Social Climate and the Student in the Learning Environment

Advances in Assessment, Observation, and Coaching

Carina Wikman

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Relationships and what is taking place socio-emotionally in the classroom may support or hinder students´ learning and development. All students benefit from a positive, supportive classroom climate, especially children with special educational needs. Improving the quality of the learning environment does not mean disregarding academic achievement. Because research on how to improve the classroom climate is limited, this thesis aimed to develop an intervention with the potential to influence the social climate and benefit student outcomes. Furthermore, the three studies in this thesis have connected aims. The first and the second study provided insight into constructs at the student level. The first study examined the psychometric properties of an instrument used to measure students' prosocial behavior. The second study examined the associations between students´ self-concept, prosocial skills, well-being in school, and academic achievement. Gender differences were also investigated. The third study tested the effects of an intervention involving specific activities (e.g., self-assessment, observation, and coaching). The three studies were empirical investigations of a sample of 143 students in elementary schools in a Swedish metropolitan area. The data sources were students´ self-reports and tests, including teachers´ reports on students' prosocial skills, teachers' social climate assessments, and video-recorded classroom climate observations. Study I and II had a cross-sectional design, and study III had an experimental design with cluster randomization at the school level. There were four intervention classes and four control classes. Data were primarily analyzed with structural equation modeling (SEM) techniques in Mplus to examine the hypotheses and research questions.

Study I examined students' prosocial behavior using confirmatory factor analysis (CFA). A two-factor measurement model was clearly supported, but a single-factor and a three-factor model cannot be excluded as possibilities for future research in the Swedish school context. Study II examined the constructs at baseline with CFA, demonstrating significant associations between self-concept and prosocial behavior, indicators of social-emotional learning (SEL), and well-being. The findings support the association between SEL and academic achievement indicators, confirming previous research. In study III, pre- to post-test changes resulting from a coaching intervention were examined with an autoregressive model. The coaching intervention was considered feasible, but there were no intervention effects from the pre- to post-test on the observed variables: self-concept, prosocial behavior, well-being, academic achievement, or classroom climate.

Overall, this thesis contributes to the research on the whole child approach. Self-concept and prosocial behavior, indicators of SEL and well-being, contribute to understanding academic achievement. Teachers can use these assessment instruments to understand children´s social-emotional and academic development levels and the correlations between them so that appropriate support can be provided.

Keywords: *classroom climate, social climate, social-emotional learning, whole child approach, self-concept, prosocial behaviors, well-being, academic achievement, intervention, Practice-Based Coaching, elementary school.*

Department of Special Education

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To Filip, Victor, and
William.

Stockholms universitet

Social Climate and the Student in the Learning Environment:

Advances in Assessment, Observation, and Coaching

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Context of Project

This thesis is a result of a doctoral project within the Research School in Special Education directed toward Early Interventions in Early Childhood Education (Swedish Research Council 2017-03683). The research school is a collaboration of four universities (Jönköping, Karolinska Institutet, Linköping, and Stockholm). The data collection of the doctoral project is part of "Samspel i Samklang med Elevers Behov," project number 2018-04012, funded by the Swedish Research Council. The doctoral project examines whether an intervention with self-assessment, observation, and coaching may beneficially change the social climate in classrooms and improve students´ self-concept, prosocial behavior, well-being, and academic achievement.

Abstract

Relationships and what is taking place socio-emotionally in the classroom may support or hinder students´ learning and development. All students benefit from a positive, supportive classroom climate, especially children with special educational needs. Improving the quality of the learning environment does not mean disregarding academic achievement. Because research on how to improve the classroom climate is limited, this thesis aimed to develop an intervention with the potential to influence the social climate and benefit student outcomes. Furthermore, the three studies in this thesis have connected aims. The first and the second study provided insight into constructs at the student level. The first study examined the psychometric properties of an instrument used to measure students' prosocial behavior. The second study examined the associations between students´ self-concept, prosocial skills, well-being in school, and academic achievement. Gender differences were also investigated. The third study tested the effects of an intervention involving specific activities (e.g., self-assessment, observation, and coaching). The three studies were empirical investigations of a sample of 143 students in elementary schools in a Swedish metropolitan area. The data sources were students´ self-reports and tests, including teachers´ reports on students' prosocial skills, teachers' social climate assessments, and video-recorded classroom climate observations. Study I and II had a cross-sectional design, and study III had an experimental design with cluster randomization at the school level. There were four intervention classes and four control classes. Data were primarily analyzed with structural equation modeling (SEM) techniques in Mplus to examine the hypotheses and research questions.

