Chapter 1 Introduction

This thesis considers the aggressive behavior of special elementary school children. We study the effects of an intervention program that is developed to reduce children’s aggressive behavior. Furthermore, we take a close look at the implementation of the program, the children’s motives for behaving aggressively and the impact of the classroom context on children’s aggressive behavior. These three issues are considered to help explain the effectiveness of the program.

The thesis is organized as follows. In Part I we describe the first study (Chapter 3) in which we consider the effects of the school-based\textsuperscript{1} social skills intervention program TRAffic 8-12. The program is aimed at reducing aggressive behavior in special elementary school children. This first study is a classical effect study in the sense that we compare pre- and post-intervention scores of children’s aggressive behavior, and we consider the moderating effects of children’s motivation and intervention group composition on the program outcomes.

In part II of the thesis we look beyond the results of the classical effect study. We define a classical effect study as a study in which the intervention program and its effects are conceptualized in terms of a medical model (Ahn & Wampold, 2001; Wampold, Ahn & Coleman, 2001). In a medical model the specific program ingredients are assumed to be responsible for the efficacy of that program. This traditional and persistent view of intervention programs brings with it a focus on pre- and post-intervention scores, or outcome research (Lewis, 2004). However, solely focusing on outcome gives very limited insight into how and why changes in behavior occur and how and why an intervention program works or does not work. Hunsberger (p. 617, 2007) describes it as follows:

"Like the proverbial tip of the iceberg, test scores or behavioral changes are only surface manifestations of a much larger entity, most of which is invisible from a distance."

The question is: How can we go beyond the tip of the iceberg and get closer to this ‘entity’, gaining more insight into behavioral changes and effectiveness of intervention programs? Following the contextual model (Wampold, Ahn &

\textsuperscript{1} We define school-based as ‘developed to be implemented in school settings’, and not as ‘developed to be implemented school-wide’. 
Chapter 1 Introduction

and the field of dynamic systems thinking (e.g. Valsiner, 1998; Van Geert, 1998; 2000; 2003), which are explained further in this chapter, we focus on three issues in part II of this thesis that help us go deeper than the tip of the iceberg. First, we evaluate the implementation of the TRAffic 8-12 program in the schools in a qualitative way (Chapter 4). We answer the question of how the program is carried out by the program trainers and which contextual factors influence the implementation. Special attention is given to the role of the teachers and their implementation as well as to the sustainability of the program techniques in real life situations outside the program meetings. Second, we focus on the so-called ‘inner logic’ of the children (Chapter 5). The central question is: What do children say when asked why they behave aggressively? The answer to this question will provide insight into the children’s motives for behaving aggressively. Finally, we consider the influence of the classroom composition on the aggressive behavior of the children (Chapter 6). One of our assumptions is that the influence of the social skills intervention context on the children’s aggressive behavior will be weaker than the influence of their regular classroom context.

Before the studies are further introduced we present our definition of aggressive behavior. We also shortly discuss the occurrence of aggressive behavior in children in general and, more specifically, the characteristics of the special elementary school children that are the subject of this thesis. Finally, an overview is presented of the field of aggression reduction programs in which TRAffic 8-12 is situated.

1.1 Definition of Aggressive Behavior

The definition of aggressive behavior is a major problem in the field of aggression research (Tremblay, 2000). There are many distinguishable forms and functions of aggressive behavior (Little, Jones, Henrich & Hawley, 2003) and they are often aggregated in studies on the topic. In the absence of a clear definition, this aggregation is problematic as an understanding of the development of subtypes of aggressive behavior is made difficult. Tremblay (2000) urges researchers to specify the type of aggressive behavior they want to address.

Most aggression researchers accept the following general definition: aggression is behavior that causes or threatens material or immaterial harm to another person, whether it was intended or not (see for example Loeber & Hay, 1997). In our study we accept this definition, but further specify it into four types of aggressive behavior: 1) physical aggression (e.g. kicking, hitting), 2) verbal aggression (e.g. name-calling), 3) indirect
aggression, also called relational aggression (e.g. gossiping), and 4) negativism (e.g. irritating others). Additionally, we also assessed general behavioral problems associated with Attention Deficit Hyperactive Disorder (ADHD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD).

