Opening the black box

Examining effective components of interventions for children's social-emotional development

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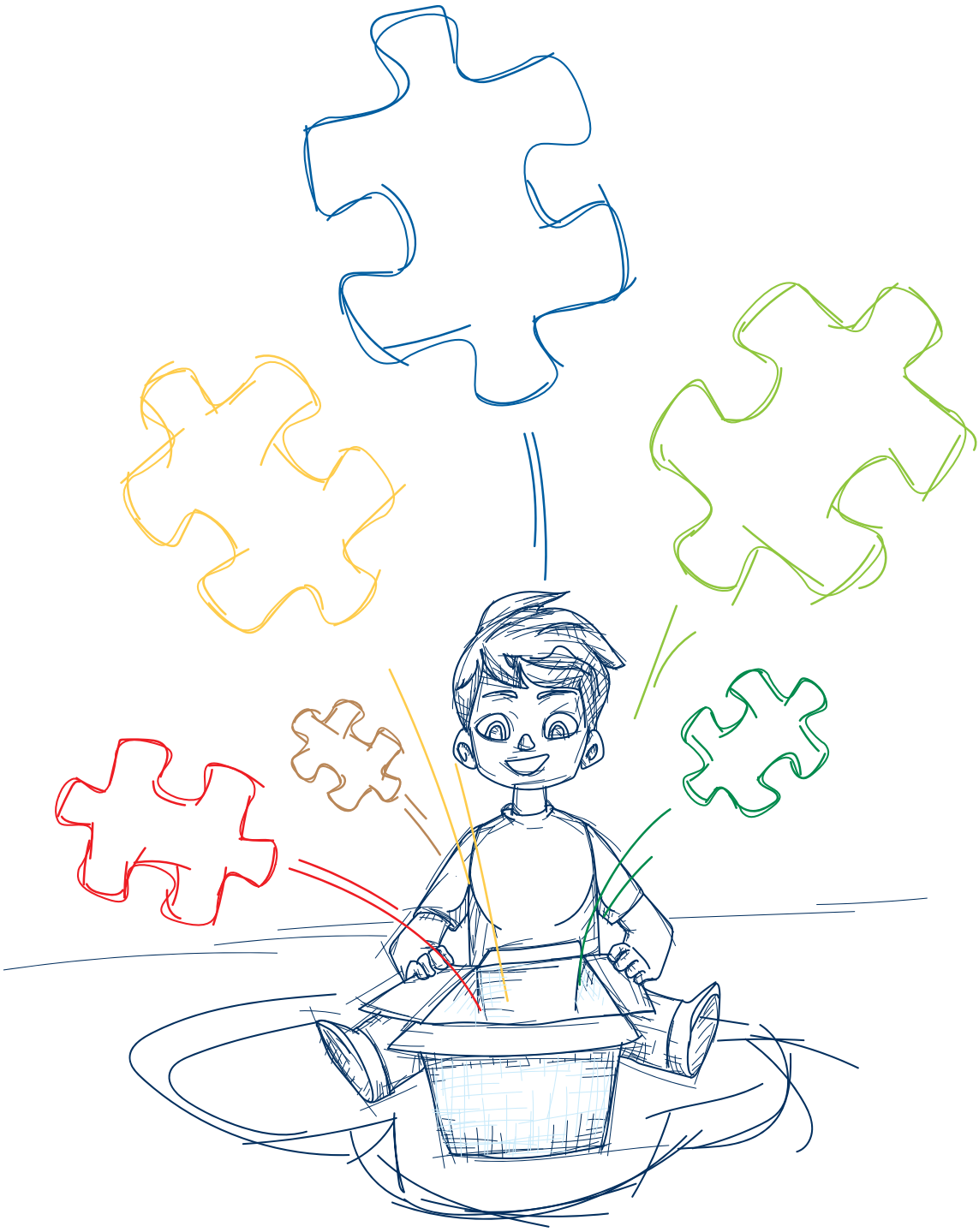


CHAPTER 1

General Introduction: Opening The Black Box of Social-Emotional Skills Interventions?

