levels exhibited a more basal, aggressive way of interacting with parents than adolescents at a conformist pathway. Other studies showed that psychological control in parenting negatively influences psychosocial development and adjustment (Bean, Bush, McKenry, & Wilson, 2003; Galambos, Barker & Almeida, 2003).

In contrast to parental behaviour little research is conducted on the influence of peers on the adolescents' psychosocial development from Loevinger's perspective. However, there are some studies that have shown that adolescents with similar psychosocial level relate to each other (Hansell, 1981; Hennighausen et al., 2004). Hansell (1981) studied the peer friendship networks associated with level of ego development. Results from this study showed that adolescents with the middle ego developmental level are expected to make most of their friendship (importance of being in a group). This accounted only for girls. This would suggest a sex difference in the importance of peer friendship structures for levels of psychosocial development (Hansell, 1981). More recently Hennighausen and colleagues (2004) implemented Hauser's psychosocial paths to study the relation

between adolescent psychosocial development and young adult relationship outcomes. They found that adolescents within the lower “profound arrest” trajectory reported ego-centric conflict resolution tactics and less mature interpersonal understanding. Their peers described them also as more hostile (Hennighausen et al., 2004).

In other words, level of ego development, peer relations, and parent behaviour are all inter-related, and all variables are related to problem behaviour. It remains to be seen whether level of psychosocial development has a supplemental effect vis-à-vis problem behaviour beyond the effects of parent behaviour and peer influence.

### 5.2.5 *Gender differences*

There is a consistent body of evidence on sex differences in frequency and severity of problem behaviour. Boys tend to be more and serious delinquent in their behaviour than girls (Junger-Tas, Ribeaud, & Cruyff, 2004; Van der Laan & Blom 2006). Gender differences are also reported in psychosocial development. Several studies have found that girls tend to develop earlier in adolescence than boys. This difference in pace diminishes in late adolescence (Cohn, 1991; Westenberg, Drewes, Siebelink, Treffers, Jonckheer, & Goedhart, 2000). There is also considerable evidence concerning differences in parental and peer influences between males and females. Studies of Bowman, Prelow, and Weaver (2007), and Tolan and Thomas (1995) showed that males were less susceptible for protecting parental influences on the prediction of problem behaviour. Regarding parental behaviour, Bowman et al (2007) showed that maternal monitoring decreases delinquency. However, these results did not occur within the male sample, suggesting less parental influences for males on delinquency prevalence. Furthermore, the results showed a relation in the male sample for the association with deviant peers and delinquency. Tolan and Thomas (1995) reported that involvement in problematic behaviour in males is best explained by peer variables (time spent, norm violations, delinquency performed by peers, labelling of peers on the adolescent), whereas in females it is best explained by family variables (time spent, norm violations, labelling of family in the adolescent). These results were however not confirmed in a Dutch study by Van de Rakt, Weerman and Need (2005). Here, within the male sample no significant effect was found of peer delinquent behaviour. Within the female sample, parental bonding appeared important as having a protecting effect on delinquency (Van de Rakt et al., 2005). In contrast, other criminological studies suggest that the predictors of delinquency are the same for males and females (Gottfredson & Hirschi, 1990; Rowe, Vazsonyi, & Flannery, 1995). Hartjen and Priyadarsini found in their study on a French sample that hardly any differences in effect were found of learning by peers in association with delinquency between boys and girls (Hartjen & Priyadarsini, 2003).

All in all, the empirical results show that gender differences occur in prevalence of problem behaviour and some studies have indicated differential effects for males and females. However, it is as yet unknown whether the effect of psychosocial development on problem behaviour could differ in relation to parental and peer effects when boys and girls are compared.

### 5.3 Hypotheses and rationale

As described previously, we have a considerable amount of evidence that psychosocial development; peer factors and parental behaviour each have an effect on the prevalence of problem behaviour. We lack however information about the additional effect of psychosocial development on problem behaviour. What is the supplemental effect of psychosocial development when parental behaviour and peer factors are also taken into account? This question was addressed in a follow-up study of problem behaviour in early adolescent participants who were retested two years later. Guided by the results from previous empirical studies we formulated the following hypotheses:

- Overall, we expect effects of level of psychosocial development on problem behaviour: lower levels are expected to be associated with more problem behaviour; higher levels with less problem behaviour. Three developmental pathways – underdeveloped, normative, and precocious – are distinguished to enable a separate study of the risk effect of slow development and the protective effect of rapid development on problem behaviour.
- We expect additive effects of psychosocial development on problem behaviour beyond the effects of peer influence and parent behaviour.
- The risk effect of slow development is expected to be most salient in the male sample, due to the fact that during early to mid adolescence males are slower in their psychosocial development than the females (i.e., low psychosocial levels are expected to be over represented in the male sample). The protective effect of rapid development is expected to be most salient in the female sample, due to the fact that during early to mid adolescence females are more advanced in their psychosocial development (i.e., relatively high psychosocial levels are expected to be over represented in the female sample).

### 5.4 Method

#### 5.4.1 *Sample characteristics*

This paper uses a sample that has been studied over two waves across a 2-year time span – year 2002 and 2004, respectively. The first wave (baseline) consists of 811 students. In the second wave, approximately 66.5% (539 students) participated again. This longitudinal sample consists of 271 boys (50.3%) and 268 girls (49.7%). The majority is of Dutch origin (69%) whereas roughly one-third of the sample had a different ethnic background. At the second wave, the mean age was 15.6 years ( $SD = 0.54$ ).

There are significant differences<sup>3</sup> between our final sample and the dropouts with regard to age with  $\chi^2(5, 809) = 15.1, p < .01$ , ethnicity with  $\chi^2(1, 811) = 16.4, p < .001$ , misbehaviour with  $F(1, 810) = 4.0, p < .05$ , delinquency with  $F(1, 810) = 22.5, p < .001$  and psychosocial development with  $\chi^2(4, N = 811) = 11.1, p < .05$ . In other words, the attrition

3 As can be seen from the degrees of freedom, we could not extract all the information needed from one or two respondents.



analyses show that older adolescents, adolescents coming from an ethnic minority and being more prevalent in problem behaviour in Time 1, participate less often in Time 2. The results also show that these dropouts have a psychosocial level that is relatively often pre-normative in Time 1.

#### 5.4.2 Measures

##### *Problem behaviour*

The survey contained 9 items on the frequency of misbehaviour in school and 12 items on delinquency outside school in *the past school year*. Misbehaviour in school includes the following offences: verbal bullying, physical bullying, graffiti in school, vandalizing 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 includes the following: vandalism, graffiti, 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 employ variation scales that indicate the number of different offences committed. Research has shown that such variation scales are a more reliable indication of intensity than frequency scales measuring the amount of misbehaviour or delinquency (Bendixen, Endresen, & Olweus, 2003). The internal consistencies of the scales for both misbehaviour and delinquency were sufficient with a Cronbach's alpha of respectively .65 and .74 at the baseline in 2002 and .62 and .68 at the second wave in 2004.

##### *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...". Students were instructed to complete the sentences freely. There are slightly different forms for boys and girls. Using an empirically based scoring manual, each response receives an ego level rating. These scores range between 2 until 6: 2) Impulsive level; 3) Self-protective level; 4) Conformist level; 5) Self-aware level; 6) Conscientious level. Eventually this results in 32 different scores ranging from 2 to 6 (for details see Westenberg et al., 2000). Regarding the reliability and validity of the instrument, Lilienfeld and colleagues (2000) published a review of projective techniques including the sentence completion test. According to this study, the sentence completion test has attained the scientific standards for 'zero order' and 'incremental' validity. Also internal consistency, and test-retest standards are judged reliable (see for more detail Lilienfeld, Wood, & Garb, 2000).

For each data wave of the present study, two trained raters scored all sentences independently and discussed and resolved any differences. The current study has an interrater agreement at the initial interpretation of each sentence of 86% in the first wave and 91% in the second wave. Two types of final categorizations are available. The first is the automatic total protocol rating (TPR). Here the main levels are identified (e.g., E2 Impulsive or E3 Self-protective). The second is called the borderline total protocol rating (BTPR).

Here the main levels as well as borderline cases are identified (e.g., E2/E3, for a student who falls in between the E2 Impulsive and E3 Self-protective ego levels). This paper uses the borderline score.

We identify five paths of psychosocial development in this paper, in line with our previous study (Ezinga et al., submitted). These are the *stagnating pathway* (no progression between the two waves, which means that the ego level becomes pre-normative), a *normative pathway* (progression from a normative stage in Time 1 to a normative stage in Time 2), a *precocious pathway* (developing from a (post)-normative stage to a post-normative stage), a *lagging pathway* (adolescents progress from a pre-normative stage in Time 1 to another pre-normative stage in Time 2), and finally a *regressing pathway* (declining from a normative stage in Time 1 to a pre-normative stage in Time 2).

### *Parental behaviour*

We use four scales regarding parental behaviour. These scales are for a great part inspired by Hirschi's theory of social bonding (Hirschi, 1969). The first scale is parental bonding and contains four items on the affective relation (fitting the 'attachment' part from Hirschi's theory) between adolescents and parents. Here, the adolescent is asked if they believe they have a satisfying relation with their parents. The second scale concerns three items on 'rules and supervision'. The third scale is called 'experienced warmth' and consists of four items. This scale investigates the reported amount of positive attention of the parents towards the adolescents. Lastly, we investigate the amount of time adolescents spent with their parents. This scale concerns the investigation if adolescents are much at home after school or in the weekend.