1.2 Aggressive Behavior and Special Elementary School Children

Aggressive behavior occurs in all children, especially in young children. Some physical aggressive behavior in the first years of life is common (Loeber & Farrington, 2000). As children grow older they learn to control their behavior. They develop social skills, and physical aggression transforms into a limited degree of verbal and relational aggression (Van der Ploeg, 2009). There is, however, a subgroup of children that fail to control their aggressive behavior. Severely aggressive behavior at a young age has proven to be a strong predictor of a number of problems later in life, such as delinquency and violence (Loeber & Farrington, 2000). However, not all children who initially show high levels of aggressive behavior develop aggressive behavioral patterns later in life; just as some young children who are not aggressive can develop into aggressive adults (Van der Ploeg, 2009). Changes in developmental trajectories, and the development of aggressive behavior in general, are determined by a complex interaction between child-specific, family, and environmental factors (Kazdin, 1995; Loeber & Hay, 1997).

Van der Ploeg (2009) roughly estimates that 86% of the Dutch youth eventually develop a non-aggressive behavior pattern, while 14% continue having problems with aggressive behavior. Concerning children in elementary school specifically, approximately 9% of the children show problematic aggressive behavior (Van Lier & Crijnen, 2005). At the elementary school level, name-calling, bullying and threatening other children are problems that most Dutch schools have to deal with daily. Severe forms of bullying are present in almost 40% of all Dutch schools. The percentages for physical violence and threats are slightly lower (Dekker, Diepeveen & Krooneman, 2003).

The children who participated in the studies of this thesis are elementary school students in Cluster 4 education. Cluster 4 education in the Netherlands is special education organized for children with behavioral and/or psychiatric problems. Children are placed in this type of education when they meet the following criteria (www.renn4.nl):
1. a psychiatric diagnosis or developmental pathology is determined according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, (DSM-IV) or the International Statistical Classification of Diseases and Related Health Problems, tenth edition, (ICD-10), or if there are severe behavioral problems;
2. the problems are present both at school and at home or in leisure time;
3. the child has been or still is actively involved in child care services;
4. there is a severe and structural limitation with respect to involvement in education, and;
5. the care provided by regular education is insufficient, making participation in regular education impossible.

Taking these inclusion criteria into account, it is obvious that, in Cluster 4 schools, the rates of aggressive behavior are higher than in regular education. While children in Cluster 4 schools show a variety of behavioral problems, externalizing behavioral problems like aggression are most prevalent (Drost & Bijstra, 2008). Teachers are specially trained to educate and deal with children in Cluster 4 education, however, they still need extra assistance in coping with children’s behavioral problems (Huyghen, 2007).

Because of the poor prognosis of children who are severely aggressive at a young age – together with high costs for society – the development of effective interventions has a high priority in the scientific world (Brezinka, 2002; Koot, 2002). Practitioners, such as teachers or youth workers, also urge for effective ways to deal with children’s aggressive behavior that they encounter in their daily work.

### 1.3 TRAffic 8-12 in the Field of Aggression Reduction Intervention Programs

In this section we describe a number of aggression reduction intervention programs and approaches. By doing this, we aim to contrast TRAffic 8-12 with the wide field of aggression reduction programs. Also, we explain our motivation for our choice for the TRAffic 8-12 program.

#### 1.3.1 Intervention Settings

TRAffic 8-12 is an intervention program which is implemented in the school setting. School is considered to be a highly suitable context to carry out intervention programs aimed at reducing children’s aggression since children spend a
large part of their time in school (Roede, 1999). Also, the normal structure of schools allows for systematic intervention, focused on children’s behavior.

Intervention programs which focus on reducing aggression in children are also implemented in other settings such as at home and in the community. Obviously only focusing on aggression in the school setting does not do justice to the influence of other elements in children’s social networks on their behavior. Multisystemic treatment (MST), targeting the individual, family, peer, school, and community factors (i.e. all the settings in which the child functions), is one of the most effective ways in reducing violence and aggression in children (Curtis, Ronan & Borduin, 2004; Kazdin, 2000; Ogden & Hagen, 2006). Also home-based interventions with a primary focus on improving parents’ parenting skills, such as the Functional Family Therapy and Parent Management Training, are very effective in reducing aggression and violence in children and adolescents (Brezinka, 2002; Kazdin, 2000).