Knowing when it is appropriate to initiate a conversation, saying "no" and setting boundaries. Asking to join in, interpreting if you have upset someone from their facial expression, not standing too close, but not too far away either. Complimenting a friend, asking for help. These are just a few examples of the many mundane, social tasks in which people engage. Our sense of well-being greatly depends on the success of our interactions with others, and our ability to establish and maintain satisfying relationships. In turn, our success in social situations and relationships depends on the social-emotional skill set that we have available to us, and our ability to use it (e.g., Denham et al., 2009; Spence, 2003). The focus of this dissertation is on these mundane but essential skills, and on how to improve them. Specifically, we focus on specific intervention components that are effective in improving children's social-emotional skills, with the ultimate goal of contributing to children's social-emotional development and overall well-being.

Social-Emotional Development

Social-emotional development refers to the process in which children grow or change in their understanding of who they are, what they think and feel, and how they establish positive relationships in ways that stimulate happiness in life (Aviles et al., 2006; Zins & Elias, 2007). The development into a well-rounded, happy individual requires the mastery of many social-emotional skills. *Social-emotional skills* is the collective noun used to indicate all behavioral, emotional, and cognitive skills that integrate into our ability to adapt to the social world around us flexibly. The term *social-emotional competence* is a collective noun that refers to this integrated ability. Social-emotional skills are both intrapersonal (i.e., taking place within a person, emotional competence), and interpersonal (i.e., taking place between persons, social competence; e.g., Denham et al., 2009; Spence, 2003). Children's social-emotional skills develop through the mastery of increasingly complex skills over time (i.e., increase/maturation of social ability), as well as increasing efficiency and accuracy in performing previously acquired skills (Beauchamp & Anderson, 2010). This development of social-emotional skills starts at birth, and developmental delays in social-emotional competence can already be visible in two-year-olds (e.g., Carter et al., 2004). Moreover, the interaction between the child and the (social) environment influences this development (Zins & Elias, 2007).

Social-emotional skills are vital for our relationships with others. For example, having more friends in childhood is associated with social-emotional skills such as prosocial skills, adequate emotion regulation, and self-disclosure (e.g., Gest et al., 2001; von Salisch et al., 2013). Social-emotional competence in peer groups and close friendships are related to higher well-being in adolescents (e.g., Larson et al., 2007), and assertiveness and expression of emotions are associated with higher marital and relationship satisfaction (e.g., Villa & Del Prette, 2013). Research has even shown that friendship quality can buffer the adverse effects of negative parenting (e.g., Gaertner et al., 2010; Lansford et al., 2003).

An impairment in social-emotional skills can present itself as internalizing (e.g., Segrin, 2000) as well as externalizing problem behavior (e.g., Trentacosta & Fine, 2010). To illustrate, some children may be afraid of negative evaluations by others (i.e., social

anxiety), and experience problems in their friendships as a result. Other children might evaluate themselves negatively and reject themselves, and therefore assume others will too (i.e., low self-esteem). On the other end of the spectrum are children that show little concern for others (i.e., low prosocial behavior) or are easily angered and prone to lash out (i.e., externalizing problem behavior), facing troubles in their peer relationships as a consequence. Deficits in social-emotional skills acquisition or performance can thus occur in different forms and can have various effects on children's behavior (Spence, 2003).

Indeed, previous research has shown that children with social-emotional skills deficits have adverse outcomes on different life domains. Longitudinal analyses have linked a social competence deficit in childhood to internalizing problem behavior in adolescence, which extended into adulthood (Burt et al., 2008). Children with low social competence at age four showed more internalizing behavior at age ten (Bornstein et al., 2010). Research also showed that poor social skills are a predictor of externalizing behavior (Gresham et al., 1999). Longitudinal analyses showed that children with lower social competence at age four showed more externalizing behavior at age ten and age 14 (Bornstein et al., 2010), and that childhood peer relationship problems are predictive of externalizing behavior six years later (Prinstein & La Graca, 2004).

Furthermore, previous research has shown that social skills deficits are related to academic failure (e.g., Malecki & Elliot, 2002; Welsh et al., 2001). Meta-analysis showed that both academic failure and social skills deficits are related to risky (health) behavior like substance abuse and delinquency (Najaka et al., 2001). Conversely, social competence in childhood is related to positive employment experiences in adulthood (e.g., Jones et al., 2017), better job performance (e.g., Porath & Bateman, 2006), and higher salaries (e.g., Ferris et al., 2001).

Overall, previous research demonstrates that children's social-emotional skills influence the development of psychopathology, health impairments, and difficulties and conflict in social relationships. Not surprisingly, a deficit in social competence is an integral part of many clinical diagnoses (Cook et al., 2010).