The Cronbach's alpha for parental bonding, rules and supervision, and experienced warmth were respectively .65, .40, and .55 in Time 1 and .77, .28, and .69 in Time 2. With respect to the scale 'rules and supervision' the alpha was too low to make the scale reliable enough. We therefore decided to use only one item on supervision. The item is called: "My parents/caretakers are aware of my whereabouts".

### *Peer factors*

We use three scales measuring various dimensions of peer influences. The first scale concerns the effect of 'social learning from peers'. It is a combined out of two separate scales (peers reinforcing deviant behaviour and peer group-pressure). The second scale is 'delinquency reported of peers'. The last scale is 'time spent with peers'. Here we investigate whether the adolescents are more time spending with their friends, rather than being home and spent time with their parents (see paragraph 3.2.3). The Cronbach's alpha for social learning, and reported peer delinquency are .74 and .72 in Time 1 and .69 and .83 in Time 2.

## 5.5 Results

### 5.5.1 Descriptive

Table 5.2 displays the distribution of the borderline levels of psychosocial development (BTPR) for the total sample and differentiated for gender over the Time 1 and Time 2. Next to the percentages of the various borderline levels, we show the percentages of adolescents in the various paths of psychosocial development.

**Table 5.2 Prevalence of the Levels and Paths of Psychosocial Development across a Two-Wave Study (N=539)**

	Total T1	Total T2	Boys T1	Boys T2	Girls T1	Girls T2
E2. Impulsive level	3,9%	0,2%	4,8%	0,0%	3,0%	0,0%
E2/E3	12,2%	4,6%	15,9%	7,0%	8,6%	2,2%
E3. Self-protective level	50,5%	34,5%	62,4%	48,0%	38,4%	20,9%
E3/E4	19,5%	25,4%	12,2%	28,0%	26,9%	22,8%
E4. Conformist level	13,9%	31,9%	4,8%	14,8%	23,1%	49,3%
E4/E5	0,0%	2,8%	0,0%	1,8%	0,0%	3,7%
E5. Self-aware level	0,0%	0,6%	0,0%	0,4%	0,0%	0,7%
Normative path	57.3%		42.8%		72.0%	
Underdeveloped path	39.4%		55.0%		23.5%	
Precocious path	3.3%		2.2%		4.5%	

In the total sample from Time 1 to Time 2 a shift was made from E3 as the predominant psychosocial level to a more equal representation of E3, E3/E4, and E4. Furthermore, percentages for the levels below the self-protective level E3 decreased in prevalence to become relative infrequent. In the second wave, approximately 50% of the boys-sample could be found in the self-protective level; Girls however, were faster in development and moved already towards the conformist level (E4). This difference in pace between boys and girls has also been found in earlier studies (Cohn, 1991; Ezinga et al., submitted; Frank & Quinlan, 1976).

With respect to the paths of psychosocial development, we see that almost 60% followed a normative path. When we look at the differentiated percentages for gender, we see that almost 43% of the boys were developing normatively, in contrast to 72% of the girls. Almost 40% of the sample was situated in an underdeveloped path, boys relatively more often than girls. Finally the precocious path showed a small percentage of the sample developing ahead from the rest in psychosocial maturity. The percentage was twice as high for girls (4.5%) as for boys, (2.2%).

Table 5.3 shows respectively for Time 1 (year 2002) and Time 2 (year 2004) the mean level and min-max scores of psychosocial level, problem behaviour, parental behaviour and peer factors.

**Table 5.3** Mean score of the variables at Time 1 and Time 2

	Time 1 (year 2002)		Time 2 (year 2004)		T2-T1
	Mean	Min-max	Mean	Min-max	
Psychosocial level	3.14 (.49)	2-6	3.47 (.51)	2-6	14.45***
Misbehaviour	1.30 (1.34)	0-7	1.20 (1.56)	0-9	-1.53
Delinquency	.60 (1.13)	0-8	.71 (1.48)	0-11	1.56
Parental Bonding	14.64 (2.33)	4-16	14.69 (2.40)	0-16	.66
Supervision	1.80 (1.02)	1-5	1.86 (1.06)	1-5	-1.00
Experienced Warmth	14.56 (1.77)	5-16	14.14 (2.18)	0-16	-3.79***
Time spent with parents	2.71 (1.13)	0-6	2.79 (1.36)	0-6	1.24
Learning effect peers	5.48 (4.75)	0-20	3.67 (3.85)	0-20	-7.03***
Time spent with peers	8.41 (2.14)	4-12	9.06 (2.02)	4-12	7.00***
Delinquency peers	.44 (.50)	0-1	.44 (.50)	0-1	.15

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

As can be seen in Table 5.3, the psychosocial level increased a third level from Time 1 to Time 2, from 3.14 ( $SD = 0.49$ ) to 3.47 ( $SD = 0.51$ ). The total score of misbehaviour decreased in time, whereas the total score of delinquency increased. However, these changes were not significant. Regarding parental factors, the adolescents showed a significant decrease in experienced warmth of their parents. The reported time spent with parents was stable. Regarding peer factors the adolescents reported less influential effects from their peers, even though they reported more time spent with them. The reported delinquency rate of peers was stable.

### 5.5.2 Univariate results

In Table 5.4, results are shown of the effects of psychosocial development on misbehaviour and delinquency. Next to the strength of the effect ( $B$ ) we also show the general explained variance, i.e. the part that psychosocial development explains in the effect on problem behaviour.

Table 5.4 Linear Regression Analyses testing the Univariate Effects of Psychosocial Development between Time 1 and Time 2 on Problem Behaviour at Time 2.

	Total sample						Male						Female					
	Misbehaviour		Delinquency		Delinquency		Misbehaviour		Delinquency		Delinquency		Misbehaviour		Delinquency		Delinquency	
	B (SE)	Adj. R <sup>2</sup>	B (SE)	Adj. R <sup>2</sup>	B (SE)	Adj. R <sup>2</sup>	B (SE)	Adj. R <sup>2</sup>	B (SE)	Adj. R <sup>2</sup>	B (SE)	Adj. R <sup>2</sup>	B (SE)	Adj. R <sup>2</sup>	B (SE)	Adj. R <sup>2</sup>	B (SE)	Adj. R <sup>2</sup>
Psychosocial level at Time 2	-.209*** (.04)	.04	-.182*** (.04)	.04	-.095 (.06)	.00	-.131* (.06)	.01	-.136* (.06)	.02	-.162*** (.05)	.03	-.136* (.06)	.01	-.162*** (.05)	.03	-.162*** (.05)	.03
Psychosocial level at Time 1	-.101* (.04)	.01	-.112** (.04)	.01	.023 (.07)	-.00	-.087 (.07)	.00	-.026 (.06)	-.00	-.062 (.05)	.00	-.026 (.06)	.00	-.062 (.05)	.00	-.062 (.05)	.00
Normative path (o) vs. Underdeveloped path (l)	.177*** (.04)	.03	.117** (.04)**	.01	.121* (.06)	.01	.057 (.06)	.00	.061 (.07)	.00	-.103 (.06)	.01	.061 (.07)	.00	-.103 (.06)	.01	-.103 (.06)	.01
Normative path (o) vs. Precocious path (l)	-.196 (.12)	.01	-.258** (.10)	.02	.001 (.20)	-.01	-.345 (.19)	.02	-.280* (.13)	.02	-.206 (.11)	.01	-.280* (.13)	.02	-.206 (.11)	.01	-.206 (.11)	.01

Note: \* p < .05; \*\* p < .01; \*\*\* p < .001; The dependent variables are logged. For psychosocial development in 2004 and 2002 the N in the general sample is 539, which is divided in 271 men and 268 females. The dichotomous variable Normative vs. Underdeveloped had an N of 521, of which 265 were male and 256 were female. Lastly the dichotomous variable Normative vs. Precocious had an N of 327, of which 122 were male and 205 were female.

As can be seen in Table 5.4, psychosocial level at Time 1 and at Time 2 had a negative effect on misbehaviour and delinquency for the general sample. Thus, as was expected, lower levels of ego development were related to problem behaviour. A similar pattern was observed for males and females at Time 2, but for males the negative relationship between psychosocial level and misbehaviour was not statistically significant.

The risk effect of psychosocial development was investigated by studying the effect of the dichotomous variable Normative (o) versus Underdeveloped Pathways (1: stagnating, lagging behind and regressing) on problem behaviour. This analysis showed significant effects in the general sample on misbehaviour and delinquency. This effect was present in the male sample for misbehaviour. In other words, being in the underdeveloped path had a significant effect on the prevalence of problem behaviour, particularly for males. The protective effect of psychosocial development was investigated by studying the effect of the dichotomous variable Normative versus Precocious Pathway. As was expected, negative effects were seen, which means that a precocious development had a protective effect on the prevalence of problem behaviour. Specifically, the protective effect was statistically significant for delinquency in the total sample and for misbehaviour in the female sample. The protective effect was not significant for the male sample. In general, all four of the regression analyses had low explained variances ( $R^2$ ).

### 5.5.3 *Multivariate Results*

The next step involved the analysis of exploring the additive effect of psychosocial development on problem behaviour at Time 2, beyond the effects of peer influence and parental behaviours. The findings are presented in Table 5.5. Two models are presented each representing a dichotomous variable of psychosocial paths. Regarding the Normative versus Underdeveloped path, the general sample showed a significant effect of gender, and supervision on misbehaviour. A risk effect was found for time spent with peers on misbehaviour and delinquency and for social learning from peers on misbehaviour. Within the male sample we saw a risk effect of time spent with peers on misbehaviour and delinquency and a risk effect of social learning from peers on misbehaviour. The female sample showed a protecting effect of supervision in misbehaviour and delinquency. Also a risk effect of social learning from peers was seen in misbehaviour. With respect to female delinquency the results showed a risk effect of time spent with peers. The Normative versus Underdeveloped path yielded an additive and positive effect on problem behaviour, but the effects were not statistically significant. Regarding the analysis on the Normative versus Precocious path, similar results are found on parent behaviour and peer factors. Additive significant results are a protecting effect of supervision within the male sample and a protecting effect on misbehaviour of experienced warmth. However, the analysis yielded an additive and negative effect on problem behaviour for the Normative versus Precocious pathway, but this effect appeared only significant for female misbehaviour ( $B = -.360$ ;  $p < .05$ ).