The social-ecological approach (Bronfenbrenner, 1977) of MST (i.e. including all or many of the elements in a child’s social network) seems to be the most effective way to reduce children’s aggression. However the large amount of effort required in order to successfully implement this type of treatment in all settings is not always realistic and therefore can not always be realized (Bijstra & Nienhuis, 2003; Brezinka, 2002). This conclusion is supported by the findings in Curtis, Ronan and Borduin’s (2004) meta-analysis of MST outcomes. The analysis revealed that, although the efficacy studies\(^2\) showed high effect sizes (\(d=0.81\)), the effectiveness studies\(^3\) showed much smaller effect sizes (\(d=0.26\)).

MST is not always an attractive choice for schools as the implementation requires much time and effort. Meanwhile, teachers are left struggling with their students’ behavior and need immediate help, and schools are searching for ways to deal with the problematic behavior of their students (Van Overveld & Louwe, 2005). A popular and much-used program that reduces aggression in children in the school setting is a social skills intervention (SSI) program\(^4\), such as TRAFFic 8-12 (Bijstra &

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\(^2\) MST is studied in highly controlled conditions and implemented by research staff.

\(^3\) MST is studied in real-world conditions and implemented by practitioners.

\(^4\) The label ‘social skills intervention program’ is no longer considered to be appropriate since many of these programs do more than teach children new skills. Authors such as Beelmann, Pfingsten and Losel (1994) and Van Overveld and Louwe (2005) suggest using the label ‘social competence program’. We chose to continue working with the original label, since the program that is studied in this thesis is known under that label.
Most SSI programs are easy to implement as children’s behavioral problems can be targeted directly. The programs are also popular because they often have an attractive design and price.

1.3.2 Strategies of School-Based Social Skills Intervention Programs

The TRAffic 8-12 program is developed for children in special education schools (Cluster 4 education) who show aggressive behavior problems. For these children an indicated strategy (Farmer, Farmer, Estell & Hutchins, 2007) is used, meaning that the program is focused on children who already show problematic behavior. The aim is to change problematic behavior, replacing it with more acceptable and desired behavior. TRAffic 8-12 is distinguishable from other Dutch school-based SSI programs with an indicated strategy in the sense that it focuses specifically on children with (symptoms of) ADHD and/or a Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS). Recent figures show that children with ADHD and PDD-NOS form a substantial group within Cluster 4 education (Bijstra & Strijker, 2001; Huyghen, 2007). Because many school-based SSI programs are considered not to be suitable for children with ADHD and PDD-NOS (see Chapter 2 for an explanation), the TRAffic 8-12 program is one of the few programs with an indicated strategy that is suitable for children in Cluster 4 education.

Besides an indicated strategy, school-based SSI programs can also have other levels of strategy. A school-based SSI program with a universal strategy, for example, focuses on all children in the classroom as well as on their teachers. The aim is to prevent the development of behavioral problems by teaching children general coping or social skills and to improve teachers’ pedagogical skills. An example of a Dutch universal school-based SSI program is the Dutch version of PATHS from the United States, called PAD (Programma Alternatieve Denkstrategieën). Louwe and van Overveld (2008) showed that PAD was effective in reducing aggressive behavior in 6- and 7-year old boys in regular and special education, but not in Cluster 4 education. Other programs employ a selective strategy which focus on children who show social-emotional problems. The aim is to teach these children

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5 Special education in the Netherlands is education organized for children who need extra attention due to learning and behavior problems. This type of education is different from Cluster 4 education, since the latter is focused on children with more severe psychiatric and behavioral problems.
social skills that help protect them from the development of more severe behavioral problems.

1.3.3 Theoretical Approaches and Training Techniques in School-Based Social Skills Intervention Programs

In the TRAffic 8-12 program training techniques are used from the social-learning and the social-cognitive approach. In Chapter 2 these techniques are discussed extensively. Several studies have indicated that aggression reduction intervention programs with a combination of a behavioral and a cognitive approach have the largest effects (Wilson, Gottfredson & Najaka, 2001; Wilson, Lipsey & Derzon, 2003). Other school-based SSI programs also use training techniques based on the self-control approach and the perspective taking approach. Nowadays most school-based SSI programs combine two or more theoretical approaches. Below we give a description of all four approaches.