Social-Emotional Skills Interventions for Children and Adolescents

As social-emotional skills forecast individuals' health and well-being at many stages in life, a large body of intervention programs was developed over the past decades that aim to enhance children's social-emotional competence and (peer) relationships. The overarching goal of social-emotional skills interventions is to improve children's social functioning. By extension, the objective of social-emotional skills interventions is to interrupt the negative consequences that an impairment of skills may have on children's development and help children grow up to be healthy adults.

Interventions can target different prevention levels, that basically target different subgroups of the population of children and adolescents at large (Greenberg & Abenavoli, 2017). Universal prevention interventions are designed to benefit all children or adolescents and aim to promote adaptive behavior or reduce risk factors for adverse

well-being outcomes in the general population (see DeRosier, 2004, for an example of an intervention). Selective interventions target children or adolescents at risk of developing or showing emerging problem behavior or peer relationship problems. These programs generally target smaller groups of children with specific risk markers, such as low self-esteem or heightened levels of social anxiety (see Beidel et al., 2000, for an example of an intervention). Indicated interventions target special populations of children, such as children with clinical levels of diagnoses or traumatic brain injury. Universal and selective interventions are often implemented in the school context, whereas indicated interventions can also be implemented in a clinical context. Moreover, most evidence-based social-emotional skills interventions operate at the universal and selective intervention level (Gresham, 2015).

Stimulating the development of children's and adolescents' social-emotional skills in the school context has gained importance over the past decades. A sizeable research program has developed as a consequence—apparent from a large number of studies and meta-analyses (e.g., Blyth et al., 2019; Mahoney et al., 2019; Weare & Nind, 2011) that assessed if these programs instigate significant behavioral change. We should not underestimate the necessity of this research on the effectiveness of social-emotional skills intervention programs as the body of social-emotional skills intervention programs is continuously evolving, with programs leaving the stage and new programs entering the scene frequently. To illustrate, at the start of the research described in this dissertation (2016), the database of the Dutch Youth Institute (Nederlands Jeugdinstituut [NJi], n.d.) included 32 universal and selective interventions that address children's and adolescents' social-emotional competence. At the time of writing (2020), however, only 16 of these programs remained in the database. For only two of these programs, effectiveness was shown using a randomized controlled trial, considered the strongest level of evidence. For another seven programs, quasi-experimental research found indications for effectiveness. The remaining seven interventions are considered theoretically well-founded, but empirical evidence was not (yet) provided, considered the lowest level of evidence. Evidence for interventions in the database is re-evaluated after five years. The 16 interventions that were no longer in the Dutch Youth Institute-database at the time of writing were removed from the database either because the intervention was not submitted for re-evaluation (e.g., because the intervention is not used often) or because the intervention did not make it through the assessment procedure. One intervention was in the process of evaluation (NJi, n.d.).

The Importance of Gaining Insight Into Effective Components

Systematic reviews of over 300 research reports have shown that social-emotional skills interventions generally yield small to moderate positive effects on children's social-emotional skills and behavior (e.g., Durlak et al., 2011; Lösel & Beelman, 2003; Sklad et al., 2012; Taylor et al., 2017), with effect sizes (Cohen's *d*) ranging from .13 to .57 (with an outlier found in Sklad et al. 2012 for social-emotional skills [$d = .70$]). A review of five meta-analyses found a weighted effect size of .63 of social-emotional skills interventions for children with or at risk for emotional-behavioral disorders (Cook et al., 2010).

Although generally, social-emotional skills interventions are effective, the impact found for these interventions vary, and the reasons for this are unknown. Additionally, there seems to be much overlap in the contents of psychotherapeutic interventions, which might explain the relative nonsignificant differences between them, and calls for research into factors that explain intervention effects (Laksa et al., 2014). In other words, there is much to be learned about these widely popular and used interventions.

This dissertation, therefore, intends to advance the field by addressing the question: "*What components of preventive childhood social-emotional skills interventions drive intervention effects?*". Most interventions aimed at enhancing children's social and emotional skills are multifaceted and draw from the same list of ingredients to compile an intervention "cocktail" (Leijten et al., 2015). Even so, the actual composition of intervention components varies greatly. Because until now research into the effectiveness of social-emotional skills interventions mostly focused on the effect of the "cocktail" as a whole, it remains unclear which of the ingredients included in the intervention "cocktail" are actually responsible for children's behavioral adjustments following an intervention.