Our last analysis estimated the supplemental effect of developmental pathways beyond peer and parental factors as measured at Time 1 on problem behaviour at Time 2. The results are shown in Table 5.6. Two models are shown, each of them corresponding with a psychosocial path.

**Table 5.5 Linear Regression Analysis of Developmental Pathways (Time 1 to Time 2), Peer Influence (Time 2), and Parental Behaviours (Time 2) on Problem Behaviour at Time 2**

	Total sample		Male		Female	
	Misbehaviour B (SE)	Delinquency B (SE)	Misbehaviour B (SE)	Delinquency B (SE)	Misbehaviour B (SE)	Delinquency B (SE)
Sex	-.140** (.05)	-.059 (.05)	–	–	–	–
Parental bonding	.014 (.01)	-.009 (.01)	.008 (.02)	-.021 (.02)	.017 (.02)	-.008 (.01)
Supervision	-.077** (.02)	-.066** (.02)	-.061 (.03)	-.049 (.03)	-.093** (.03)	-.068** (.02)
Exp. Warmth	-.020 (.01)	.011 (.01)	-.004 (.02)	.032 (.02)	-.035 (.02)	.012 (.01)
Time spent parents	.001 (.02)	-.001 (.02)	.018 (.03)	.019 (.03)	-.017 (.03)	-.001 (.02)
Time spent peers	.030* (.01)	.061*** (.01)	.037* (.02)	.078*** (.02)	.023 (.02)	.062*** (.01)
Learning effect peers	.025*** (.01)	.008 (.01)	.026** (.01)	.010 (.01)	.022* (.01)	.010 (.01)
Normative (o) vs. Underdeveloped (i)	.029 (.05)	.035 (.05)	.034 (.07)	.025 (.07)	.040 (.08)	.053 (.04)
	Adj. R <sup>2</sup> = .164	Adj. R <sup>2</sup> = .129	Adj. R <sup>2</sup> = .095	Adj. R <sup>2</sup> = .122	Adj. R <sup>2</sup> = .099	Adj. R <sup>2</sup> = .127
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Sex	-.156* (.06)	-.085 (.06)	-	-	-	-
Parental bonding	.021 (.01)	-.018 (.01)	.040 (.03)	-.020 (.02)	.008 (.02)	-.018 (.01)
Supervision	-.106*** (.02)	-.059* (.03)	-.125** (.04)	-.074 (.04)	-.085* (.04)	-.062* (.03)
Exp. Warmth	-.036* (.02)	.011 (.02)	-.053 (.03)	.060 (.03)	-.034 (.02)	.014 (.02)
Time spent parents	.003 (.02)	-.017 (.02)	.004 (.04)	-.012 (.04)	-.003 (.03)	-.015 (.02)
Time spent peers	.023 (.01)	.052*** (.01)	.025 (.02)	.075** (.02)	.020 (.02)	.051*** (.01)
Learning effect peers	.027** (.01)	.001 (.01)	.029* (.01)	-.003 (.01)	.027* (.01)	.005 (.01)
Normative (o) vs. Precocious (i)	-.219 (.13)	-.211 (.12)	.181 (.26)	-.286 (.26)	-.360* (.15)	-.223 (.12)
	Adj. R <sup>2</sup> = .195	Adj. R <sup>2</sup> = .103	Adj. R <sup>2</sup> = .181	Adj. R <sup>2</sup> = .150	Adj. R <sup>2</sup> = .122	Adj. R <sup>2</sup> = .098

Note: \* p<.05; \*\* p<.01; \*\*\* p <.001; The dependent variables are logged.

Note: We did not include the variable delinquency reported of peers in the analysis. Reason not to do so is that it is unclear if peer delinquency is caused by the own delinquency behaviour or vice versa, while inclusion in the analysis suggests a causal effect. Therefore exclusion of the variable is the best option in this matter.

**Table 5.6** Linear Regression Analyses of Development Pathways (Time 1 to Time 2), Peer Influence (Time 1), and Parental Behaviour (Time 1) on Problem Behaviour at Time 2

	Total sample		Male		Female	
	Misbehaviour B (SE)	Delinquency B (SE)	Misbehaviour B (SE)	Delinquency B (SE)	Misbehaviour B (SE)	Delinquency B (SE)
Sex	-.163** (.05)	-.061 (.05)	-	-	-	-
Parental bonding	.001 (.01)	-.001 (.01)	-.004 (.02)	-.009 (.02)	.010 (.02)	.010 (.02)
Supervision	-.025 (.03)	-.028 (.02)	-.022 (.03)	-.041 (.03)	-.024 (.05)	.003 (.04)
Warmth	-.024 (.02)	.012 (.02)	-.025 (.03)	.044 (.02)	-.032 (.03)	-.023 (.02)
Time spent parents	-.036 (.02)	-.028 (.02)	-.046 (.03)	-.017 (.03)	-.022 (.03)	-.036 (.03)
Time spent peers	.020 (.01)	.036** (.01)	.009 (.02)	.044** (.02)	.034 (.02)	.032* (.02)
Learning effect peers	.012* (.01)	.010* (.01)	.008 (.01)	.011 (.01)	.021* (.01)	.010 (.01)
Normative (o) vs. Underdeveloped (1)	.050 (.05)	.062 (.05)	.105 (.07)	.033 (.07)	-.034 (.08)	.098 (.07)
	Adj. R <sup>2</sup> = .070	Adj. R <sup>2</sup> = .063	Adj. R <sup>2</sup> = .009	Adj. R <sup>2</sup> = .055	Adj. R <sup>2</sup> = .037	Adj. R <sup>2</sup> = .029
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Sex	-.164* (.07)	-.083 (.06)	-	-	-	-
Parental bonding	.009 (.02)	.001 (.01)	.015 (.03)	-.002 (.03)	.006 (.02)	.006 (.02)
Supervision/ rules	.001 (.04)	.029 (.04)	-.004 (.06)	-.009 (.06)	.010 (.06)	.074 (.05)
Warmth	-.034 (.03)	-.006 (.02)	-.046 (.04)	.037 (.04)	-.034 (.03)	-.042 (.03)
Time spent parents	-.035 (.03)	-.023 (.02)	-.056 (.05)	-.002 (.04)	-.017 (.04)	-.041 (.03)
Time spent peers	.021 (.01)	.027* (.01)	.003 (.02)	.023 (.02)	.038 (.02)	.036* (.02)
Learning effect peers	.007 (.01)	.008 (.01)	.006 (.01)	.006 (.01)	.014 (.01)	.011 (.01)
Normative (o) vs. Precocious (1)	-.118 (.15)	-.212 (.13)	-.377 (.25)	-.276 (.23)	-.428* (.18)	-.177 (.15)
	Adj. R <sup>2</sup> = .032	Adj. R <sup>2</sup> = .028	Adj. R <sup>2</sup> = -.020	Adj. R <sup>2</sup> = -.026	Adj. R <sup>2</sup> = .039	Adj. R <sup>2</sup> = .030

Note: \* p < .05; \*\* p < .01; \*\*\* p < .001; The dependent variables are logged.

Note: The negative adjusted R<sup>2</sup> from the male analysis of Normative versus Precocious path can be explained from a statically spurious phenomenon. The model predicted less than one would expect when using coincidental independent variables.



Notably, few longitudinal effects were found for both the Normative versus Underdeveloped paths and Normative versus Precocious path. Regarding the Normative versus Underdeveloped path, an effect was found for gender which reveals that being female has a long-term protective effect on misbehaviour ( $B = -.163$ ;  $p < .05$ ). We saw within the delinquency prediction a significant risk effect of time spent with peers in the general sample ( $B = .036$ ;  $p < .01$ ), and also in the male ( $B = .044$ ;  $p < .01$ ) and female sample ( $B = .032$ ;  $p < .05$ ). So, spending more time with peers than others results in a long-term risk effect on delinquency. Social learning from peers showed a risk effect within the general sample on misbehaviour ( $B = .012$ ;  $p < .05$ ) and delinquency ( $B = .010$ ;  $p < .05$ ). The Normative versus Underdeveloped Paths generally yielded an additive and positive effect for problem behaviour. But the effect appeared to be non-significant. Regarding the Normative versus Precocious path, we also found an effect for gender which again reveals that being female serves as a long-term protective effect on misbehaviour ( $B = -.164$ ;  $p < .05$ ). Furthermore, the results yielded an effect of time spent with peers in the general sample ( $B = .027$ ;  $p < .05$ ) and, in the female sample ( $B = .036$ ;  $p < .05$ ). As was anticipated, an additive, protective effect for misbehaviour was found for being in the Precocious path, and this effect was statistically significant and substantial for the female sample ( $B = -.428$ ;  $p < .05$ ).

## 5.6 Summary and discussion

Our goal in this paper was threefold: to investigate the effect of psychosocial development on problem behaviour, to estimate the extent to which psychosocial development has an additive affect on problem behaviour over and above the effects of peer influence and parenting behaviours, and to investigate sex differences in the effects on problem behaviour.

