This is wrong, right?
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Chapter 6

Conclusion and Discussion
In this chapter we aim to recapitulate the four empirical studies in this dissertation, and to summarize and integrate their main findings and implications. The chapter starts with an overview of the issues that motivated this dissertation. This is followed by a summary of main findings derived from each of our empirical studies separately. We continue with a discussion of the integrative findings and contributions focusing on the overarching theoretical and methodological issues emerging from the empirical studies. Then, the integral limitations of our research are addressed. Finally, we discuss the implications for practice and further research that rise from our studies.

1. Research Motivation and Context

Exploring the role of moral components in anti- and prosocial behaviour in primary education is an issue of current scientific and practical interest. There is an increasing awareness of the need for educational systems to encourage the acquisition of prosocial values and behaviour and to discourage the acquisition of antisocial values and behaviour. However, the effects of intervening in anti- and prosocial behaviour in primary schools are mixed. Therefore, the starting point of our research concerned the question what underlies anti- and prosocial behaviour in middle childhood. Specifically, we argued that moral functioning might serve as a central process underlying children’s anti- and prosocial behaviour in elementary school. The continuing decline in formerly coherent value systems and an increasing individualization in modern Western society make this even more relevant (Brown, Corrigan & Higgins-D’Alessandro, 2012; Fink & Slade, 2016; Rupp & Veugelers, 2003).

In our exploration, we drew on the theoretical framework of the Four Component Model of Rest (1983; 1986). This model currently offers the most adequate framework to examine the underlying psychological processes of moral behaviour: moral sensitivity, moral reasoning, moral motivation, and moral character. The first component, moral sensitivity concerns interpreting a situation in terms of how people’s welfare is affected by possible actions of the subject. The second component, moral reasoning, regards integrating various considerations to determine what ought to be done. Moral motivation, the third component, concerns the importance people give to moral values (doing what is right) relative to other values (i.e. self-actualization). The fourth component is moral character and refers
to the ability to persist in a moral task in the face of obstacles (Rest, 1983; 1986; 1994).

We took different, but complementary paths in our exploration. In the first step of our research, assessment methods were developed and tested in the Dutch context of this study. Supportive evidence of reliability and validity of instrumentation clearly is a critical feature of meaningful research. In our second chapter we therefore elaborated on the assessment of emotions in the context of moral transgressions in the light of two important aspects of this particular assessment method, i.e. domain and developmental variability, and its links to important criterion measures, i.e. aggressive and prosocial tendencies, and sympathy. Moreover, its reliability and several aspects of its validity were tested. In the next two studies moral sensitivity, moral reasoning, moral motivation and moral character were examined in relation to the development of prosocial behaviour and a repetitive and intentional form of antisocial behaviour, bullying-related behaviour. Specifically, in the second study, the theory of marginal deviations of Caprara et al. (1992) was applied to explain development of prosocial behaviour. We examined whether initial marginal deviations (positive and negative) in prosocial behaviour lead to the development of prosocial behaviour when combined with the (accumulation of) moral components. In the third study relating the moral components to bullying-related behaviour the aim was to also take group characteristics into account. This is why we examined the relative contribution of the four components at both the individual and class level to five participant roles in the bullying context. In the fourth and last study the effects of an intervention stimulating children’s behavioural tendencies towards agreeableness, an aspect of moral character, were analysed. Specifically, the aim was to investigate the effects of a class-based intervention program promoting agreeableness on bullying, assisting, defending, victimization, outsider behaviour, prosocial behaviour, and antisocial behaviour over the course of two school years. In this way the study contributed to the urgent need to know what is effective in moral education and the prevention of bullying.