Different terms are used in the intervention literature to refer to the content-related constituents of interventions, such as active ingredients, intervention kernels, behavior change techniques, common elements, and core components (e.g., Abraham & Michie, 2008; Chorpita & Daleiden, 2009; Embry & Biglan, 2008). In this dissertation, we use the term *intervention component* to refer to the units of an intervention that serve as levers of behavior change. As our predecessors in the field of intervention research pointed out, it is crucial to pursue more sharply defined questions concerning the effects of social-emotional skills interventions, one of which is what specific components drive intervention effects (e.g., Mahoney et al., 2019).

Knowledge of the effects of intervention components is essential for several reasons. First, it provides information for the development of new, efficient, and cost-effective programs. Second, it allows for the improvement of currently implemented interventions and aids practitioners in making better-informed decisions when selecting a program from the vast amount of interventions currently available (Durlak, 2015). Third, research into complete interventions is costly and time-consuming, and evidence at the protocol level is delicate: changes to the protocol require renewed evidence (Chorpita et al., 2005a). Research into intervention components is relatively inexpensive in comparison (Leijten et al., 2015). Fourth, knowledge about intervention component effects enables the implementation of such components in a more flexible, modular way (Chorpita et al., 2005b), which may also simplify the assessment of intervention effectiveness by databases like the Dutch Youth Institute-database (NJi, n.d.). Finally, determining which components of social-emotional skills interventions are effective in improving children's and adolescents' social behavior may produce new insights into the mechanisms of change of interventions (Chorpita & Daleiden, 2009).

There are multiple research approaches to examine the effects of intervention components (Leijten et al., submitted). The current dissertation employed two of these approaches. We used a meta-analytical approach to synthesize findings from previous

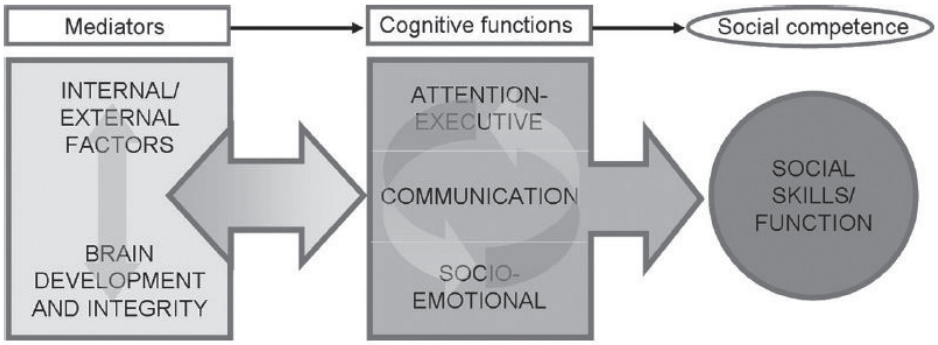
research into social-emotional skills interventions and assess whether their success is associated with the presence or absence of specific intervention components. Second, we used a microtrial approach. Microtrials are randomized experiments that examine the effects of brief and focused environmental manipulations (i.e., intervention components; Howe et al., 2010). Microtrials are not designed to bring about full treatment effects, but rather to enhance specific proximal outcomes, social-emotional skill outcomes in our case (Howe et al., 2010; Leijten et al., 2015). These experiments can be used to assess if isolated intervention components bring about meaningful changes in children's social-emotional behavior in a realistic context, and are suitable to identify the essential components of (social-emotional skills) interventions.

The Emergence of Social Functioning

Components included in social-emotional skills interventions are designed to enhance specific parts of the process that determines children's social-emotional functioning (i.e., social-emotional competence). Social and emotional skills are not independent constructs, but rather, social-emotional functioning is sophisticatedly complex; it is an integrated whole with multiple determinants.

The social-emotional skills that contribute to social-emotional functioning can be clustered in various ways. The Collaborative for Academic, Social, and Emotional Learning (CASEL) identifies five core competencies: self-awareness, social awareness, self-management, relationship skills, and responsible decision making (CASEL, 2020; Weissberg et al., 2019). Denham (2005) offers a somewhat different categorization by clustering self-awareness, self-management, social awareness, and problem-solving under emotional competence skills. The model described by Denham (2005) puts emotional skills at the root of social-emotional competence together with relational skills. In this dissertation, however, we used the comprehensive model provided by Beauchamp and Anderson (2010) to understand social-emotional functioning. The socio-cognitive integration of abilities (SOCIAL) model (Figure 1) describes how social-emotional (dis)function emerges based on psychological, developmental, and neuroscience literature, integrating various previous conceptualizations of social-emotional functioning, such as the model by Crick and Dodge (1994) and Yeates and colleagues (2007). The SOCIAL model sets out from children's normal maturation, making it an appropriate model for this dissertation, as we approach intervention research from a preventive perspective.

