English Summary
Children and adolescents who engage in externalizing behaviors, such as oppositional behavior, aggression, vandalism, and illicit drug or alcohol use, are of great concern to their parents, teachers and society at large. Not only may their behaviors impact others, engaging in externalizing behavior can also be harmful for the perpetrators themselves because it puts them at risk for a broad spectrum of concurrent and future problems. The studies presented in this thesis aimed to clarify the role of children’s social environment (i.e., children’s peer and home context) in explaining why children’s personal endowments (i.e., children’s genotype, temperament, personality and sex) are expressed in developing externalizing behaviors. To this end, the present thesis addressed the following research topics:

The first set of studies focused on environmental mediation. I aimed to study how daily experiences with peers may explain why children’s early temperamental traits (chapter 2), or milder forms of behavioral difficulty (chapter 3) develop into later, more serious conduct problems. The second set of studies examined environmental moderation. I studied how the home and peer environment may aggravate, or buffer, the link between a child’s personality (chapter 4) or genetic makeup (chapter 5) and their engagement in, respectively, cannabis use and conduct problems. My final aim was to investigate whether social relationships in the peer context at school could compensate for negative experiences that children may have in their home context. In chapter 6, I therefore studied to what extent the facilitation of children’s positive peer experiences - through a preventive intervention program - could protect children who were exposed to an at-risk home environment against developing externalizing problems. Lastly, potential sex differences in developmental pathways were explored in all studies.

In order to answer these questions, I analyzed data from four different studies: two studies focused on Dutch elementary school children, one study focused on Dutch adolescents and one study focused on Canadian youth. All studies were characterized by multi-informant, longitudinal research designs in which children were followed annually for several years.
Together, the studies covered the developmental period from the start of formal schooling (age 6 years), throughout elementary school, into adolescence (age 15 years).

**Children’s personal endowments, peer relations and externalizing behaviors: Environmental mediation?**

Our findings reported in chapter 2 and chapter 3 showed that children with a temperament characterized by negative emotionality (chapter 2) and children who showed oppositional behavior (chapter 3) became increasingly more disliked and increasingly less liked by their peers. Subsequently, these negative peer perceptions predicted engagement in more serious externalizing problems. Thus, elicitation of negative peer appraisal because of a child’s personal endowments may partially explain why an initially mild or even benign personal risk factor may become manifested in externalizing behavior, and may result in the continuation and aggravation of this behavior.

**Children’s personal endowments, social experiences and externalizing behaviors: Environmental moderation?**

In chapter 4 we found that adolescents who showed more emotional instability and who were less extravert were at risk of using cannabis at an early age, but only when they experienced a strong decline in parental control. In chapter 5, we focused on children’s genotype of the dopamine receptor D4 (DRD4) gene. Individual differences within this gene have been shown to affect children’s susceptibility to environmental input. We found that children who had the alleged ‘risk’ variant of the DRD4 gene (i.e., the 7-repeat allele) showed an increase in externalizing behavior throughout ages 9 to 12 years, but only when they were disliked by their peers. However, we also found a protective effect of this alleged risk-allele. That is, children with the 7-repeat allele of the DRD4 gene showed less externalizing behaviors when they were liked among their peers. Thus, the results reported in chapter 4 and chapter 5
imply that whether children’s personal endowments may become expressed in externalizing behavior depends upon which type of social environment these children experience.

Can the peer environment make up for what the family context might fail to provide?

In chapter 6, we investigated whether the effects of children’s negative experiences in the home context, which may predispose them to develop externalizing problems, could be diminished by facilitating positive peer relations at school. Children were considered to be exposed to home risk when their mother engaged in abusive disciplining or criminal behavior (which may be seen as maternal externalizing problems), and when their mother experienced parenting stress or a depressed mood (which may be seen as maternal internalizing problems). The facilitation of positive classroom peer relationships was done through a universal classroom-based intervention program: the Good Behavior Game (GBG). Results showed that regardless of children’s home risk, children who were in GBG classrooms showed decreasing levels of externalizing behavior compared to children who were in control classrooms. Results also showed that regardless of their home risk, children were more accepted by their peers in GBG classrooms than in control classrooms. However, it was the higher level of peer acceptance that explained why children who came from an at-risk home context characterized by maternal externalizing problems showed reductions in externalizing problems. For children whose mothers had internalizing problems, the positive effect of the GBG on the development of externalizing behavior could not be explained by increased peer acceptance. These findings thus imply that facilitating positive peer relations in school may counter the development of externalizing behavior for children whose mothers have externalizing problems themselves.

Lastly, in all studies we explored potential sex differences in the associations between personal endowments, the social environment and externalizing disorder. With the exception of substance use, we found in all studies that boys had higher levels of externalizing behavior than girls. Despite this sex difference in the level of externalizing behavior, we found limited
support for sex-specific developmental pathways of externalizing behavior in our studies. Furthermore, when we did find sex differences in developmental pathways of externalizing behavior, these were always small in magnitude.

Conclusion

The studies presented in this thesis confirm that the development of externalizing behavior should be understood as a complex bio-social process. The personal endowments (the ‘bio’ part of the process) that we investigated were children’s genotype, temperament, personality and sex. Our results showed that children are not at risk for developing externalizing behavior solely based on these personal endowments. In addition, the social environments (the ‘socio’ part of the process) we investigated were children’s experiences in the home and peer context. Again, our results showed that children are not at risk for developing externalizing behavior as a consequence of these social environments only. In contrast, the results of the present thesis point out that it is a specific combination of a child’s personal endowments and its social environment that can indicate whether a child has a high chance to ‘make it’ or a high chance ‘to break it’ with respect to developing externalizing problems.