2. Overview of main findings

In the first study we focused on the assessment of moral motivation, i.e. emotions following hypothetical transgressions in moral dilemmas. In Chapter 2 the
reliability and validity of the assessment of anticipated emotions in moral dilemmas was examined with a special interest in the domain and developmental specificity of the task. Although research on anticipated emotions in moral dilemmas has been published for decades, little work used statistical techniques such as factor analysis. This first attempt to look at the reliability and (aspects of) the validity of the instrument, helped to evaluate the custom for assessment of moral emotions. The instrument consisted of six scenarios covering three domains: fairness (not winning fairly, not keeping word), omission of a prosocial duty (not sharing, not helping) and victimization (verbal bullying, relational bullying). Anticipated emotions following the scenarios were coded as either negative (i.e. moral) or positive. The instrument appeared to be a reliable one-factor measure of anticipated emotions following hypothetical moral scenarios. The results further revealed some indications for the concurrent and predictive validity of the assessment of emotions in moral dilemmas. Interestingly, relations between anticipated emotions and prosocial tendencies were found in specific scenarios, namely the scenarios involving an omission of a prosocial duty (not sharing, not helping). This points to domain variability and to the importance of relating the situations of the moral scenarios to the behaviour of interest. Sympathy related to anticipated emotions following all scenarios. No relation was found between self-evaluated emotions and antisocial tendencies. Contrary to the expectations, emotions following hypothetical moral dilemmas did not show a strong developmental pattern.

Having identified the validity and reliability of the scale scores of the instrument representing moral motivation, we were more confident to look into the role of moral sensitivity, moral reasoning, moral motivation and moral character in (the development of) anti- and prosocial behaviour. Additionally, because anticipated emotions following moral dilemmas positively related to prosocial tendencies, but not to antisocial tendencies, we decided to study the role of the four moral components separately for prosocial and antisocial behaviour. Chapter 3 focussed on prosocial behaviour investigating the role of the (accumulation of) the moral components moral sensitivity, moral reasoning, moral motivation and moral character in predicting prosocial behaviour development. In Chapter 4 we switched our focus to the role of moral components in a specific form of antisocial behaviour, namely bullying behaviour. By studying the role of all moral components in both prosocial and antisocial behaviour, we tried to progress previous research empirically evaluating the Four Component Model of Rest (1983; 1986).
In Chapter 3 we studied whether the (accumulation of) moral components moderated the influence of initial marginal deviations (positive and negative) in prosocial behaviour on the development of prosocial behaviour over time. Marginal deviations in behaviour had been neglected in past research, which focused mainly on extreme groups or continuous dimensions of behaviour (Caprara, Dodge, Pastorelli & Zelli, 2007). The theory of marginal deviations argues that marginal deviations in behaviour also have the potential to develop into higher levels of this behaviour. Our study was among the first to study marginal deviations in prosocial behaviour, providing new insights in research and theorizing about prosocial behaviour development. We tested whether development in prosocial behaviour could be predicted by initial marginal deviations in prosocial behaviour. Moreover, based on the Four Component Model, the unique and aggregated effects of individual differences in moral functioning were considered to be relevant for prosocial behaviour development. Contrary to the theory of marginal deviations, the empirical findings of this study do not show that marginal deviations in prosocial behaviour have the potential to develop into higher or lower levels of prosocial behaviour over time. The development of initial prosocial behaviour into more pronounced prosocial behaviour only applied to marginally prosocial older children in the sample, and only in combination with high moral motivation. Moreover, marginally prosocial and marginally nonprosocial children tended to develop towards the mean of prosocial behaviour over time. Deviations from the norm of prosocial behaviour thus appeared to be compensated by behaviour in the opposite direction, instead of accumulating into stronger deviations from the norm of prosocial behaviour. This led us to speculate that the theory of marginal deviations mainly applies to behaviour with a high salience, such as aggressive or bullying behaviour. Additionally, moral sensitivity, moral reasoning, moral motivation and moral character did not significantly predict or moderate the development of prosocial behaviour. The relation between accumulation of moral components and the development of prosocial behaviour was stronger than the relation between the separate moral components and the development of prosocial behaviour. This preliminary finding could suggest that in order to develop prosocial behaviour, children might need to score high on all moral components instead of just one. This is in line with the Four Component Model assuming that all moral components must be in place in order to act morally.