Figure 1. *The SOCIAL model. Copyright © 2020 by the American Psychological Association. Reproduced with permission. M. H. Beauchamp, V. Anderson, Psychological Bulletin, 2010,* ***136****, 39-64.*



The SOCIAL model (Beauchamp & Anderson, 2010) illustrates that social-emotional competence emerges through an interaction between cognitive and affective factors, which encompasses non-social, general neurocognition as well as affective processes (i.e., social cognition). The cognitive function level reflects a child's current cognitive abilities, which divides into three higher-order domains: the attention-executive, communication, and socio-emotional domain. The attention-executive domain includes processes categorized as attentional control (e.g., self-monitoring), cognitive flexibility (e.g., working memory), and goal setting (e.g., planning). The communication domain, which includes verbal and non-verbal responses, plays a role in the expression and comprehension of social behavior. Finally, the socio-emotional domain reflects processes such as the perception of emotions, attribution of traits and intentions, and theory of mind. The interaction between these basic and higher-order socio-cognitive processes determines the expression of social-emotional behavior (i.e., social-emotional competence). For example, a factor such as poor self-regulation might inhibit the adequate interpretation of social cues on the socio-emotional level, but this may also be related to a deficit in theory of mind (Beauchamp & Anderson, 2010; Spence, 2003).

Even though it is not the focus of the present dissertation, it is important to mention that socio-cognitive processes interact with biological (i.e., brain structure/neural functioning), external, and internal factors, and these functions also interact with each other. The environment that children grow up in, as well as their temperament and personality, plays a role in the expression of social behavior (Beauchamp & Anderson, 2010). For example, research has shown that there is a relationship between childhood behavioral inhibition (i.e., an internal factor) and the expression of social anxiety (Clauss & Blackford, 2012). Another example is parental attachment (i.e., an external factor), which influences children's social behavior (Groh et al., 2014). These relationships are bidirectional. In other words, biological, external, and internal factors not only influence socio-cognitive functioning, but changes in socio-cognitive function also impact these biological, external, and internal factors (Beauchamp & Anderson, 2010).

The interaction of environmental, behavioral, cognitive, and affective factors determines our ability to adapt to social contexts; the adequate interaction of these factors enables individuals to form and maintain positive relationships with others (Beauchamp & Anderson, 2010). Social-emotional competence reflects the ability to thrive in the social environment and manifests as peer acceptance, friendship, popularity, adequate conflict resolution, positive self-concept, and assertion, amongst others (Stump et al., 2010). A disruption in the functions addressed using the SOCIAL model (Beauchamp & Anderson, 2010) can lead to acquisition and performance deficits of social skills (Gresham, 2015). Existing literature generally uses the term *social skills* as a collective noun, which can reflect processes at the cognitive functioning level (of the SOCIAL model) that are exhibited "well" (e.g., problem-solving) as well as a manifestation of social-emotional competence (e.g., cooperation with others). As a final remark on the operationalization of social-emotional competence, it is important to note that behaviors commonly viewed as undesirable (e.g., aggression) do not necessarily reflect an impairment of cognitive functions. Achieving innate needs and goals drive individuals into action, and the motivation underlying social behavior can differ from person to person (Ryan & Deci, 2017).