We expected a significant univariate effect of level of psychosocial development and psychosocial developmental paths on problem behaviour. The analyses showed a significant effect for levels of psychosocial development in Time 1 and Time 2. Also, a significant risk effect for the Underdeveloped path is found when compared to the Normative path on misbehaviour and delinquency. Lastly, the Precocious path had a protective effect when compared to the Normative path on reported delinquency. These results thus suggest both a risk and a protective effect of psychosocial development on a cross-sectional and longitudinal level. These effects are the strongest for misbehaviour. Furthermore, these results are consistent with previous longitudinal studies on psychosocial development of Krettenauer et al. (2003) and Ezinga et al. (2006).

At forehand, there were various possibilities regarding the additive effect of psychosocial development over and above parental and peer factors. The first possibility was that we would find no additional effect and that peer and parental factors already explain that same portion of problem behaviour that psychosocial development does. The second possibility was that we would find an additional effect. We distinguished this possible effect into two directions. The first direction was that we would find a protective effect of psychosocial development from the Precocious path and the second was that we would find a risk effect from the Underdeveloped paths. With our analyses we found no risk effect the levels of psychosocial development in Time 1 and Time 2. However we did find

an additive effect of the Precocious path for the female sample on misbehaviour, both on Time 1 and Time 2.

Strong effects were found for 'spending time with peers' and 'social learning through peers' when they are analysed cross-sectional. On a longitudinal level there is only a causal effect of time spent with peers. This suggests that the actual influences of peers, such as group pressure and reinforcement of deviant behaviour may be a short-lived effect. Interestingly, David Smith stated similar conclusions. He showed on the basis of network data that the effect of peers' deviant behaviour on the behaviour of an adolescent is not that long lasting as is found in conventional studies (Smith, 2007). A similar line of reasoning may apply to parenting behaviour. Over time, the protecting influences of parental supervision and warmth seem to diminish. Also, parental bonding as third sub-element of parenting behaviour seem to have, in contrast to recent studies, less effect than expected (Galambos, Barker, & Almeida, 2003; Gray & Steinberg, 1999).

It is interesting that the Precocious path of psychosocial development acts as a selective protective effect on problem behaviour. So, being ahead in psychosocial development can be viewed as something that *protects* the adolescent from getting involved in delinquent matters. Selective, while it only occurs in misbehaviour and within the female sample. Earlier studies revealed similar differences of gender on psychosocial development (Cohn, 1991; Westenberg et al., 2000), but not particularly on the effect on problem behaviour. Regarding these gender differences we also see that the effect of time spent with peers disappears when the analysis is conducted separately for boys and girls. This could imply that gender itself has an effect of its own when it comes to predicting problem behaviour. It could also indicate that psychosocial development does not seem to influence behaviour of males in early to mid adolescence that much, when peer factors are considered. This result again underlines the importance of analysing the effects of a psychosocial development.

### 5.6.1 *Strengths, Limitations, and Future Directions*

Among all, this study should be considered in light of its limitations. First and foremost, we only used two time points measuring psychosocial development. With the use of more time points, the sample will be more spread over the various levels of psychosocial development. Future research might shed more light on the possibility of using more than two waves measuring individual development.

We used self-report measurements for parental behaviour and peer influences. This implies that we ask what the adolescent *perceives*, instead of receiving actual data directly. However, we believe that in this type of research it is important to ask what the adolescents perceive themselves. Nevertheless, the use of parent reports and observational measures may be valuable in future replications.

Thirdly, the attrition analyses show that older students, students coming from an ethnic minority, students with more problem behaviour, and students with lower psychosocial levels in Time 1, were less likely to participate in Time 2. This means that within our sample we lost a considerable sub-sample of deviant behaving adolescents. The results we show could therefore be an underestimation of the real effect of psychosocial development. Unfortunately, we are not able to retrieve this sample.

In general, the results from this study show that psychosocial development can have a protective effect on problem behaviour. Furthermore, the longitudinal analysis seems to point out that the effect of more distal influences, such as peers and parents are not that long lasting as often thought. That implies that psychosocial development may have more long-term consequences, especially for females. After all, their precocious psychosocial development has a protective effect on problem behaviour.

## 5:7 References

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## 6 General Discussion

This dissertation examined how, and to what extent, psychosocial maturity, or psychosocial development, relates to problem behaviour over and above other, criminological relevant factors. To obtain an answer to this question, self-report data on problem behaviour and criminological factors was collected, and a psychological instrument was used to obtain information on (the level of) psychosocial development. Data were collected in 12 schools, during class, in two waves with a two-year interval. In total, data was gathered from 811 adolescents. A total of 539 adolescents from the first wave were retrieved in the second year.

The first chapter described the theoretical background as well as the relevance of the topic at hand. The second and third chapter focussed on the *cross-sectional* effects on problem behaviour of the various levels of psychosocial development. In the second chapter a study is described that studied the relation between various types of problem behaviour and level of psychosocial development. The study in the third chapter investigated mainly the effect of the Impulsive (E2) and Self-protective (E3) level of psychosocial development and the effect of self-control on problem behaviour. Chapter four and five aimed at studying the *longitudinal* effect of psychosocial development on the level and development of problem behaviour. The fourth chapter related paths of psychosocial development to the level and development of problem behaviour. The fifth chapter addressed the added value of psychosocial development next to parental behaviour and peer factors in explaining delinquency.

In the following sections the results of the four empirical chapters will be summarised. Following this, the results are discussed from a general perspective, more specifically from a psychological and criminological perspective. Furthermore, policy implications are discussed. Lastly, this chapter describes the limitations as well as future research directions.

### 6.1 Summary

Chapter one described several theoretical perspectives relevant to the question how psychosocial development relates to problem behaviour. Above all, the background of this thesis is subject to both criminological and psychological perspectives. From a criminological perspective it was argued that the use of a stage-theory could be helpful in contributing to the understanding of development of problem behaviour prevalence. More specifically, from a criminological point of view Loevinger's stage-theory could help examine the precise path of development and the differences between those adolescents who temporarily show mild offending behaviour and those adolescents who persist in delinquent behaviour. Subsequently, it was suggested that the normative development might relate to normative, mild problem behaviour that desists over time.

In chapter two the cross-sectional relation between the levels of psychosocial development and various forms of problem behaviour was examined. Two hypotheses were tested. The first hypothesis concentrated on stagnation of psychosocial development.



Adolescents who stagnated in their psychosocial development were in this study defined as being at a psychosocial level that was lower than the normative level for their particular age-cohort. From this "Stagnation hypothesis" it was expected that these adolescents show more serious problem behaviour than the adolescents at a normative psychosocial level or at a precocious level. The second hypothesis was the "Normative hypothesis". This hypothesis suggested that the adolescents in a normative psychosocial level do misbehave but far less and also less severely than the adolescents stagnating in their psychosocial development. The study used not only the total scales of misbehaviour and delinquency but also the separate items. This created the opportunity to investigate possible typologies and severity scales.

Regarding the results, a relation was found between adolescents present in the Self-protective level and prevalence of different types of misbehaviour in school and outside school (e.g., mild delinquency). Adolescents with a psychosocial development below the Self-protective level (E<sub>3</sub>), and thus stagnating in their psychosocial development, had a 1.5 to 4-fold increased risk of committing aggressive misconducts and offences. In sum, the two hypotheses were partly supported. First, the results revealed a significant relation between normative levels of psychosocial development and mild misbehaviour, which supported the "Normative hypothesis". Second, a non-significant trend was found between the Impulsive level (E<sub>2</sub>) and serious and violent delinquency. Therefore, the hypothesis for a stagnating development and serious delinquency received weak support. Surprisingly, the results revealed a third result coming forth out of the analysis. A clear distinction in problem behaviour prevalence could be made in relatively low and relatively high psychosocial developmental stages. Adolescents in the lower levels of psychosocial development were significantly more problematic than adolescents in the normative or higher levels of psychosocial development. As such, this study showed the first signs for the possible protective effect that higher levels of psychosocial development may have in avoiding problem behaviour.

The second study focussed again on the cross-sectional analysis of levels of psychosocial development and problem behaviour. In addition, this study included level of self-control as a criminological factor in order to investigate the unique explaining variance. This level of self-control was measured through a total scale, but could also be divided into three subscales: "Impulsivity", "Adventure-seeking" and "Temper". The study had multiple hypotheses. The first hypothesis concentrated on the relation between low self-control and problem behaviour. The second hypothesis focussed on testing the earlier mentioned "Normative hypothesis" with problem behaviour controlled. The third hypothesis focussed on testing the "Stagnation hypothesis" with subscales of problem behaviour. The fourth hypothesis aimed at relating the self-control dimension with lower levels of psychosocial development. The fifth, main hypothesis was to investigate the relation between psychosocial development and problem behaviour, next to low self-control.

Regarding the first hypothesis, earlier results on low self-control related to problem behaviour were replicated. There were significant relations between problem behaviour and high impulsivity, high adventure seeking and high temper, and in total, significant relations with low self-control. With respect to the second hypothesis, the results revealed a clear significant effect of the normative psychosocial level on moderate misbehaviour. With respect to the third hypothesis, the "Stagnation hypothesis", no relation was found between stagnated development and problem behaviour. Regarding the fourth hypoth-

esis on the normative development clear relations were found between low self-control and the Impulsive and Self-protective level. Surprisingly, no clear relation was found between the sub dimension Impulsivity of low self-control and the Impulsive level of psychosocial development. Most likely impulsive behaviour was not defined in the same way for psychosocial development as it was for low self-control. Regarding the fifth and final hypothesis on the effect of levels of psychosocial development over and above the effect of low self-control, results partially supported the hypothesis. That is, an effect over and above the effect of low self-control was found for moderate misbehaviour. Thus, psychosocial development partly explained the prevalence of moderate misbehaviour, over and above the effect of low self-control. This indicated a possible dynamic influence next to stable risk factors on the problematic behaviour.