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Keywords: classroom climate, social climate, social-emotional learning, whole child approach, self-concept, prosocial behaviors, well-being, academic achievement, intervention, Practice-Based Coaching, elementary school

Acknowledgments

There is a widespread belief that writing a thesis is a lonely process. Indeed, you often have to work independently for many hours, face confusion and problems with self-regulatory behavior, and there may be days when no one notices your small steps. However, the process is not a lonely one. The support and guidance of many people have enabled me to complete this journey. First, I would like to express my sincere gratitude to the Department of Special Education at Stockholm University and the Research School in Special Education for giving me this great opportunity and making this research possible.

I also want to thank the main agents in this research, participating teachers and students. We had a brilliant time together; this research could not have been accomplished without you.

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List of Publications

The following articles are included in the thesis:

Study I

Wikman, C., Westling Allodi, M., & Ferrer-Wreder, L. (2021). Psychometric Properties of the Elementary Social Behavior Assessment (ESBA) in Swedish Primary School: A Teacher Rated Index of Children´s Prosocial School Behaviors. *Frontiers in Education* https://doi.org/10.3389/feduc.2021.681873

Study II

Wikman, C., Westling Allodi, M., & Ferrer-Wreder, L. A. (2022). Self-Concept, Prosocial School Behaviors, Well-Being, and Academic Skills in Elementary School Students: A Whole-Child Perspective. *Education Sciences, 12,* 298. https://doi.org/10.3390/educsci12050298

Study III

Wikman, C., Westling Allodi, M., & Ferrer-Wreder, L. A. A Cluster Randomized Control Trial of a Teacher Coaching Intervention. A Proof of Concept Study. (Submitted manuscript)

Contents

Abbreviations

CASEL   Collaborative for Academic, Social, and Emotional Learning

CLASS   Classroom Assessment Scoring System

DLS-base   Test measuring reading comprehension and reading fluency of students.

ESBA   Elementary Social Behavior Assessment

GAVIS   Goals, Attitudes, and Values in School (in Swedish MAVIS)

HIFAMS   How I Feel About My School

LUKIMAT   Test measuring student´s mathematic abilities

MTSS   Multi-Tiered System of Supports

PBC   Practice-Based Coaching

SEL   Social-emotional Learning

UMESOL   Measure of a child's self-concept

Definitions

Learning environment
The learning environment is the physical, social, emotional, and psychological context in which learning occurs. It includes all the factors, conditions, and resources influencing the learning process and impacting learners´ experiences, behaviors, and outcomes.

School climate
The school climate is the overall atmosphere, social environment, and culture within a school. It includes the prevailing attitudes, values, and norms that influence the interactions and relationships among staff, teachers, students, parents, and the community.

Classroom climate
The classroom climate is the physical and psychosocial aspects of the environment where students can learn.

Social classroom climate
The social climate in the learning environment is created by relationships and interactions between teachers and students and between students.

Multi-tiered system of supports
Multi-Tiered System of Supports is a proactive and preventive approach designed to increase student achievement and address students' social, emotional, and behavioral needs.

Intervention at the universal level
An intervention at the universal level is implemented proactively and is meant to be accessible to all individuals within the targeted group.

Preface

Throughout my career as a teacher and special educator, I have encountered positive and negative social climates in the classroom. My first year at work was particularly memorable; I was given the opportunity to teach a mixed-age elementary class with numerous social problems. No doubt, this was a challenging task; however, I came across a book, "How to handle difficult classes" that proved helpful in my efforts. After that day, I focused on building relationships with the students, and the social climate in the classroom improved considerably. Eventually, this class achieved excellent results, both social-emotionally and academically.

Then, several years later, when I began to work as a special educator, I had to advise my teacher colleagues on how to deal with classes that had problems, and I realized that there was a knowledge gap. In order to make improvements, there is a need to describe and understand the social climate in the classroom. While studying to become a special educator, I wrote a paper on the social climate of classrooms. Taking into account my previous experiences as a teacher and special educator, the present study attempts to contribute to the field of research on social climate in the classroom.