According to the social-learning approach (Bandura, 1978), children may have acquired aggressive behavior by observing aggressive models in their environment, for example, a family member, peers or the media. As these children grow up with aggressive role models, it is assumed that they view aggression as an acceptable tool in conflict resolution and that they lack the necessary skills to handle conflicts in a constructive way (Crick & Dodge, 1996). Training techniques that are used within this approach are modeling, ignoring, reinforcement of adequate behavior by using individual and/or group contingencies, role playing and time-out. An example of a program with a social-learning approach is the American Good Behavior Game (with a Dutch version called Taakspel). The central training technique relies on interdependent group contingencies, which involves reinforcing some level of desired group behavior or performance standard for a group of children (Tingstrom, Sterling-Turner & Wilezynski, 2006).

According to the social-cognitive approach (Crick & Dodge, 1996; Orobio de Castro, 2004), the children’s interpretation of the conflict situation is crucial in the development of aggressive behavior. Some children develop ‘reactive aggressive’ behavior, meaning that they tend to attribute inaccurate hostile intentions to others, and that they feel attacked very quickly. Their aggressive behavior is thought to diminish when their distorted cognitions (for example “He is angry with me” while in fact the other child is just joking) are corrected. In intervention programs with this approach, training techniques are used that teach children how to interpret their own
and others’ emotions, feelings and intentions. An example of a program with a social-cognitive approach is Lochman’s Coping Power Program (Lochman & Wells, 2004) from the United States (with a Dutch version called Minder boos en opstandig).

The program focuses on improving children’s problem-solving skills and their perception of conflicting situations. Besides SSI programs, Cognitive Behavior Modification (CBM) is also used in schools to reduce aggressive behavior. The aim of CBM is to modify underlying cognitions and thought processes that affect externalizing behavior (Robinson, Smith, Miller & Brownell, 1999).

According to the self-control approach (or the neurodevelopmental approach), negative affect such as irritability, inhibition problems and impulsivity produce aggressive tendencies (Berkowitz, 1989; Sugden, Kile, Hendren, 2006). Children with aggressive behavior are assumed to be impulsive and quick tempered (Crick & Dodge, 1996). These children require new skills to regulate and control their emotions. Training techniques such as relaxation techniques, avoidance techniques, and thinking before acting (Stop-Think-Do method) are used in programs with this approach. The Dutch program Zelfcontrole, developed by Van Manen (2001), is an example of a program which focuses on self-control skills in aggressive children.

Finally, some intervention programs focus on the improvement of perspective taking and moral reasoning. According to Selman’s theory of perspective taking, aggressive children may persist in a strong ‘me-centeredness’, or egocentric bias, and may have a low level of perspective taking (Gibbs, Potter, Barriga & Liau, 1996; Selman & Demorest, 1984) due to a delay in socio-moral development. These children have difficulties with taking the perspective of others, empathizing with others, and restraining aggressive behavior. One of the techniques used in programs with this approach is discussion of situations with moral dilemmas. An example of a program with a perspective taking approach is Equip, which has an American and a Dutch version. The program aims at motivating adolescents and equipping them with the ability to help each other and learn from each other’s positive behavior.

1.4 The Effects of School-Based Intervention Programs and the Motivation for the Studies in this Thesis

In this section we present an overview of the current literature covering the effects of school-based social skills intervention (SSI) programs and the factors that
have a moderating⁶ or mediating⁷ influence on those effects. Finally we outline the motivation for the four studies described in the present thesis.

It is not an easy task to present a general picture of the effects of school-based SSI programs. Interventions under study are often not described in detail. Furthermore, different intervention programs, strategy levels, approaches and training techniques are studied together in meta-analyses and either common terms are used differently or there is no common vocabulary (Hahn et al., 2007). Consequently, from the meta-analyses discussed in this section we can only derive general conclusions based on groups of intervention programs, which are similar in that they are school-based and focus on preventing or reducing behavioral problems.

With respect to the interpretation of the findings from effect studies, it is also important that many of the empirically studied programs are not the ones that are being used in the daily practices of schools (Kazdin, 2000; Wilson, Gottfredson & Najaka, 2001). In a meta-analysis of the effects of school-based intervention programs on aggressive behavior, Wilson, Lipsey and Derzon (2003) found that from the 334 intervention programs that could be coded with effect sizes, only 26 were so-called ‘practice programs’ that are routinely provided in schools. The other 308 intervention programs were so-called ‘demonstration programs’, which are implemented under highly controlled conditions and evaluated by a researcher for mainly research or demonstration purposes.