To what extent does psychosocial development relate to the development of problem behaviour over and above other criminological factors? This was the main question to be answered in the fourth chapter. This study tried to contribute to the answer of this question by testing the effect of paths of problem behaviour with prevalence rates of problem behaviour over time. As such, we traded the “Stagnation hypothesis” for the “Stagnating path hypothesis” and the “Normative hypothesis” for the “Normative path hypothesis”. We also added three other theoretically relevant paths, inspired by the earlier research of Hauser and colleagues (Hauser, Borman, Powers, Jacobson, & Noam, 1990; Hauser, Powers, & Noam, 1991), and Hennighausen, Hauser, Billings, Schultz, and Allen (2004). These were the “lagging behind path”, “regressing path” and “precocious path”. Especially the latter was considered to be relevant, because we discovered a relation in the second chapter between precocious development and lower prevalence of psychosocial development. We hypothesised that the adolescents in the normative path would show mild misbehaviour and which would gradually increase in severity to more moderate problem behaviour. Our second expectation was that adolescents stagnating in their psychosocial development would show rather severe problem behaviour, which would increase to delinquent behaviour. Furthermore, we expected a protective effect of the precocious path of psychosocial development. The fourth and fifth hypotheses were aimed at the regressing path and the lagging behind path. Both types of psychosocial paths were expected to relate to a strong increase in severe problem behaviour.

The results showed that adolescents in non-normative developmental pathways (i.e., a lagging behind, stagnating, and regressing pathway) were more involved in problem behaviour at Wave 2 than adolescents with a normative or precocious psychosocial development. Also, a pre-normative psychosocial maturity related significantly to problem behaviour development. A decrease in problem behaviour was found for adolescents with a normative psychosocial development. Adolescents with a lagging psychosocial development were characterised by an increase in more severe problem behaviour. Such a change was not apparent in the stagnating path of psychosocial development. Here, no significant results were revealed regarding an increase in serious problem behaviour. The results showed that a protective effect on problem behaviour through a precocious development was clearly present.

The final study in this dissertation was also longitudinal and addressed the supplemental contribution of psychosocial development to problem behaviour, beyond parental factors and peer factors. The first hypothesis concerned the effects of the level of psychosocial development on problem behaviour: lower levels were expected to be associated

with more problem behaviour; higher levels of psychosocial development were expected to relate with less problem behaviour. The second expectation concerned additive effects of psychosocial development on problem behaviour beyond the effects of peer influence and parent behaviour. The third hypothesis focussed on the protective effect of rapid development. It was expected that a precocious development is protective and observed in the female sample, due to the fact that during early to mid adolescence females are more advanced in their psychosocial development.

The first hypothesis was supported and revealed a clear distinction between lower levels of psychosocial development and higher levels of psychosocial development in relation to problem behaviour. Lower levels related to higher problem behaviour prevalence, whereas higher levels of psychosocial development related to lower problem behaviour prevalence. These differences were not observed when the analysis was conducted separately for males and females. Regarding the second hypothesis no support was found. The results revealed that underdeveloped paths of psychosocial development did not account for the explanation of problem behaviour over and above the effect of negative peer influences or deprived parental relations. In other words, the effect of an underdeveloped psychosocial development (including the lagging behind, stagnating, and regressing path) on problem behaviour beyond environmental factors was not found. The third expectation testing a possible protective influence of a precocious psychosocial development was supported. The Precocious path of psychosocial development had a selective protective effect on problem behaviour. Selective, while it only occurred in misbehaviour and within the female sample. Thus, it can be summarised that a precocious psychosocial development protects the female adolescent from getting involved in delinquency.

## 6.2 Problem behaviour and the adolescents' developing maturity

Adolescents can be described as individuals in the phase of their life where most dimensions in life undergo great change and upheavals. For instance, on the dimension of pubertal development, during late childhood and adolescence, boys and girls undergo great physical changes. These changes often result in insecurity and accompanying stress. Next to, and interacting with, physical changes, the adolescent experiences psychological changes. The physical growing of the body costs a great deal of energy. At the same time changes occur in the sleep/wake cycle, indicating for the adolescent that they need less sleep. As such, there is incongruence in need of rest and receiving rest, resulting in stress. This change can explain for a great deal the, for parents annoying, tendency of laziness and lack of interest. On a psychosocial level, one can observe that the foremost thing adolescents do is take care of them-selves. As such, the outer world observes in the adolescent an egocentric, distant and lazy nature. Also, from a social environmental perspective a huge transition is experienced. Adolescents change from primary school to secondary school, resulting in quite some distress and tension regarding peer relations. Subsequently they experience an inner tension of balancing the amount of time spent with peers next to time spent with their parents, who always had a unique position in the life of their offspring. This results in tension with the caregivers (Westenberg, 2008). But do these pubertal changes also account for the fact that adolescents misbehave? Maybe, and if so only partially as pubertal changes alone and associated developments

in hormone cycles with subsequent mood changes, can not alone account for the steep increase in problem behaviour. Next to pubertal development, the development of becoming psychologically mature may play a role in problem behaviour. Regarding the developing psychosocial maturity several arguments can be given for the possible relation with problem behaviour.

### 6.3 Psychological implications

The consistent opinion on adolescents is that they lose track of what is normal and what not. According to this study, this assumption seems far from the truth. Only a small percentage of adolescents behave seriously problematically and an even smaller percentage behaves delinquently. However, most adolescents do indeed exhibit some form of misbehaviour in this particular period.

This paragraph addresses the psychological implications of the results of this dissertation. As such, it aims to translate the results to relevant aspects for contemporary psychology. Most likely the most important conclusion is that the misbehaviour of most adolescents does not have to be considered problematic or worrisome. Early adolescence is a period of huge transitions where compensations are needed to “survive” in the many new interactions with others and the Self. Research has indeed shown that also after the adolescent has his physical (pubertal) development finished, cognitive and psychosocial development continues until the age of 24 approximately. As such, some turbulence in adolescent behaviour appears almost unavoidable. When the relation between psychosocial development and misbehaviour is examined in more detail, it can be seen that it is the Self-protective level of psychosocial maturity that relates to milder problem behaviour: at the time our adolescents were tested, the Self-protective level was relatively normative for the adolescents’ psychosocial development. This does not imply that correction of unacceptable behaviour should not be carried out. On the contrary, parents and authorities should be aware of challenges and problems adolescents face in their life and assist their offspring, through correction, in progressing toward a mature level.

A second implication is that, while the theory we used is essentially meant for the study of normative psychosocial development, with current thesis, evidence is also found that a contributing value exists of the theory of psychosocial development in the explanation of non-normative, problematic behaviour. This was already previously shown through the studies of Frank and Quinlan (1976) and Krettenauer et al. (2003), where levels of psychosocial development related to problem behaviour. However, with the current study, developmental paths are identified in relation to normative problem behaviour as well as non-normative problem behaviour. This shows that a developmental perspective helps to distinguish normative misbehaviour from non-normative misbehaviour.

A third implication is the contributing value of the use of paths in analysing psychosocial maturity. From the fourth and fifth chapter it can be seen that the normative path relates to a small increase in frequency and severity of misbehaviour. Adolescents who lag behind in their psychosocial development show an increase in more serious problem behaviour. These findings show that, over time, normative psychosocial development relates to an increase in misbehaviour.

A final implication that follows from the results is that psychosocial development can also be interpreted as a protective factor for problem behaviour. From the second and fourth chapter it can be seen that levels of psychosocial maturity higher than normative, act as a protective factor for problem behaviour. Results from the fifth chapter show that a precocious psychosocial development protects girls from problem behaviour. These girls show less problem behaviour than normatively developing girls and under developing girls. This insight addresses maturation development in two ways. First of all, the precocious girls differ in psychosocial maturity from the main group. They have, on the one hand, a more elaborate technique of reflecting to themselves, and to their environment. Furthermore, they tolerate other opinions, and connect moral judgments to interactions with others. Although their stage characteristics prevent them from behaving problematic or delinquent, their differing maturation levels could on the other hand predict possible internalising problems, such as anxiety problems and depression. Because a minority of girls develop precociously, chances are increased that social isolation and lack of acceptance is experienced. Several studies already revealed relations between internalising problems and the Self-awareness level, the level considered in this study as precocious (Borst & Noam, 1993; Rierdan, 1998).

#### 6.4 Criminological implications

The previous paragraph tried to address the psychological implications. The current paragraph focuses on the implications this dissertation has for criminology. First, the theory of psychosocial maturity offers new possibilities to explain problem behaviour. The empirical studies in this dissertation, however, also showed that the relation so far is modest, although a unique contribution is seen of (level of) normative psychosocial development on mild problem behaviour, over existing criminologically “tested” factors. As such, adolescent psychological development seems to play a role in problematic behavioural output.

A second important implication is the use of a “stage-theory methodology” in this study. In the introduction a short description was given of criminological theories and their approaches. As far as developmental criminology is concerned, their theories can be divided into three characterizing groups. General static theories ascribe individual underlying differences in participation of crime. These differences are found in static components focussing on underlying factors that are seen as fairly stable after a short period. For instance, Gottfredson and Hirschi viewed low self-control as the criminal propensity for committing crime. The level of low self-control is determined rather early in childhood (Gottfredson & Hirschi, 1990). Wilson and Herrnstein also hold a static perspective. They theorised that criminal behaviour is mainly the effect of high impulsivity and impaired conscience (Wilson & Herrnstein, 1985). The second type is a general dynamic perspective. General dynamic theories focus on the role of the individual’s varying social circumstances or dynamic factors in life (e.g. marriage, job-continuity, becoming a parent: Laub & Sampson, 2003, and delinquent peer interactions: Warr, 1998). The third type is the typological perspective (Moffitt, 1993; Patterson & Yoerger, 1993). This type of theory states that the prevalence and development of criminal behaviour varies between

qualitatively different developmental trajectories, each having their own influencing characteristics. These influences are individual as well as environmental.