Introduction

According to the Work Environment Agency (565), schools are among the largest workplaces in Sweden. An educational working environment can include the classroom and other school facilities (ADI, 565). The classroom environment serves as the primary context for students to learn and develop within the school environment. The classroom environment has physical and psychosocial aspects (ADI, 565). A classroom's psychosocial aspects are the atmosphere, relationships, and other social interactions (ADI, 565). Teachers and students establish a social classroom climate through their relationships and interactions.

The quality and quantity of these relationships and interactions affect students' behavioral, social-emotional, and academic outcomes (Allodi, 2010b; Chapman et al., 2013; Fraser, 2012; Pianta & Hamre, 2009). For example, Milkie and Warner (2011) found that the classroom climate was related to children's mental health because negative classroom learning environments were associated with more emotional and behavioral problems. A systematic review by the Swedish Agency for Health Technology Assessment and Assessment of Social Services indicated that the general working environment impacts well-being and health (SBU, 2014). For instance, individuals lacking interpersonal support in the workplace are more likely to experience mental health symptoms (SBU, 2014). According to a systematic review of mental health in learning, supportive relationships in the learning environment can help prevent mental distress. (Gustafsson et al., 2010). An official investigation by the Swedish government (SOU 2021: 11) stated that a functioning environment with positive relationships is a protective factor for well-being and mental health. There has been a decrease in school-related well-being among Swedish students in recent years, which may be due to a greater emphasis on academic achievement in the classroom (Klapp et al., 2023). In previous research, grades have been found to foster an atmosphere of peer competition and social comparison (Chamberlain et al., 2018). Competitive classroom climates may not be conducive to developing students´ well-being (Klapp et al., 2023). Therefore, promoting students´ well-being goes beyond academic achievement (Klapp et al., 2023). Consequently, ana-

lyzing and developing supportive environments may prevent health problems (SBU, 2014).

Contexts for Classroom Climate

The United Nations Agency for International Development, UNDP, aims to provide inclusive and equal education for all and promote lifelong learning through quality learning environments (UNDP, 2015). According to the United Nations (2001): "Every child has the right to receive an education of good quality, which in turn requires a focus on the quality of the learning environment, of teaching and learning processes and materials, and of learning outputs." (UN Convention on Child Rights, article 29, NP.). Additionally, the UN Convention describes education as involving the holistic development of the child's full potential as well as interactions with peers and the environment. Developing a whole child approach focuses not only on academic skills but also on social-emotional development (UN Convention on the Rights of the Child, Article 29). As stated in the Swedish curriculum for compulsory school, preschool classes, and leisure time centers (Lgr, 2022), schools should embody and transmit the values and rights expressed in the UN Convention on the Rights of the Child.

Based on SOU (2021: 11), which investigated students´ opportunities to meet the expected knowledge requirements, the learning environment plays an important role in the development of students. Research shows that a positive learning environment benefits all students but is especially necessary for students who require special support or are particularly vulnerable (Kiuru et al., 2015; Pakarinen et al., 2014). Relationship structure and socioemotional dynamics in the classroom may facilitate or inhibit students' learning and development (Kiuru et al., 2015; Pakarinen et al., 2014). For example, Pakarinen et al. (2014) examined the association between the quality of classroom interactions and the behavior of 166 Finnish primary students in 70 classrooms in achievement situations. Children who received low emotional support from their teachers were at risk of passive avoidance, which inhibited their learning. High classroom organization and instructional support predicted children's social independence level. This resulted in the facilitation of their learning. According to the findings, classroom interactions play a key role in promoting achievement behaviors (Pakarinen et al., 2014).

However, there is uncertainty in many schools about how to evaluate and develop the classroom climate (SOU 2021: 11). Problems are often perceived as deficits in students without considering that the problems can also be embedded within the learning environment (SOU 2021: 11). Additionally, evaluations show the student health care teams (in Swedish called Elevhälsa) are often unable to utilize their potential to prevent difficulties and illness and promote wellness and thriving to the fullest extent possible. Rather than focusing on prevention and promotion, most of their resources are directed toward reactive efforts in response to existing problems (SOU 2021: 11).