1.4.1 Effects of School-Based Intervention Programs

Both internationally and nationally (i.e. the Netherlands) there is a growth in the number of school-based SSI programs targeting children’s disruptive, antisocial and/or aggressive behavior (Beelmann, Pfingsten & Losel, 1994; Van Overveld & Louwe, 2005). Especially in the United States this growth is accompanied by a wealth of (meta)studies on the effects of those programs (e.g. Beelman, Pfingsten & Losel, 1994; Blake & Harmin, 2007; Hahn et al, 2007; Kazdin, 2000; Quinn, Kavale, Mathur, Rutherford & Forness, 1999; Reddy, Newman, De Thomas & Chun, 2009; Schneider, 1992; Stage & Quiroz, 1997; Sukhodolsky, Kassinove & Gorman, 2004;

⁶ A moderator variable is a variable that affects the direction or strength of the relation between the independent variable (intervention) and the dependent variable (aggressive behavior) (Baron & Kenny, 1986).

⁷ A mediator variable is a variable that accounts for the relation between the independent variable (intervention) and the dependent variable (aggressive behavior) (Baron & Kenny, 1986). The independent variable has an influence on the dependent variable via the mediator variable.
Wilson, Gottfredson & Najaka, 2001; Wilson, Lipsey & Derzon, 2003). The Netherlands are behind in carrying out effect evaluations of intervention programs (Brezinka, 2002; Van Overveld & Louwe, 2005). The studies that are conducted in the Netherlands are often short of qualitatively good research designs and follow-up data. In order for school staff to make well-founded choices from the wide array of intervention programs, they need better insight into the effectiveness of those programs. The study of the effects of TRAffic 8-12 (Part I, Chapter 3) contributes to the need for more research into the effectiveness of Dutch school-based intervention programs.

Most meta-studies show moderate effect sizes ($d$ ranging from 0.40 to 0.67) of school-based intervention programs for behavioral problems such as aggressive behavior (Beelmann, Pfingsten & Losel, 1994; Schneider, 1992; Sukhodolsky, Kassnove & Gorman, 2004; Wilson, Gottfredson & Najaka, 2001). Some meta-studies show a more pessimistic picture, with (very) small effect sizes below $d$ is 0.20 (Quinn, Kavale, Mathur, Rutherford & Forness, 1999; Wilson, Lipsey & Derzon, 2003 (practice programs)), while, in other studies, the findings are encouraging with effect sizes of, for example, $d$ is 1.00 (Blake & Harmin, 2007; Hahn et al, 2007; Kazdin, 2000; Reddy, Newman, De Thomas & Chun, 2009; Wilson, Lipsey & Derzon, 2003 (demonstration programs)). In general, from all the meta-studies a picture arises of a moderate effectiveness of school-based intervention programs, with large variabilities both between and within programs (e.g. Stage & Quiroz, 1997; Wilson, Gottfredson & Najaka, 2001).

Since the aim of aggression reduction programs is to structurally decrease children’s aggressive behavior, it is important to get insight into the long-term effects of such programs. In Schneider’s (1992) meta-analysis of the effects of 79 social skills programs, only a third of the studies provided follow-up data and those studies showed a very diverse picture (some positive long-term results, others no long-term results). Also Van Overveld and Louwe (2005), who listed the effect studies of Dutch social competence programs, concluded that there is a lack of follow-up research on the effects of intervention programs. Dutch studies that did provide follow-up data often found no effects of social competence programs in the long term. A serious problem with school-based intervention programs seems to be the generalization of learned skills to situations other than the training situation and the lack of continuity of such learned skills (Beelmann, Pfingsten & Losel, 1994). In order to provide more insight into the long-term effects of school-based intervention
programs, the behavior of the children in our study was assessed, not only directly after the children finished the TRAffic 8-12 program, but also six months and two years after the program had ended (see Chapter 3).

As mentioned before, most meta-studies, such as the ones presented above, show a wide variability of intervention program effects. This finding has led many researchers to shift their focus from studying general effects of programs to a focus on which programs work best for whom and under what conditions (Kazdin, 2000). Answering these types of questions is assumed to give insight into the reasons for the variability of program effects. A limited focus on how effective a program is or which program is most effective does not do justice to the complexity of real world circumstances in which children, and contexts in which children operate, vary greatly. In the following section we go deeper into this issue.