Developmental theories of crime propose factors influencing delinquent development. However, such factors are at times so abstract as to be of little practical value. For instance, in Moffitt's taxonomic model (1993), the "how, when and what" of the particular development of contributing factors such as the "maturity gap" is hardly operationalised. Recapitulating from the introduction, Moffitt described that most adolescents can be found in the "adolescence limited group"; adolescents increase in rather mild to moderate problem behaviour, and this deviant behaviour desists gradually around mid to late adolescence. A second group is defined as the "life-course persisters", a small group of adolescents committing rather serious offences. The typology created by Moffitt is for a great deal differentiated by a phenomenon called the "maturity gap": The adolescents regard themselves as adult, while the (adult) environments do not respond to them as such.

The aim of this thesis was not to test the presence of the "maturity gap" phenomenon. However, our studies can possibly *contribute* to the explanation of crime development as an alternative explanation, next to this "maturity gap" phenomenon. The results showed that the theory of psychosocial development could be of additional or alternative value to the explanation of "adolescent-limited" offenders and "life-course persistent" offenders. Additional, because the "adolescent-limited" offenders resemble some of the characteristics of adolescents who have a normative psychosocial development with normative problem behaviour, that desists over time. The "life-course persistent" offenders resemble more the adolescents who stagnate and lag behind in psychosocial development. The psychosocial levels where stagnation takes place, and are most prevalent with problem behaviour, are characterised by a lacking impulse control, an egocentric attitude, a mental state of invulnerability, and hedonistic and provocative features. These characteristics are, unlike the concept of the maturity gap, more capable of being measured.

A third implication is that a stage theory as used in this thesis offers an opportunity to view individual development. Although the dynamic and typological theories use in a sense respectively a first- and second-order<sup>1</sup> perspective on development of crime, they are both not able to view deviant psychological, behavioural or, relevant to current study, criminal states, *independent* of general individual development. Dynamic and typological studies cannot theoretically differentiate over time whether development is deviant. Using a dynamic stage-theory, development is viewed separately from the occurrence of (psychological) deviance and, is evaluated in its own chronological relevance. As such, the theory of psychosocial development can be interpreted as dynamic and typological and the same time, so that relation can be made between problem behaviour and psychosocial maturity (Westenberg et al., 2000). The studies described in this dissertation showed the value of stage-theories. The study described in the second chapter revealed the precise differences in problem behaviour by relating certain items to levels of psy-

<sup>1</sup> First-order is a direct developmental approach. Second-order is creating typologies first and from there on evaluate them as different (dynamic) trajectories.

chosocial maturity. Furthermore, the third chapter showed the additional knowledge gained by relating criminogenic factors with the Impulsive and Self-protective level. Stage-theories also offer solutions by creating paths between qualitatively different levels of psychosocial maturity. The studies in the fourth and fifth chapter illustrated paths of psychosocial maturity from one qualitatively different level to the next. As such the path is theoretically based between two evidence-based levels of psychosocial development. With the *Borderline* levels (psychosocial measurement by using half levels), it is possible to get a more detailed perspective on the position where the adolescent can be found. In sum there are several findings in this thesis that make psychosocial development interesting for criminology. First, the results showed that development of psychosocial maturity offers new contributing explanations with development of problem behaviour. Furthermore, the use of stage-theories offers a different approach, next to static, dynamic and typological approaches. Subsequently, the explanation of criminal development through less abstract constructs is most likely helpful. However, the total contribution of psychosocial development to the explanation of delinquency is difficult to judge. From the studies it can be seen that, although results were significant, the explained variance was modest. One of the most important results in this matter may be the difference in gender. Psychosocial development differs in pace for boys and girls. From the results in this thesis it can be suggested that the gender differences can be interpreted in a way that psychosocial development may in practice act as a risk factor for problem behaviour for boys and as a protective factor for girls. A question to be studied still is whether girls, are earlier in development, also, as prone to problematic behaviour. Either way, they also have to go through the “problematic levels” of psychosocial development.

## 6.5 Policy Implications

Authorities often see problem behaviour as an omen to a future delinquent career. As a result, punishment and even relatively intrusive correctional methods may be used. However, the majority of the adolescent population that behaves deviant starts in early adolescence and desists over time (Donker, 2004; Blokland, 2005). Our studies show two things. First, severe problem behaviour appears to be associated with pre-normative levels of development. However, if adolescents are punished, the adolescent is often considered already to be *mature enough* to undergo this punishment. One should ask whether the criminal justice system should not be more *aware of psychological immaturity* (Westenberg, 2008).

Secondly, the manifestation of mild problem behaviour is, as this study shows, mainly normative and needs guidance and less punishment. Regulating adolescent behaviour needs a differentiation in terms of adapting the regulation for the levels of psychosocial development. This could be practised by adapting the regulation for each age cohort, in for instance, school-policy on truancy, or other forms of misbehaviour. In doing so, the adolescent is not regarded as full-grown adult nor seen as a child, but spoken to on the level the adolescent understands. Gender should in this case also be taken into account. It requires a differentiation in approaching boys and girls on a psychosocial level, espe-

cially when it comes to problematic behaviour, where gender differences occur mainly in underdeveloped-normative for boys and normative-precocious for girls.

## 6.6 Methodological issues and limitations

There are several limitations in this study. First of all, the measures that are included for this study concern self-report questionnaires. The use of self-report data can be interpreted in various ways. A disadvantage for using self-report data is the chance of excluding a considerable part of problem behaviour. Although anonymity is assured, adolescents may feel uncomfortable telling that they committed an (serious) offence. Although this may seem a critical point in the current design, earlier research has yet not succeeded in pointing out that official records are better in describing the entire range of problematic behaviour. Also self-report data on problem behaviour has the advantage of being able to describe and interpret lighter forms of problem behaviour, often seen as predictors of serious problem behaviour. A disadvantage is again that developmental stage may have interacted with response style. Only with additional data can this hypothesis be tested.

A second limitation is the large attrition group from the first wave. The design of the study had two time points. As such, retrieving the attrition group in a possible third wave was not possible. Furthermore, we collected our data in class, risking the possible truancy, illness and other reasons not being in class at that particular moment. Unfortunately, we discovered that the group being absent in the second wave conducted the more severe problem behaviour in the first wave. This problem is often seen in longitudinal studies on externalising and internalising problem behaviour, (Reitz, 2004). As such the most troubled adolescents were underrepresented in the studies, most likely leading to weaker results and less explained variance. Although attrition was high, the results did show some effects. This implies that the results we found are relatively “pure”, i.e. the group of adolescents one expects to under develop, were filtered out and the group that did not, stayed.

A third limitation is the small amount of waves implemented in this study. With more than two waves, trajectories of psychosocial development could be constructed, and a more detailed description could be made of the long-term effect psychosocial development on problem behaviour. Also, with the use of more time points, the sample will be more spread over the various levels of psychosocial development.

A final limitation concerns the sample used for this study. It is preferred that the sample can be generalised for the entire population at hand. Current design was not able to do so. However, the sample used is largely representative for youth in average to lower level secondary schools in South Holland. The distribution was equally divided in boys and girls. Also the distribution between the different ethnic origins was taken into consideration. This is done by over-sampling the Dutch adolescent in the so-called white schools from more rural places in South Holland.



## 6.7 Future research

Current studies used self-report data. This resulted in a considerable attrition. However, studies focusing on self-report data are known for their much wider reach. Respondents are more willing to report milder offences. However, respondents are often less willing in reporting more serious problem behaviour or crimes that are more serious in nature. The other way to collect data is by studying official records. Often, these records do consist of the more serious crimes, but have less information about the more mild behaviour and crimes ("dark number"). Nowadays, large studies use a combination of collecting their data. Also, as discussed previously, the use of self-report data resulted in, most likely, a dark number of the more serious offences (though anonymity was assured). The use of official data is then perhaps a good supplement to be related to the psychosocial development. The self-report data used in current study could be compared with official records. The latter type of data show often more severe offences, which were hardly reported in current studies. Combining self-report data with official records could lead to a greater differentiation between those who remain relatively normative in their deviant behaviour and those who step over the line and do seem to undergo the trajectory of persisting offenders. Also, the use of data from teachers and parents on the adolescents' behaviour could prove a good additional source of information.

In line with this is the recommendation to use more time points over a longer period. By doing so, it is possible to observe differences in development between the various paths of psychosocial development. One could ask whether an adolescent stays in the designated path, or that the adolescent eventually changes to the normative developmental path. Furthermore the use of more time points over a longer period could show clearer results regarding the differences between boys and girls. It appeared from the results in this thesis that girls are more prevalent in the precocious development. Boys on the other hand are more present in the underdeveloped paths than girls. Also, with more time points it is possible to investigate the trajectories that the paths take. It appeared that with two time points the possibility to regress became rather eminent. What is the actual value of the regressing path? Loevinger already stated in her original theory that regressing in psychosocial development is not a structural phenomenon. So, in our study with just two waves this may have been simply unreliability. Studies should address the question whether regressing development should be considered a measurement error instead of something fundamental to consider.