Special Education in Swedish Schools

The Swedish National Agency for Education (SNAE, 2014) states that Sweden's education system is intended to consider each student's unique needs. To accomplish this, students must be provided with adequate support efforts that allow them to develop in accordance with the educational goals. Students at risk of not reaching the goals may require individual support (SKOLFS 2014:40). Additional adjustments can be made in regular teaching, including strategies to aid concentration, physical adjustments, and spelling programs. Additional adjustments may not be sufficient in some cases; in these instances, there is a second support level, special support, which is more interventionistic and may not be implemented within the standard core teaching (SKOLFS 2014:40).

In accordance with SNAE (2014), before implementing support efforts, there is a need to analyze how resources are distributed, how the student group is functioning, which pedagogical methods are applied, and how the learning environment is structured. The SNAE (2014) emphasized the importance of the skills and competence of the student health care team in this preventive work. Student support, however, is often provided reactively to address low performance rather than proactively. The support is not framed within a health promotion context (SOU 2021: 11). Implementing clear and focused preventive measures may alleviate student learning and development obstacles (SOU 2021: 11).
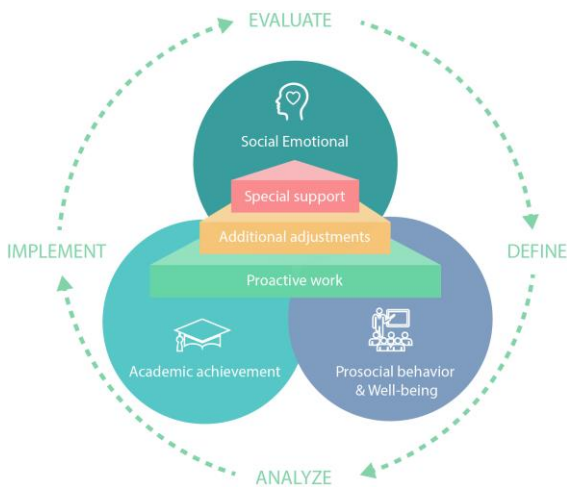
Multi-Tiered System of Supports

The multi-tiered system of supports (MTSS) is a proactive and preventive approach designed to increase student achievement and address students' social, emotional, and behavioral needs. The framework considers the whole child (Averill & Rinaldi, 2013) (Figure 1). A key objective of MTSS is to ensure that all students, including those with learning deficits and advanced learning needs, receive adequate and equitable support at various levels. The system also assists educators in providing more effective student assistance (Riccomini & Wetzel, 2009). The MTSS system does not specify an intervention program that must be completed; instead, it provides interventions at different instructional levels based on a three-tiered support structure (Wilcher, 2022). In Tier 1, at the universal level, all students in the classroom are provided with high-quality instruction and differentiated support (Hemmeter et al., 2017). Students' skill gaps are addressed in Tier 2 by providing strategic support (Averill & Rinaldi, 2013) (i.e., additional adjustments are provided in Sweden). As part of Tier 3, support is typically provided more frequently and intensively (Averill & Rinaldi, 2013) (i.e., special support in Sweden).

In addition to identifying students experiencing risk and providing support, MTSS attempts to identify obstacles and point out "what's not working" as a preventive measure (Prasse et al., 2012). An important element of MTSS is the implementation of a strong Tier 1 core instruction, i.e., learning experiences in which all students participate. By identifying areas where core instruction needs improvement, teachers can better evaluate student needs and improve the learning environment (Prasse et al., 2012). Additionally, universal screeners and diagnostic assessments can identify students' academic, behavioral, and social-emotional needs. Assessment instruments are also helpful in determining whether Tier 1 core instruction meets the needs of the current population of students within a particular school (Averill & Rinaldi, 2013).

In Swedish schools, reactive remedial efforts are frequently prioritized in response to existing problems. Still, other proactive approaches can sometimes be used to address student needs more effectively, for example, by adapting the core teaching and increasing the quality of the classroom environment (SOU 2021: 11). The importance of providing high-quality core

instruction, also known as Tier 1, or universal instruction, for all students, cannot be overstated (Prasse et al., 2012). Effective instruction and learning require classroom teachers to be prepared to create positive learning environments (Prasse et al., 2012).