1.4.2 Moderating and Mediating Effects of Child, Context and Treatment Factors on Program Outcomes

Kazdin (2000) states that few data exist of the influence of child, contextual and treatment factors on intervention outcomes. However, an increasing number of studies have begun to address the issue of moderators and mediators.

**Child characteristics.** Age, gender, degree of behavioral problems, type of psychiatric disorders, IQ and academic skills are the main factors that are studied with respect to their moderating effects on program outcomes (Beelmann, Pfingsten & Losel, 1994; Kazdin, 2000; Nangle, Erdley, Carpenter & Newman, 2002; Quinn, Kavale, Mathur, Rutherford & Forness, 1999; Wilson, Gottfredson & Najaka, 2001; Wilson, Lipsey & Derzon, 2003). Some studies show moderating effects of these child characteristics on program outcomes, yet other studies do not.

A child characteristic that has been given little attention so far is the child’s own need and motivation to change behavior (Bijstra & Nienhuis, 2003). La Greca, Silverman and Lochman (2009) consider motivation for change to be a very probable and important moderator of treatment effects. In the contextual model of intervention the client’s (in our case child’s) ‘desire to grow and develop’ is emphasized as one of the common factors that determine program effectiveness (Wampold, Ahn & Coleman, 2001). In our study of the effects of TRAffic 8-12 (Chapter 3) we address the question of whether the program is more effective for children who are motivated to change their behavior than for children who are not
motivated. The influence of IQ, psychiatric diagnosis and qualification for school transfer to a regular school on the effects of TRAffic 8-12 is also studied.

**Contextual factors.** A dominant mediating variable that is thoroughly studied is peer influence in aggression reduction intervention groups (see for example Ang & Hughes, 2001; Arnold & Hughes, 1999; Dishion, McCord & Poulin, 1999; Mager, Milich, Harris & Howard, 2005; Van Lier, Vitaro & Eisner, 2007; Van Lier, Vuijk & Crijnen, 2005). Dishion, McCord and Poulin (1999) were among the first to report about the possible negative influence of placing antisocial youth together in an intervention context. Since then, several studies have been conducted on peer contagion effects in intervention groups. All of these intervention studies support the deviancy training hypothesis which states that there was peer reinforcement of inappropriate behavior during intervention meetings. However, the results are not unequivocal with respect to the factors and processes that may mediate the negative effects of grouping antisocial children together (Arnold & Hughes, 1999; Van Lier, Vitaro & Eisner, 2007). For example, it is still uncertain to whom, and under which particular intervention circumstances, peer contagion effects are most harmful.

The study of the effects of TRAffic 8-12 (Chapter 3) aims to contribute to the field of research of peer influences in intervention groups. We focus on the effect of intervention group composition by comparing the effects of a group-based format of TRAffic 8-12 with the effects of TRAffic 8-12 in an individual setting. The strength of our design is that we compare the results of the same program in a different format (group versus individually). Most studies on differential effects resulting from intervention group composition compare different programs, which may influence the results.

**Treatment factors.** Many specific training techniques exist within the cluster of school-based intervention programs. In some cases differences between training techniques are studied on the level of their theoretical approach: behaviorally oriented, cognitive-behaviorally oriented, and self-control oriented. In other cases the techniques themselves are studied with respect to their moderating effect (e.g. feedback, group contingencies, self management, and modeling). Some meta-studies show that there are no differences in program outcomes between major training techniques (e.g. Schneider, 1992), while other meta-studies do show differences.

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8 See section 1.3.3 for a description of techniques used in SSI programs.
9 In section 1.3.3 we also described the perspective taking approach. This approach however has not been studied with respect to its moderating effect, and therefore is not mentioned in this section.
between training techniques (Stage & Quiroz, 1997; Sukhodolsky, Kassinove & Gorman, 2004; Wilson, Gottfredson & Najaka, 2001). Also, intervention programs that use the same training techniques show varying effects on children’s behavior (Wilson, Lipsey & Derzon, 2003).