In Chapter 4 we studied the role of the moral components moral sensitivity, moral reasoning, moral motivation and moral character in bullying-related behaviour. Bullying is a severe form of antisocial behaviour in which a perpetrator repetitively harms a victim. The (long-term) consequences for the victim, as well as the bully, are therefore not to be taken lightly. Doing justice to this form of antisocial behaviour we studied bullying as a group phenomenon. The participant roles of bully, assistant, defender, outsider and victim were compared with regard to moral sensitivity, moral reasoning, moral motivation, and moral character at both the individual and class level. Again we followed the theoretical framework of Rest and used a broader representation of measures of moral functioning than most studies do. Moreover, a more in-depth approach was taken for the operationalization of the four moral components by also aggregating them to the class level of the analysis. The results of this undertaking showed that all the moral components are related with the chance of taking a specific particular participant role in the bullying process. This supports an integrated analysis of several moral components for a deeper understanding of the moral precursors of bullying behaviour. Furthermore, it showed the importance of distinguishing between the different participant roles of bully, assistant, defender, victim and outsider. Also, the results demonstrated that class moral characteristics can help explain bullying-related behaviour over and above individual characteristics. Negative anticipated emotions following a moral transgression and low inhibitory control at the class level predicted high ratings of bullying. This suggests that targeting all children in class might be essential for successful interventions. Furthermore, lower conscientiousness was associated with greater chances of bullying (and even more in combination with lower inhibitory control), higher levels of moral reasoning were positively associated with bullying and assisting ,and higher sympathy and more negative anticipated emotions (and even more so when children were older) were positively associated with defending. Interestingly, the personality characteristic agreeableness was most (negatively) related to bullying and assisting behaviour when compared with defending and outsider behaviour. Stimulating agreeableness in middle childhood therefore seems a good place to start in order to prevent bullying at school. Accordingly, this study has gone some way towards enhancing our understanding of the precursors of children’s behaviour in bully situations.
Since our research showed that agreeableness was most (negatively) associated with bullying-related behaviour and other research already found similar results, we argued that agreeableness might be a success-promoting factor of interventions targeting bullying-related behaviour and antisocial behaviour in middle childhood. Interestingly, agreeableness is also assumed to be the most malleable of the personality dimensions and most susceptible to change in light of environmental inputs. Therefore, the aim of Chapter 5 was to examine the effectiveness of an educational intervention on children’s behavioural tendencies towards agreeableness in order to target bullying-related behaviour and anti- and prosocial behaviour. By solely focussing on agreeableness as the potential underlying success-promoting factor of the intervention, information was obtained about the explaining process of the effectiveness of an intervention (Does stimulating agreeableness lead to a reduction of antisocial behaviour and an increase in prosocial behaviour?) as well as evidence of effectiveness (Does the intervention reduce antisocial behaviour and increase prosocial behaviour?). Specifically, this chapter investigated the effects of a class-based intervention program promoting agreeableness in middle childhood on bullying-related behaviour, and anti- and prosocial behaviour. These effects were examined by comparing children in a control condition with three intervention conditions at the beginning and at the end of two school years: (a) the intervention condition in which the intervention was implemented during the first schoolyear, (b) the delayed intervention condition in which the intervention was implemented during the second schoolyear, and (c) the extended intervention condition in which the intervention was implemented during both school years. An encouraging and important result is that we succeeded in the stimulation of agreeableness in all intervention conditions. As expected, promising effects of the class-based intervention were also found for all conditions for reducing bullying-related behaviour and antisocial behaviour. Compared to the control condition, the children in the intervention conditions showed a decrease in antisocial behaviour, bullying, assisting, and victimization and an increase in outsider behaviour over time. These positive effects were especially visible in the extended intervention condition. Moreover, a striking number of gender and age specific effects were found. The role of agreeableness in predicting the other outcomes of the intervention was relatively small. Therefore, it is not sure whether the changes in agreeableness caused changes in the other outcomes. However, there are some
indications that stimulating agreeableness in primary education has the potential to redirect negative trajectories of functioning. Overall, findings suggest that promoting agreeableness may serve to counteract antisocial behaviour.