Although the present studies do mention the separate effect of boys and girls, future studies could consider a more detailed analysis of the longitudinal effect psychosocial development has on the development of problem behaviour differentiated in gender. As is discussed previously, boys and girls develop differently in psychosocial maturity and in development of problem behaviour. This difference needs more investigation. Girls are faster in psychosocial development, and boys are more prevalent in problem behaviour. Which girls are then specifically behaving problematic and do boys behave problematically when they are precocious in their psychosocial maturity? So, especially regarding the influence of psychological reflection on the Self, the other and the environment on problem behaviour, an in-depth investigation is important with the gender differences kept in mind.

The current dataset can be related in future studies to a fourth wave of data collection, which is collected in 2005. A part of the sample was approached a year after the final year at secondary school. This sample only administered the general questionnaire, but the sample could give a good impression of how level of psychosocial development relates to future (absence of) problematic behaviour.

In sum, this dissertation addressed several new perspectives on the explanation of problem behaviour development. The suggestions mentioned above, i.e. more measurement waves, implementation of official records, and greater focus on gender differences could help to improve the understanding of the relation between psychosocial development and problematic behaviour.

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## Samenvatting

In hoofdstuk één van dit proefschrift worden verscheidene theoretische perspectieven beschreven die relevant zijn voor de vraag in hoeverre de psychosociale ontwikkeling gerelateerd is aan probleemgedrag. Het is namelijk mogelijk dat de ontwikkeling van de psychosociale volwassenheid in de adolescentie verband houdt met de sterke toename van delinquent gedrag in die periode. Een ontwikkelingsgerichte of dynamische theorie over de persoonlijkheid zou daarom een bijdrage kunnen leveren aan de verklaring van de toename van delinquentie in de adolescentie.

Een dergelijk psychologische theorie over persoonlijkheidsontwikkeling is de psychosociale ontwikkelingstheorie van Loevinger. Deze theorie onderscheidt verschillende stadia, die gerelateerd zijn aan persoonlijkheidskenmerken als impulsiviteit, egocentrisme, moraliteit en conformisme. Dit zijn dezelfde persoonlijkheidskenmerken die uit bovengenoemd onderzoek bleken samen te hangen met delinquentie. Deze ontwikkelingstheorie lijkt daarmee bij uitstek van toepassing op delinquent gedrag en vooral bruikbaar om te verklaren waarom delinquentie zo aan verandering onderhevig is tijdens de adolescentie. Deze dissertatie maakt gebruik van gegevens die zijn verzameld bij ruim 500 jongeren in 2002 en twee jaar later, in 2004 in Den Haag en omstreken.

Vanuit een criminologisch perspectief wordt vooral gewezen op het gebruik van een stadiatheorie, een type theorie die behulpzaam zou kunnen zijn in het bijdragen aan het begrip betreffende de ontwikkeling van probleemgedrag bij adolescenten. Loevinger's stadia theorie kan helpen om specifieke paden van ontwikkeling te herkennen evenals het aantonen van verschillen tussen adolescenten die tijdelijk mild probleemgedrag vertonen en adolescenten die continueren in delinquent gedrag. Ook wordt in dit hoofdstuk gesuggereerd dat de normatieve ontwikkeling mogelijk gerelateerd is aan normatief, mild probleemgedrag dat vermindert over tijd.

Het tweede hoofdstuk beschrijft de eerste studie. Deze studie richt zich op de cross-sectionele relatie tussen de niveaus van psychosociale ontwikkeling en verscheidene vormen van probleemgedrag. Er worden twee hypothesen getoetst. De eerste hypothese richt zich op de stagnatie van psychosociale ontwikkeling. Adolescenten die stagneren in hun psychosociale ontwikkeling bevinden zich op een lager psychosociaal niveau dan normatief voor de leeftijdsperiode waar zij zich in bevinden. Voor deze categorie is verwacht dat deze adolescenten meer ernstig probleem gedrag laten zien dan de adolescenten op de normatieve ontwikkelingsniveaus of voorlopende ontwikkelingsniveaus. De tweede hypothese is de "Normatieve hypothese". Deze hypothese suggereert dat de adolescenten op een normatief psychosociaal niveau wel degelijk wangedrag laten zien maar in veel mindere mate en minder ernstig dan de adolescenten die stagneren in hun psychosociale ontwikkeling.

Deze deelstudie maakt niet alleen gebruik van de totale somschalen van wangedrag en delinquentie maar ook van de aparte items waarnaar is gevraagd bij adolescenten. Dit geeft de mogelijkheid om mogelijke typologieën en ernst schalen te creëren, zijnde licht ernstig wangedrag of delinquentie, gemiddeld ernstig wangedrag of delinquentie en ernstig wangedrag of delinquentie.

Uit de resultaten van de studie blijkt een verband tussen de adolescenten aanwezig in het Zelfbeschermende stadium en de aanwezigheid van verschillende typen wangedrag op school en buiten school (anders gezegd lichte vormen van delinquentie). Adolescenten met een psychosociale ontwikkelingsniveau dat lager is dan het Zelfbeschermende stadium (E<sub>3</sub>), en dus stagnerend in hun psychosociale ontwikkeling hebben een anderhalf tot vier keer groter risico om agressief gedrag te vertonen of delicten te plegen. Uiteindelijk is er gedeeltelijk ondersteunend materiaal gevonden voor de twee hypothesen. Aan de ene kant laten de resultaten een significante relatie zien tussen de normatieve psychosociale ontwikkelingsniveaus en licht delinquent gedrag, wat een bevestiging geeft voor de "Normatieve hypothese". Aan de andere kant wordt er een non-significante trend gevonden tussen het Impulsieve stadium (E<sub>2</sub>) en serieuze, gewelddadige delinquentie. Mede door dit resultaat is er slechts een zwakke ondersteuning gevonden voor de "Stagnatiehypothese". Verrassend genoeg komt er ook een derde bevinding naar voren uit de studie. Ten aanzien van de prevalentie van probleemgedrag wordt een duidelijk onderscheid gezien tussen adolescenten in de lagere ontwikkelingsstadia en adolescenten in de hogere ontwikkelingsstadia. De adolescenten in de lagere ontwikkelingsstadia laten een significant hogere mate van probleemgedrag zien dan de adolescenten in de normatieve of hogere stadia van psychosociale ontwikkeling. Met deze bevinding worden de eerste tekenen gezien van een beschermend effect van een hoger dan normatief stadium van psychosociale ontwikkeling in de adolescentie.

In hoofdstuk drie wordt verslag gedaan van de tweede studie. Deze studie concentreert zich wederom op de cross-sectionele analyse van stadia van psychosociale ontwikkeling en probleemgedrag. Bij deze studie wordt de mate van zelfcontrole toegevoegd als extra criminologische factor. Op deze wijze is onderzocht of psychosociale ontwikkeling een unieke bijdrage levert in het verklaren van probleemgedrag. De mate van zelfcontrole wordt gemeten door middel van een totaalschaal. Daarnaast is het mogelijk om de diverse subschalen te gebruiken in de analyse: "Impulsiviteit", "Avontuurlijkheid", "Temperament". Deze deelstudie bevat meerdere hypothesen. De eerste hypothese veronderstelt een relatie tussen een lage zelfcontrole en probleemgedrag. De tweede hypothese concentreert zich op het toetsen van de eerdere genoemde "Normatieve hypothese" waarbij wordt verwacht dat kinderen in voorlopende ontwikkelingsstadia minder probleemgedrag vertonen dan adolescenten in een normatief ontwikkelingsstadium. De derde hypothese richt zich op het toetsen van de "Stagnatiehypothese" met subschalen van probleemgedrag. Daarbij wordt verwacht dat adolescenten die stagneren in de psychosociale ontwikkeling meer en ernstiger probleemgedrag vertonen dan kinderen in een normatief of voorlopend ontwikkelingsstadium. De vierde hypothese verwacht dat de mate van zelfcontrole zal verschillen per ontwikkelingsstadium. De verwachting is dat het Impulsieve stadium relateert aan lagere niveaus van zelfcontrole, terwijl het conformistisch stadium meer aan hogere niveaus van zelfcontrole zal voldoen. Met de vijfde, en meest uitgebreide hypothese wordt verwacht dat er een relatie bestaat tussen stadia van psychosociale ontwikkeling en probleemgedrag waarbij de mate van zelfcontrole wordt gecontroleerd.

Met betrekking tot de eerste hypothese kan gezegd worden dat eerdere resultaten uit andere onderzoeken over de relatie tussen een lage zelfcontrole en probleemgedrag worden gerepliceerd. De analyses laten significante verbanden zien tussen probleemgedrag en hoge Impulsiviteit, hoge mate van Avontuurlijkheid en hoge mate van Temperament.

Daarnaast laat de totaalschaal van lage zelfcontrole significante verbanden zien met probleemgedrag. De resultaten voor de tweede hypothese laten een duidelijk significante relatie zien tussen het normatieve psychosociale niveau en matig ernstig probleemgedrag. De resultaten met betrekking tot de derde hypothese laten geen duidelijke relatie zien tussen een gestagneerde ontwikkeling en probleemgedrag. Met betrekking tot de vierde hypothese worden duidelijke relaties gezien tussen het Impulsieve en Zelfbeschermen-de stadium en een lage zelfcontrole. Verrassend genoeg is er geen duidelijk verband tussen de subdimensie Impulsiviteit van lage zelfcontrole en het Impulsieve stadium van psychosociale ontwikkeling. Hoogstwaarschijnlijk is impulsief gedrag niet hetzelfde geoperationaliseerd voor psychosociale ontwikkeling als voor lage zelfcontrole.