General characteristics of intervention programs, such as quality of implementation of the program, also play a moderating role in program outcomes. Gottfredson (2000, in Junger-Tas, 2002) even suggests that the quality of implementation might be more important than the particular program itself. The studies that provide information about implementation show that when an effective program is carried out as intended (i.e. effective implementation) there are better program outcomes (Durlak & DuPre, 2008; Wilson, Lipsey & Derzon, 2003). If effect studies are not accompanied by implementation data it is difficult to determine whether the program itself did not work or if the program was not carried out correctly (Hahn et al., 2007; Schneider, 1992). Although a growing number of researchers stress the importance of implementation data, many intervention researchers still fail to assess relevant aspects of implementation (Domitrovich & Greenberg, 2000). In Chapter 4 of this thesis we present a qualitative study of the implementation of TRAffic 8-12. We study how and to what extent the program trainers and the children’s teachers implemented the TRAffic 8-12 program and the program techniques.

Although the shift in focus towards what works best for whom and under what conditions is an important step forward in effectiveness research, we are still confronted with ambiguous results. Both child characteristics, contextual factors such as peers’ behavior, and training techniques have varying moderating and mediating effects on treatment outcomes, as was mentioned in the studies presented above. As we continue to find these ambiguous results, the picture of program effectiveness does not become clearer, but in fact, may be becoming even cloudier. The question that arises is: Are we looking in the right direction and at the necessary phenomena? In the final section we consider this question and (further) describe the motivation for the three studies in part II of this thesis.

1.4.3 Looking Beyond the Tip of the Iceberg

As we already mentioned in the beginning of this chapter, by limiting our focus to outcome research we miss crucial information about how and why behavior
changes. As a result we continue having problems with explaining how and why interventions work or do not work. Therefore, in part II of this thesis we take a look beyond the program outcomes that are discussed in part I. Inspired by two alternatives for the focus on outcome, a contextual model of intervention programs and a dynamic systems approach of behavior change, we aim to explain the effectiveness of the TRAffic 8-12 program. These two alternative conceptualizations, which emphasize the role of context and the interplay between person (i.e. child) and context, lead to the motivation for the three studies in part II of the thesis. Before we describe these three studies we first explain the contextual model and the dynamic systems approach of behavior change and intervention.

The focus on outcome in intervention research results from our conceptualization of an intervention program in terms of a medical model (Wampold, 2001): the child has a certain deficit (i.e. aggressive behavior because of poor social skills) which can be fixed with a particular treatment (i.e. a social skills intervention program in which techniques such as reinforcement and modeling of prosocial behavior are used). Since the program is assumed to fix the problem, the problem should be disappeared or be diminished after the program. If the medical model is ‘true’ then we should find clearer and less ambiguous evidence in our studies for the effectiveness of specific intervention programs with specific problems than what is presently found in meta-studies. In sections 1.4.1 and 1.4.2 we concluded that studies of general effectiveness as well as studies of moderating and mediating effects of child, contextual and treatment factors show ambiguous results. Also, in several extensive meta-analyses Wampold (2001) showed that there is no evidence that treatments can be matched to clients on the basis of their etiology. Following these findings, Wampold and Bhati (2004) state that evidence based studies focus on less important factors such as the treatment itself. Other factors such as the role of the therapist appear much more important than the treatment itself. Wampold (2001) proposes a contextual model of intervention, in which intervention is viewed as a process in which contextual factors such as the relationship between trainer and client, the trainer’s and client’s belief in the rationale of the treatment and the therapist’s allegiance to a treatment determine the success

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10 Although Wampold’s model and his research on common factors apply mostly to adult psychotherapy, it is our belief that his ideas and research also apply to other interventions such as SSI programs for children.
of an intervention program. Wampold (2001) showed that these so-called ‘common’ factors are strongly related to psychotherapy outcomes.

Why are intervention programs so often developed, implemented and studied from a medical model perspective? The static approach to behavior taken by psychology researchers and developers of intervention programs plays an important part in this. The medical model implies a static approach to behavior: the dependent variable, aggressive behavior, is associated with the independent variable, the intervention program (Lichtwarck-Aschoff & van Geert, 2004; Van Geert & Steenbeek, 2005). Behavior is, however, the product of an ongoing and cyclical interaction between person and context (Lichtwarck-Aschoff & van Geert, 2004; Van Geert, 2003) and should therefore be considered to be dynamic instead of static (Lichtwarck-Aschoff, 2008). In this sense, behavioral change in intervention contexts should be considered more as a process in which person and context mutually determine each other. The dynamic systems approach provides a framework for examining behavioral change in intervention contexts as a process that is determined by interactions between person and context. A dynamic system is defined as a set of elements that mutually influence each other in time (Van Geert, 2003). Each combination of person and context can be different, both between individuals, resulting in inter-individual differences in the change process, as well as within individuals at different time points, resulting in a varying change process. From this perspective of unique person-context combinations, the examination of moderating and mediating factors seems futile as we can think of countless combinations. What is therefore needed is a consideration of common factors (Wampold, 2001) or causal scenarios (Cartwright, 2009) that determine whether an intervention program is successful or not.