3. Integrative findings and contributions

In our exploration of the role of moral components in anti- and prosocial behaviour in primary education we came across several integrative findings. Before discussing these findings we would like to stress that both dimensions of our exploration - moral components and anti- and prosocial behaviour - are broad constructs. Therefore, our choices with regard to their operationalization and assessment directly and indirectly steer our findings. Correspondingly, the results of the previous chapters as well as the integrative findings we present here should be interpreted in the light of these choices. Not only are both dimensions of our exploration - moral components and anti- and prosocial behaviour - broad constructs, they also relate to one another in different ways. However, taking everything into account, our research led to the insight that moral functioning can be an important process leading to anti- and prosocial behaviour in middle childhood. Therefore, the main contribution of our research is the identification of potential success-promoting moral factors for intervening in anti- and prosocial behaviour in primary education. Additionally, seven integrative findings emerge when deepening our main contribution.

Our first integrative finding is that not all aspects of moral functioning, i.e. not all moral components, were equally related to both anti- and prosocial behaviour. In order to illustrate this, we will briefly discuss the separate moral components and their relations with anti- and prosocial behaviour in our studies. The strongest relations were found between moral character, operationalized as agreeableness, conscientiousness, and inhibitory control, and both anti- and prosocial behaviour. Agreeableness was negatively related to the roles of bully and assistant in comparison to the defender and outsider roles and a negative association appeared between conscientiousness and bullying. This negative relation was even strengthened when children inhibitory control was lower (Chapter 4). Additionally, the relations between moral motivation and anti- and prosocial behaviour were weak. Moral motivation was positively related to prosocial behaviour, but not to antisocial behaviour (Chapter 2) and prosocial
behaviour development (Chapter 3), defending, bullying and assisting (Chapter 4). The relations between moral reasoning and anti- and prosocial behaviour were opposite our expectations. Moral reasoning, did not significantly predict prosocial behaviour development (Chapter 3), but positively related to bullying and assisting and negatively to being victimized (Chapter 4). The relations between moral sensitivity, operationalized as sympathy, and anti- and prosocial behaviour were merely inconsistent. Moral sensitivity did not significantly predict prosocial behaviour development (Chapter 3) nor bullying or assisting, but did relate to defending behaviour in bullying situations (Chapter 4).

The second integrative finding is that the predictive value of the four moral components differs for prosocial behaviour and antisocial behaviour (e.g. Baumeister et al., 2001; Rothbart & Park, 1986; Krueger, Hicks & McGue, 2001; Malti & Krettenauer, 2013). For example, a positive relation was found between moral motivation and prosocial tendencies, but no relation between moral motivation and antisocial tendencies (Chapter 2). Another illustration of this integrative finding is that the moral components related differently to the different participant roles in the bullying process (Chapter 4). Defending, a clear prosocial act, was significantly related to sympathy, whereas assisting and bullying, clear antisocial acts, were not. Furthermore, the intervention promoting agreeableness did not have the same effects on pro- and antisocial behaviour (Chapter 5). Illustrative is that the children in all intervention conditions showed a decline in antisocial behaviour, while their prosocial behaviour decreased. This again indicates that different processes underlie pro- and antisocial behaviour.

The third integrative finding is that the combination or accumulation of moral components is predictive for pro- and antisocial behaviour. We not only examined the relation between anti- and prosocial behaviour and the individual four moral components, we also investigated whether the accumulation or combination of moral components might be related to anti- and prosocial behaviour. This is in line with Rest’s (1983; 1986) theory behind the Four Component Model. Since he clearly states that all moral components are needed in order to behave in a moral manner, the interaction effects between moral components were incorporated in predicting bullying-related behaviour (Chapter 4) and we hypothesised that the accumulation of moral components might predict prosocial behaviour development (Chapter 3). Two interaction effects were found. First, sympathy was found to relate to assisting behaviour in bullying situations,
but only in combination with inhibitory control. Second, the relation between assisting and agreeableness became stronger with higher levels of sympathy (Chapter 4). Moreover, the positive linear and negative quadratic relation between the accumulation of moral components on prosocial behaviour development was stronger than the relations between the separate moral components and prosocial behaviour development (Chapter 3). This preliminary finding suggests that in order to develop prosocial behaviour it is beneficial to score high on more than one moral component.

A fourth integrative finding is that the relation between moral components and anti- and prosocial behaviour differed between individual and class moral components. Interestingly, class moral emotions and class inhibitory control were related to bullying-related behaviour. At the individual level, however, these relations were not present (Chapter 4). This indicates that class moral characteristics can help explain bullying-related behaviours over and above individual moral characteristics (Gini et al., 2014; 2015; Pozzoli, Gini & Vieno, 2012). More generally, group processes seem to play an important role in the relations between moral functioning and anti- and prosocial behaviour. This might also explain the phenomenon of compensation that was found with regard to prosocial behaviour development (Chapter 3). In this chapter, children with initial deviations in prosocial behaviour appeared to develop towards the mean of prosocial behaviour over time. This supports the finding of Dodge (2006) that deviations from the norm, i.e. the mean, tend to be compensated by actions in the opposite direction. This tendency to develop to the norm might be due to processes of social influence among classmates. It is known that groups help define the type and range of relationships and interactions that are likely or permissible (e.g. Rubin, Bukowski & Parker, 2006).