Focus of The Current Dissertation

As is clear from the SOCIAL model, multiple processes and functions work together to determine a child's success or failure in social interactions. Moreover, problems in social-emotional functions can manifest in different ways (i.e., aggression or social withdrawal; Beauchamp & Anderson, 2010). To understand which intervention components are effective in influencing all these "parts" of social-emotional functioning would require decades of research; it is beyond the scope of this dissertation to address all factors associated with or manifestations of social-emotional functioning. The research presented in this dissertation focused on components aimed at enhancing children's socio-cognitive functioning (which covers the attentional-executive, communication, and socio-emotional component of the SOCIAL model; Beauchamp & Anderson, 2010). We aimed our research efforts on several behaviors that are relevant for school-age children, which currently implemented social-emotional skills interventions frequently target: social anxiety, (low) self-esteem, and prosocial behavior. All three target behaviors are the product of interactions of socio-cognitive processes described in the SOCIAL model.
The current dissertation focused on the effects of preventive interventions (i.e., universal and selective interventions). With the knowledge that many mental health problems start around the age of 14 (Kessler et al., 2005) and that the promotion of mental health yields the most beneficial results when it takes place early in life (e.g., Sancassiani et al., 2015), it is highly relevant to implement preventive programs from an early age—already in childhood. Following Article 17 of the United Nations' Conventions on the Rights of the Child—which emphasizes that all children have a right to "*social, spiritual and moral well-being and physical and mental health.*" (The United Nations, 1989)—we may even view access to effective preventive intervention as a child's fundamental right.

Research has shown that the school context lends itself well for preventive intervention efforts, as children spend much of their time at school with their peers, making the school

an excellent location to identify children with emerging problem behavior and to offer children the opportunity to apply new-learned skills (Conley & Durlak, 2017). Therefore, this dissertation focused explicitly on school-based social-emotional skills interventions. Important to note too, is that this dissertation uses the terms *training* and *intervention* interchanging to describe the process that attempts to prevent or reduce a deficiency in skills related to social-emotional functioning, and mental health problems related to such deficits.

Outline of the Current Dissertation

The research presented in this dissertation set out to gain insight into the effective content-related components of interventions that aim to enhance children's social-emotional competence and counter or prevent the adverse outcomes of impaired social-emotional competence. Table 1 provides an overview of the studies included in this dissertation and their sample characteristics.

In the first part of the current dissertation, we synthesized the effects of previous studies on the effectiveness of social skills interventions. **Chapter two** presents a multilevel meta-analysis that related specific training components to the effects of social skills training programs for children and adolescents. The second part of this dissertation includes three chapters that present microtrial studies assessing the effects of components used frequently in social-emotional skills interventions. **Chapter three** examines the effectiveness of exposure and cognitive restructuring in children with elevated symptoms of social anxiety. **Chapter four** examines the effects of psychophysical exercises and cognitive restructuring exercises when aiming to enhance children's self-esteem. Both of these chapters evaluate selective interventions. **Chapter five** examines if an autonomy support component has an additive effect in a universal social-emotional skills intervention to increase prosocial behavior. The final chapter, **Chapter six**, provides a general discussion that integrates the findings from all the presented studies.

Table 1. *Overview of Dissertation Chapters: Research Questions, Level of Intervention, Research Method, and Sample Included.*

Chapter	Target behavior	Research question(s)	Level of intervention	Method	*N*	Age *M(SD)*	Girls %	Western[1] %
Section 1								
2.	Various	Which distinct training components are associated with social skills training program effects?	Universal & selective	Meta-analysis	71.226	3- 17 years[2]	-	-
Section 2								
3.	Social anxiety	(i) Are brief group interventions using exposure, cognitive restructuring, or a combination of both, effective in reducing social anxiety symptoms and related outcomes?; (ii) Is there a difference in effectiveness between the brief group interventions using exposure, cognitive restructuring, or a combination of both?	Selective	Microtrial	191	10.48 (1.10)	63.4	55.3
4.	Self-esteem	(i) Is a brief group intervention with psychophysical exercises effective in enhancing children's self-esteem?; 1 (ii) Is a brief group intervention with cognitive restructuring exercises effective in enhancing children's self-esteem?; (iii) Is there a difference in effectiveness between a brief group intervention with psychophysical exercises and a brief group intervention with cognitive restructuring exercises?	Selective	Microtrial	186	10.66 (1.01)	51.1	66.5
5.	Prosocial behavior	(i) Are brief classroom-based social skills interventions effective in improving children's prosocial behavior?; (ii) Is a brief classroom-based social-emotional skills intervention that includes an autonomy support component more effective in enhancing children's prosocial behavior compared to a brief classroom-based social-emotional skills intervention without an autonomy support component?	Universal	Microtrial	778	10.61 (0.93)	47.4	66.1

Note. [1]We defined children's ethnic origin following the definition of the Dutch Bureau for Statistics (n.d.).

[2]Children's age was not a moderator in the meta-analysis; thus, the mean age of the included sample is not available.