Met betrekking tot de vijfde en laatste hypothese zijn de resultaten gedeeltelijk ondersteunend. De verwachting was dat een onafhankelijk effect bestaat voor stadia van psychosociale ontwikkeling op probleemgedrag, naast het effect van lage zelfcontrole. Er is een onafhankelijk effect gevonden op matig ernstig probleemgedrag. Dat suggereert dat psychosociale ontwikkeling gedeeltelijk een verklarend effect heeft op matig probleemgedrag. Hiermee is er een mogelijk dynamische invloed van psychosociale factoren naast de meer stabiele risicofactoren bestaande bij probleemgedrag.

In hoeverre is psychosociale ontwikkeling gerelateerd aan de ontwikkeling van probleemgedrag? Dit is de hoofdvraag van het vierde hoofdstuk. Om dit te beantwoorden is getracht paden van psychosociale ontwikkeling te relateren aan de prevalentie van probleemgedrag over de tijd heen. Hiervoor is de “Stagnatiehypothese” omgezet tot de “Stagnerende padhypothese” en de “Normatieve hypothese” tot het “Normatieve padhypothese”. Naast het stagnerende pad en het normatieve pad zijn drie andere, theoretisch relevante paden toegevoegd. Deze paden zijn het “achterlopende ontwikkelingspad”, het “teruglopende ontwikkelingspad” en het “voorlopende ontwikkelingspad”. Vooral het laatste pad wordt relevant geacht, aangezien we in het tweede hoofdstuk al een verband zagen tussen voorlopende stadia van psychosociale ontwikkeling en een lagere prevalentie van probleemgedrag. De verwachting is dat adolescenten die een normatief psychosociale ontwikkeling ondergaan mild probleemgedrag laten zien en enigszins zullen stijgen in de ernst van hun probleemgedrag over tijd. De tweede hypothese is dat adolescenten die stagneren in hun psychosociale ontwikkeling meer ernstig probleemgedrag vertonen, wat leidt tot een stijging in de ontwikkeling van delinquent gedrag. Verder wordt er verwacht dat een beschermend effect zou optreden vanuit het voorlopende psychosociale ontwikkelingspad. De vierde en vijfde hypothese richten zich op het teruglopende psychosociale ontwikkelingspad en het achterlopende ontwikkelingspad. Van beide ontwikkelingspaden wordt verwacht dat er een sterke relatie is met ernstig probleemgedrag.

De resultaten laten zien dat de adolescenten in een niet-normatieve pad (in dit geval een achterlopend, stagnerend en teruglopend pad) meer betrokken zijn bij probleemgedrag op het tweede tijdstip dan de adolescenten in een normatief of voorlopend psychosociaal ontwikkelingspad. Daarnaast blijkt dat een prenormatieve psychosociale volwassenheid significant is gerelateerd aan de ontwikkeling van probleemgedrag. Een daling in probleemgedrag wordt ondervonden bij de adolescenten met een normatieve of voorlopende ontwikkeling. Adolescenten met een achterlopende ontwikkeling karakteriseren zich door een stijging in meer ernstig probleemgedrag. Een dergelijke verandering blijkt niet aanwezig te zijn bij het stagnerende pad van psychosociale ontwikkeling. Bij deze groep

adolescenten zijn geen significante resultaten gevonden met betrekking tot een stijging in serieus probleemgedrag. De resultaten laten een beschermend effect zien van een voorlopende psychosociale ontwikkeling voor het vertonen van probleemgedrag.

In hoofdstuk vijf wordt de vierde studie in deze dissertatie besproken. Deze is ook longitudinaal van aard en betreft het onderzoek naar de aanvullende effecten van psychosociale ontwikkeling op probleemgedrag, naast ouderlijke factoren en “peer” factoren. De eerste hypothese betreft de ongecorrigeerde effecten van stadia van psychosociale ontwikkeling op probleemgedrag. De verwachting is dat lagere stadia associëren met meer probleemgedrag; hogere stadia van psychosociale ontwikkeling relateren meer met een lagere mate van probleemgedrag. De tweede hypothese betreft de additionele effecten van psychosociale ontwikkeling op probleemgedrag naast het effect van “peers” en ouders. De derde hypothese richt zich op het beschermende effect van een versnelde psychosociale ontwikkeling. De verwachting is dat een voorlopende ontwikkeling protectief werkt ten aanzien van probleemgedrag bij de meisjes, mede door het feit dat meisjes in de vroege tot midden adolescentie verder zijn ontwikkeld in hun psychosociale volwassenheid.

De eerste hypothese wordt ondersteund. De resultaten laten een duidelijk onderscheid zien tussen de lagere stadia van psychosociale ontwikkeling en hogere stadia van psychosociale ontwikkeling met betrekking tot probleemgedrag. Lagere stadia correleren met een hogere prevalentie van probleemgedrag; hogere stadia van psychosociale ontwikkeling correleren met een lagere prevalentie van probleemgedrag. Deze verbanden worden niet gevonden bij een aparte toetsing van de mannen en de vrouwen. Met betrekking tot de tweede hypothese is er geen steun gevonden. De resultaten laten zien dat de onderontwikkelde paden van psychosociale ontwikkeling geen duidelijke extra bijdrage leveren aan de verklaring van probleemgedrag, naast het effect van negatieve peer invloeden of gedepriveerde ouderlijke invloeden. Met andere woorden, het effect van een onderontwikkelde psychosociale ontwikkeling (zijnde een achterlopende ontwikkeling, stagnerende en teruglopende ontwikkeling) op probleemgedrag is niet aanwezig wanneer ook andere criminologische factoren mee worden genomen in de analyse. De derde hypothese toetst een mogelijk beschermende invloed van een vóórlopende psychosociale ontwikkeling. Deze verwachting wordt ondersteund. Het voorlopende psychosociale ontwikkelingspad laat een selectief beschermend effect zien op het vertonen van probleemgedrag. Selectief, aangezien de beschermende effecten alleen aanwezig zijn voor de vrouwelijke adolescenten en alleen geldt voor wangedrag binnen school. Hiermee kan worden gesteld dat een voorlopende psychosociale ontwikkeling de vrouwelijke adolescent beschermt tegen wangedrag.

Het laatste hoofdstuk in deze dissertatie tracht de verschillende bevindingen uit elke studie te integreren en een overstijgend theoretisch beeld te geven van de diverse resultaten. Vanuit de theorie wordt besproken in hoeverre een stadiatheorie van belang kan zijn in het criminologisch onderzoek. Binnen criminologie bestaat de triangulatie tussen statische, dynamische en typologische theorieën. In dit hoofdstuk wordt door middel van de deelstudies gesuggereerd dat een ontwikkelingstheorie met de focus op stadia en typen paden van ontwikkeling een vernieuwend perspectief kan bieden op het begrip van de ontwikkeling van afwijkend gedrag. Vanuit een psychologisch perspectief wordt besproken hoe delinquent gedrag in verhouding staat tot de psychosociale ontwikkeling die een individu ondergaat.

Wellicht de belangrijkste conclusie die wordt beschreven is het resultaat dat probleemgedrag in de vroege tot midden adolescentie als normatief mag worden beschouwd wanneer wij uitgaan van de psychosociale ontwikkeling. Dit komt niet altijd overeen met de maatschappelijke beschouwing van de puberteit. Nog steeds wordt het gedrag van een jongere snel als zorgwekkend gezien wanneer het niet normatief is. De complicatie ligt bij het vinden van de grens. Wanneer gaat een jongere over de schreef en is de ontwikkeling van het gedrag verontrustend genoeg? Verdere studies naar de psychosociale ontwikkeling in combinatie met criminologisch onderzoek kunnen hier een bijdrage aan leveren. Een tweede belangrijke conclusie is dat er een beschermend effect is van de psychosociale ontwikkeling in de adolescentie bij meisjes. Hierop aansluitend wordt benadrukt dat verder onderzoek naar meisjes en probleemgedrag noodzakelijk is. Ten slotte worden beleidsimplicaties besproken ten aanzien van de resultaten. Deze implicaties hebben betrekking op de visie die wij moeten hanteren ten aanzien van het gedrag dat de adolescent vertoont, en dat het afwijkende gedrag met deze studie in ogenschouw niet altijd hoeft te worden gestraft. Er zou immers meer sprake kunnen zijn van psychosociale onvolwassenheid in een volwassen wereld. Correcties op het afwijkende gedrag zouden nog meer op leeftijdscohorten kunnen worden gericht, daarmee samenhangend met de psychosociale ontwikkelingsstadia in de adolescentie.





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## Curriculum Vitae

Menno Ezinga is geboren op 23 september 1979 te Haaksbergen. Zijn VWO-diploma behaalde hij in 1999 op het Griffland college te Soest. Tussen 1999-2004 studeerde hij ontwikkelingspsychologie in Leiden. Het onderwerp van zijn scriptie betrof de verschillen in persoonlijkheids-, gezins- en schoolkenmerken tussen jeugdige zedendelinquenten en jeugdige niet-zedendelinquenten. Hierop volgend werkte hij als junior onderzoeker op het Nederlands Studiecencentrum Criminaliteit en Rechtshandhaving in Leiden bij het Schoolproject, een longitudinale studie naar adolescenten en delinquentie. In het najaar van 2004 startte hij met zijn dissertatie op het NSCR, in samenwerking met Universiteit Leiden. Het onderwerp betrof de psychosociale ontwikkeling en de ontwikkeling van probleemgedrag in de adolescentie.

Sinds september 2007 werkt Menno als universitair docent bij de Afdeling Strafrecht en Criminologie van de Vrije Universiteit te Amsterdam. Zijn huidige onderzoek betreft het psychologisch welzijn van kinderen van gedetineerde moeders.

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Since September 2007, Menno is employed as an assistant professor at the Department of Criminal Law and Criminology of the VU University in Amsterdam. His current research focuses on the psychological wellbeing of children of imprisoned mothers.