The fifth integrative finding emerging from our research is that the associations between moral components and anti- and prosocial behaviour sometimes also depends on individual characteristics such as gender and age. The most remarkable finding related to gender is that the intervention program stimulating agreeableness showed differential gender effects (Chapter 5). Boys showed a stronger decline in antisocial behaviour, bullying, and assisting than girls in the intervention and extended intervention condition. Additionally, age seemed to play an important role in the relations between moral motivation and anti- and prosocial behaviour. Interaction effects were found for the links between age and
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moral motivation when predicting antisocial behaviour, prosocial behaviour and defending (Chapter 2, 3 and 4). Overall, however, the effects in our studies transcended both gender and age. This indicates stable inter-individual differences in the relation between moral components and anti- and prosocial behaviour (Arsenio, Gold & Adams, 2004; Krettenauer & Eichler, 2006; Malti & Ongley, 2014).

Our sixth integrative finding is that the cross-sectional relations between the four moral components and anti- and prosocial behaviour differed from longitudinal relations. We found a cross-sectional positive relation between moral motivation and prosocial behaviour (Chapter 2), but, the positive relation between moral motivation and the development of prosocial behaviour was only found for younger nonprosocial children (Chapter 3). This led us to believe that the development of anti- and prosocial behaviour might perhaps require extra or other success-promoting moral factors than anti- and prosocial behaviour at one time point.

Our last integrative finding is that we obtained information about the process behind the effectiveness of intervening in anti- and prosocial behaviour. To this end we not only identified success-promoting factors of intervention programs aimed at anti- and prosocial behaviour (Chapter 3 and 4), we also developed an intervention program to isolate the effects of promoting agreeableness on the reduction of antisocial behaviour and promotion of prosocial behaviour (Chapter 5). Thus, instead of solely focussing on the evidence of effectiveness of a program (Does the intervention reduce antisocial behaviour and increase prosocial behaviour?) we also gained insight into the processes explaining the effectiveness of the intervention (Does stimulating agreeableness lead to a reduction of antisocial behaviour and an increase in prosocial behaviour?). The results of this undertaking showed that agreeableness appeared to be a malleable construct (Bergeman et al., 1993; Graziano & Eisenberg, 1997), and potentially negatively affected bullying-related and antisocial behaviour in middle childhood. In this way, our research contributed to the existing literature by focussing on the process of how an intervention might work (e.g. Gravemeijer & Kirschner, 2007).

4. Limitations and strengths

Despite its strengths and novel focus on relations between several dimensions of moral functioning and different forms of both pro- and antisocial
behaviour, this dissertation also has several limitations as a whole. In the following these limitations will be discussed in conjunction with the strengths of the dissertation. We start by pointing out that the choices we made with regard to the use of the Four Component Model as well as our operationalizations of the four moral components are open for debate. Second, we discuss the limitations and strengths related to our way of assessing the constructs under study. Then we elaborate on the limitations and strengths concerning the design of our studies. Fourth, we consider the strengths of the chosen analyses.

First of all, the choices we made related to the use of the Four Component Model and the operationalizations of the constructs under study could be considered a limitation. There are indications that the Four Component Model is outdated after a shift from more cognitive to affective and neuro/biological paradigms (e.g. Narvaez & Vaydich, 2008; Turiel; 1983; 1998; 2006). Another downside of the model is that it has mainly been used in adolescents and adults and therefore lacks empirical support in younger samples (Rest, 1999). Moreover, there are other relevant constructs that are not in the Four Component Model that explain anti- and prosocial behaviour. For example, the Four Component Model does not entail the construct of moral disengagement, while this is nowadays considered an important fundamental mechanism explaining antisocial behaviour (Bandura et al., 1996; Gibbs, 2014). Nonetheless, the combination of the comprehensive and broad account of moral processes in the Four Component Model and the emphasis on the complicated interaction between these moral processes provided us with a valuable framework to study the underlying processes of anti- and prosocial behaviour. Also, our research provided some empirical evidence for the legitimacy of the model. Remains to be said that the operationalizations of the constructs under study could be optimized. For example, our operationalization of the construct of moral sensitivity was limited to sympathy, its more affective aspect. Unfortunately our attempts to capture the whole scope of moral sensitivity were unsuccessful, leading to sympathy being the best representation of moral sensitivity we could find in children.