In Chapter 4 we evaluate the implementation and sustainability of the TRAffic 8-12 program. Not only do we look at the actual implementation and sustainability of the program, as we announced in section 1.4.2, but we also focus on processes in the school context that influence the trainer and teacher implementation of TRAffic 8-12. It is necessary to take these processes or conditions of the program into account because, in school practice settings, contextual conditions seem to play a vital role in program effectiveness (Louwe & van Overveld, 2008). Our implementation study pays special attention to the implementation and sustainability of program techniques by the children’s teachers. In schools, teachers form an important part of children’s context, or system. Even if they are not the ones that
carry out an intervention program they determine, to a large degree, the success of that program, especially in the long term since teachers are the ones that can support children in applying their newly learned skills in real life situations (Louwe & van Overveld, 2008).

In Chapter 5 we consider the children’s concerns that motivate their aggressive behavior. We study their inner logic: What do children say when asked why they behave aggressively? The children’s motives are important determinants of behavior as behavior is intentional; it is aimed at realizing certain personal or social goals and concerns ((Steenbeek, 2006; Steenbeek & van Geert, 2005; 2007; 2008). In dynamic models of social interaction goal-orientation is an important general principle of behavior (Steenbeek, 2006). If we want to understand changes in behavior in intervention contexts, then we must take into account children’s goals and concerns that underlie their aggressive behavior.

In Chapter 6 we focus on the impact of the classroom context on the children’s aggressive behavior. Children’s behavior is not only influenced by the intervention group composition, but also by the classroom composition (see for example Barth, Dunlap, Dane, Lochman & Wells, 2004). We expect the temporary context of the intervention program to have a much weaker impact on the children’s aggressive behavior than the permanent context of the classroom (Cluster 4 education; higher rates of aggressive behavior). To test this hypothesis we study how the behavioral trajectories of a subgroup of aggressive children change when they transfer from special education (higher rates of aggressive behavior) to regular education (lower rates of aggressive behavior). We compare this study with the results of the intervention study\textsuperscript{11}.

1.5 The Present Thesis: The Tip of the Iceberg and Beyond

In the present thesis the aggressive behavior of children in Cluster 4 education is considered. The thesis is divided into two parts. In part I we describe the school-based social skills intervention program TRAffic 8-12 (Chapter 2) and a classical effect study of the program (Chapter 3). In particular, the moderating

\textsuperscript{11} Chapter 6 consists of a published article in which we want to confront the temporal impact of intervention group composition (group versus individual) with the more permanent impact of classroom composition on children’s aggressive behavior. We chose to insert the article in its original form. Therefore, the study of the influence of intervention group composition (Chapter 3) will be repeated in Chapter 6.
influence of children’s motivation and intervention group composition on the program outcomes is studied. So, in part I we only look at the proverbial tip of the iceberg - the program outcomes.

In part II we look beyond the tip of the iceberg. The program outcomes alone do not give us any insight into why and how the children’s behavior changes or does not change. Following the contextual model and dynamic systems thinking we focus on the program implementation, sustainability, and school processes (Chapter 4), the children’s motives for behaving aggressively (Chapter 5), and the impact of the classroom context in which children operate daily (Chapter 6). Insight into these three issues is needed in order to further understand the effectiveness of the TRAFFIC 8-12 program.

In Chapter 7 a summary of the findings from this thesis is presented. We discuss the implications of these findings for practice and for further research. We also present our first step in building a dynamic model of the real-time development of a child’s aggressive behavior in interaction with the environment. Finally, we describe a teacher-focused web-based aggression reduction intervention program that we developed in reply to the findings from this thesis.
Part I

The Tip of the Iceberg
A Classical Effect Study of TRAffic 8-12