A second limitation of our research concerns the assessment of the constructs in our dissertation. The assessment these constructs was limited in time and capacity, leaving room for improvement. For instance, the behavioural constructs in our studies were assessed with peer nominations. Peer nominations have three disadvantages: behavioural reputations sometimes consolidate, a child’s
judgment of a peer might be influenced by his/her own abilities and behaviour, and they are generally gender-biased (Rubin, Bukowski & Parker, 2006; Warden, Cheyne, Christie, Fitzpatrick & Reid, 2003; Warden & Mackinnon, 2003). However, besides these three downsides, peer nominations are a highly valued way to assess behavioural constructs; the chance of an error occurring due to a single reporter’s experience reduces significantly and peers can identify characteristics and relationships of children that are considered relevant from their perspective (Rubin, Bukowski & Parker, 2006). Moreover, the changes in the behavioural outcomes of this study can be considered changes in behaviour to an extent that can be observed by peers (Merrell et al., 2008). A second illustration of possible improvement of our assessment methods concerns the assessment of agreeableness and conscientiousness. This assessment exclusively relied on teacher-reports of a single item during the first and second measurement occasion. Although this allowed us to have information on a lot of outcomes, we may have lost a more complete and representative dimension of these constructs. Yet, we tried to overcome this limitation by using more items on agreeableness in the third and fourth measurement occasion. A third example of the limitations in assessment relates to the relative low Cronbach’s Alpha for the scale scores of moral reasoning. Therefore, the results with regard to this measure must be interpreted with care. Also, the measure of moral emotions might have benefited from the assessment of intensity of the emotions instead of their valence (Malti & Krettenauer, 2013). A last remark with regard to assessment is that the data in our study was based on self-, other- and teacher ratings, and may therefore be subject to social desirability. Observational measures would be a welcome addition to this type of research. However, combining peer-, teacher- and self-reports already added to the credibility of our results. Moreover, the chosen assessment methods allowed us to empirically assess both pro- and antisocial behaviour, bullying-related behaviour, and the entire Four Component Model.

A third limitation of this dissertation lies in our research design. Despite the many advantages and the suitability of this design, it also has two main drawbacks. First, the children participating in the current inquiry were not a random sample, since all schools in our sample were located in the Northern part of the Netherlands resulting in a homogeneous sample comprised of predominantly white pupils of Dutch descent (97.5%). Hence, it remains unclear whether the findings in our empirical studies can be generalized to other settings. However,
great care was taken in assuring variability in school denomination (three catholic, two protestant, six public), size (from 37 to 307 children, M=119.2 and SD=71.9), location (seven in rural areas and five in cities), and mixing of grades (five with single-graded classroom, six with multi-graded classrooms). Still, the conclusions derived in our Chapters are limited to the children participating in our studies. Replication with another sample would overcome this limitation. Second, our research design did not capture all variability in behaviour and moral functioning. It remains unclear whether the data collected at the four particular occasions in two years were representative of what the children were exposed to in the course of these years. Also, we did not look into specific interaction processes. For example, the causal mechanisms underlying the relation between marginal deviations in prosocial behaviour, the (accumulation of) moral components and prosocial behaviour development remain unclear. Though, our quasi-experimental study did contribute to making causal inferences relating to the relation between agreeableness and anti- and prosocial behaviour. A strength of our study was the use of three different intervention conditions combined with a longitudinal design. This first of all allowed us to compare a short and long duration of the intervention program. Second, it allowed us to follow-up the effects of the intervention program a year after the implementation. Third, in this way the intervention condition was replicated with the delayed intervention condition. All three advantages of our design strengthen the internal validity of our outcomes. Moreover, the design of this research project had several other advantages that enabled us to investigate the moral processes behind behavioural change in the setting of primary education. The fact that it was a longitudinal study allowed us to examine the role of moral components in predicting pro- and antisocial behaviour. This study is one of the few field studies on the Four Component Model with more than one measurement occasion (see also Hardy, 2006; Morton, Worthley, Testerman & Mahoney, 2006). Another advantage of our research design is that whole school classrooms were targeted so that a complete social environment with a meaningful boundary could be investigated. More generally, the set-up of the study allowed us to look into moral functioning and behaviour in a natural and therefore meaningful setting using a wide age range. Also, the study had a very high response rate of varying from 97.3% to 99% for the different measurement occasions. This enabled us to get a complete picture of the whole scope of moral processes and anti- and prosocial behaviours going on within a classroom context over time (Neal, 2008).
A strength of this dissertation lies in its analyses, and specifically in the use of multilevel regression analysis. An advantage of the use of this multilevel approach is that the school, class, individual and/or time level are distinguished. This recognition of hierarchical structures creates a more correct estimation of standard errors and the tests of specific effects for single dependent variables are also more powerful (Snijders & Bosker, 2000). Further, a multilevel regression analysis allows for investigation of group phenomena, which appeared to be particularly valuable (see Chapter 4). Finally, since the statistical model for multilevel repeated measures data does not require the same number of measurement occasions per individual, all of the available data could be incorporated into the analysis and weighted according to their presence (see Chapter 5).

5. Implications for further research and practice

Based on our studies we would like to formulate lines of implications for research and practice. We start by formulating four implications for further research and continue with three implications for practice.

5.1 Implications for further research

One important implication for research is that it is worth striving to optimize the reliability and validity of the instrumentation used in this dissertation. Even though supportive evidence of the reliability and validity of the assessment of moral motivation was found, it is crucial that assessment tools continue to be optimized and tested. Moreover, future studies are encouraged to report about the structure and reliability of the scale score of the instrument assessing anticipated emotions to confirm and complement our findings. The same applies to the optimization of the operationalization and assessment of the other moral components that was not extensively reported in this thesis. For example, future research might try to optimize the operationalization and assessment of the construct of moral sensitivity, since our assessment of sympathy did not fully capture this construct. Also, future studies might benefit from observational data. For example, research has shown that peers, especially girls, are more likely to nominate girls as being prosocial and nominate boys as being bullies (Warden, Cheyne, Christie, Fitzpatrick & Reid, 2003; Warden & Mackinnon, 2003). Fewer
differences have been found in observational studies (Fabes, Martin & Hanish, 2002; Zahn-Waxler et al. 2001). Also, future studies could benefit from more advanced measures of agreeableness and conscientiousness from both the teacher’s and child’s perspective and a more reliable measure of moral reasoning. These adjustments in instrumentation will yield important additional knowledge on the relations between the (accumulation of) individual and class moral components and (in the development of) pro- and antisocial behaviour. More knowledge in the areas of moral developmental research has significant implications for the design of preventive interventions aimed at increasing care, and social justice in children (Malti & Ongley, 2014).

Second, to fully consider the influence of moral functioning on change in anti- and prosocial behaviour, further research should use longitudinal and fully experimental designs that deepen the understanding of how moral precursors influence anti- and prosocial behaviour. Even though we made use of longitudinal data, a lot of change could have happened within, before, or after the four time points in our design. Furthermore, it remains unclear whether the data at these time points is representative of what the children were exposed to in the course of their school years. Future studies are recommended to examine the reactions of peers and teachers on children behaviour and their effect on future behaviour in order to test the claims underlying the development of anti- and prosocial behaviour.

Third, future studies are recommended to take the class level and group processes into account when studying the associations between moral functioning and anti- and prosocial behaviour. Our research indicates that peer relations play an important role in the relations between moral functioning and anti- and prosocial behaviour. Additionally, it would be interesting to look at the links between the moral components and anti- and prosocial behaviour using a social network perspective (e.g. Huitsing, 2014). Social network analysis enables researchers to model a variety of dependence patterns, such as dyadic and group level processes (Cook, 2011). Moreover, in social network analysis participant roles (i.e. bully, assistant, defender, victim, and outsider) no longer have to be regarded as ‘fixed’, because it allows investigation of the variation in children’s behaviour towards different classmates (Huitsing & Veenstra, 2012). In this way, more nuanced information can be obtained about the children’s social status.

Last, studying success-promoting factors and underlying processes of interventions targeting bullying-related behaviour in middle childhood remains an
important topic for future research. In our undertakings an intervention program was developed to isolate the effects of promoting agreeableness on the reduction of antisocial behaviour and promotion of prosocial behaviour. Future attempts to evaluate the effects of an intervention program directed at the promotion of agreeableness should be conducted using a randomized design at class- or school level. This would strengthen causal claims behind the effects of promoting agreeableness on the reduction of antisocial behaviour and promotion of prosocial behaviour. Also, this would strengthen our idea that stimulating agreeableness in primary education has the potential to redirect negative trajectories of functioning. Future research could also look into the influence of other moral components, such as moral motivation, to disentangle the (causal) effects of different moral components on the development of anti- and prosocial behaviour. A related avenue for future research is to compare the effects of the stimulation of several moral components on anti- and prosocial behaviour. As the accumulation of moral components was predictive of both pro- and antisocial behaviour, stimulating multiple components in an intervention could be more beneficial than focusing on only one moral component. A future study could for example compare four different intervention conditions: one focused on the promotion of agreeableness, one focused on the promotion of sympathy, one on both, and a control condition. Moreover, it would be interesting to compare the effects of promoting two moral components to the effects of promoting more than two moral components, or, in line with the Four Component Model, all four moral components.

5.2 Implications for practice

The main practical implication emerging from our research relates to the potential of the intervention program promoting agreeableness. This intervention program may be taken as a promising venue in view of further improvement of class-based programs in education targeting antisocial and bullying-related behaviour. The results of our research may be helpful for both administrators and school counsellors as they highlight the potential of promoting agreeableness in school settings as a strategy for counteracting aggressive tendencies and bullying-related behaviour during middle childhood. Additionally, teachers interested in promoting positive developmental outcomes may find the intervention program a useful tool to successfully build agreeableness in class and thereby discourage antisocial behaviour. The intervention program provides insight into the
environmental changes needed to promote agreeableness in a developmentally appropriate way, which in turn could facilitate efforts to develop preventive actions at early stages in development. Because the seeds of anti- and prosocial behaviour emerge in childhood (Hepach, Vaish, Grossmann & Tomasello, 2016; Malti & Dys, in press), intervening in these years is most essential to counteract antisocial behaviour.

Additionally, the intervention program aimed at the promotion of agreeableness might benefit from the supplementation of the promotion of other moral components. As the accumulation of moral components is predictive of both pro- and antisocial behaviour, stimulating multiple moral components in an intervention could be more beneficial than focusing on one moral component. Also, intervention programs aimed at affecting bullying might profit from enhancing all children’s inhibitory control and moral emotions since class inhibitory control and moral emotions were found to be related to bullying behaviour. Though, as previously recommended, the effectiveness of such undertakings first needs to be established. More generally, targeting the whole class and not only the individual bully and/or victim seems a promising venue for intervening in bullying-related behaviour in education. Furthermore, practitioners should be aware that counteracting antisocial behaviour requires other actions than promoting prosocial behaviour. We argued that prosocial behaviour seems to develop according to compensation, whereas aggression develops according to amplification. Stimulating prosocial behaviour might therefore require a norm shift of the whole classroom instead of individual encouragements.

Additionally, our findings suggest that the effectiveness of interventions targeting agreeableness grows when carried out over a longer period of time. The positive effects of the intervention were especially visible in the extended intervention condition. Thus, changing behavioural tendencies in a class environment might require patience and persistence. Both policymakers and teachers would therefore be wise topersevere in influencing anti- and prosocial behaviour in education. Unfortunately, however, most efforts to improve the social environments of schools are not sustained (Supovitz & Weinbaum, 2008). We think these ephemeral efforts should change in order to contribute to the social outcomes of education.
6. Concluding remarks

Altogether, our research led to the insight that moral functioning can be an important process leading to anti- and prosocial behaviour in middle childhood. Therefore, the main contribution of our research is the identification of potential success-promoting moral factors for intervening in anti- and prosocial behaviour in education. Our findings also indicate that not all aspects of moral functioning, i.e. not all moral components, were equally related to anti- and prosocial behaviour. The strongest relations were found between moral character and anti- and prosocial behaviour. Our intervention program aimed at the promotion of agreeableness also stressed this finding. Additionally, the accumulation and combination of moral components also contributed to anti- and prosocial behaviour on top of the individual contributions of the moral components. In a related fashion, group processes seem to play an important role in the relations between moral functioning and anti- and prosocial behaviour next to individual processes. However, the aforementioned processes had a different contribution to prosocial compared to antisocial behaviour. This means that counteracting antisocial behaviour in education requires another focus than the promotion of prosocial behaviour. Further advancements in the understanding of how individual and class moral components affects anti- and prosocial behaviour may inform educational researchers and practitioners alike about the promotion of prosocial behaviour and targeting antisocial behaviour.