The focus of this thesis is at the level of Tier 1 within the context of a multi-tiered support system. One of the studies in this thesis focuses on a professional development program that was developed and tested, designed to help teachers evaluate, define, and analyze the social climate in their classrooms, and provided support for implementing changes, thereby indirectly affecting students' performance. In order to consider the whole child, screening assessments were conducted on student self-concept, prosocial behavior, well-being, and academic achievement.

Figure 1. Multi-tiered system of supports. The proactive work is on the level of Tier 1. The teacher assesses the needs of each student in the class. Support is provided to students in accordance with their skills and level of need.

A Whole Child Development

Education of the whole child generally includes the development of healthy relationships, respect for others, and the development of cognitive abilities to think creatively and succeed academically (Greenberg, 2023). A healthy, happy, and caring classroom environment promotes the development of

these capacities while creating a challenging and dynamic educational environment for children to achieve these goals. Social and emotional learning (SEL) is essential to developing these skills (Greenberg, 2023).

Meta-analyses conducted by Blewitt et al., 2018; Boncu et al., 2017; Corcoran et al., 2018; Durlak et al., 2011; Goldberg et al., 2019; Lou et al., 2022; Mertens et al., 2020; Murano et al., 2020; Sklad et al., 2012; van de Sande et al., 2019; Wiglesworth et al., 2016; Yang et al., 2019 have found consistent beneficial effects of evidence-based SEL programs on student academic, social, emotional and behavioral outcomes at all the included grade levels (K- 12th grade) and across ethnicity, income and gender. Along with the recognition that SEL programs positively influence the whole child development, there is a body of research indicating that well-implemented SEL interventions can positively influence the classroom climate as well (Wang et al., 2020). SEL programs have been found to increase student engagement, foster better relationships between students and teachers, and enhance classroom prosocial behavior (Brown et al., 2010; Hagelskamp et al., 2013). However, there is a dynamic interaction between a positive classroom climate and the whole student development (Brown et al., 2010; Hamre & Pianta, 2007; Wang et al., 2020), resulting in an emphasis on SEL interventions that actively improve the classroom climate for the development of the whole student (Wang et al., 2020).

The Overall Aim of the Thesis

The overall aim was to empirically examine if an intervention at the universal level, with teacher self-assessment, observation, and professional conversations, could benefit the classroom climate and student outcomes. Furthermore, the three individual studies in this dissertation have connected aims. The first two studies focus on children and understanding outcomes that the tested intervention in study III could indirectly impact. Specifically, in the first study, a descriptive psychometric line of research aimed to examine the psychometric properties of an instrument teachers can use in a Swedish context to better understand students' prosocial behavior. Promoting prosocial behavior among students can have a number of benefits, e.g., creating a positive and supportive classroom climate. In the second study, another line of research sought to understand associations between students´ self-concept, prosocial skills, well-being, and academic achievement, as well as to exam-

ine whether there were gender differences. Self-concept, prosocial skills, and well-being in school are considered indicators of social-emotional development and mental health. These indicators provide insights into various aspects of mental health and can identify potential challenges or areas of strength in an individual´s well-being.

Moreover, academic learning in school is linked to SEL, and children can thrive with support across both areas (Lou et al., 2022). The association between these areas should, therefore, be explored. Additionally, a better understanding of gender differences is fundamental to improving education to meet the needs of both boys and girls. The third and final line of research is an experimental study to develop and test the effects of an intervention that involves introducing specific professional development activities for teachers (e.g., self-assessment, observation, and coaching). Based on theories and previous empirical research, these activities were hypothesized to have the possibility to enhance the social climate in learning environments and indirectly support students´ self-concept, prosocial behavior, well-being, and academic achievement (Figure 2). Therefore, there is a need to examine the instruments used to measure students' outcomes and to investigate the feasibility of the developed intervention approach in the educational context of elementary school.

Research Questions

1. What are the psychometric properties of the Swedish version of the Elementary Social Behavior Assessment, ESBA? (Study I)

2. What are the associations between children´s self-concept, prosocial behaviors, well-being, and academic skills? (Study II)

3. Are there group differences by gender for these constructs? (Study II)

4. Is the intervention associated with pre- to post-test improvements in students´ self-concept, prosocial behaviors, well-being, and achievement in core subjects compared to students in control schools? (Study III)

5. Is the intervention associated with pre- to post-test improvements in the classroom climate in intervention schools compared to control schools? (Study III)
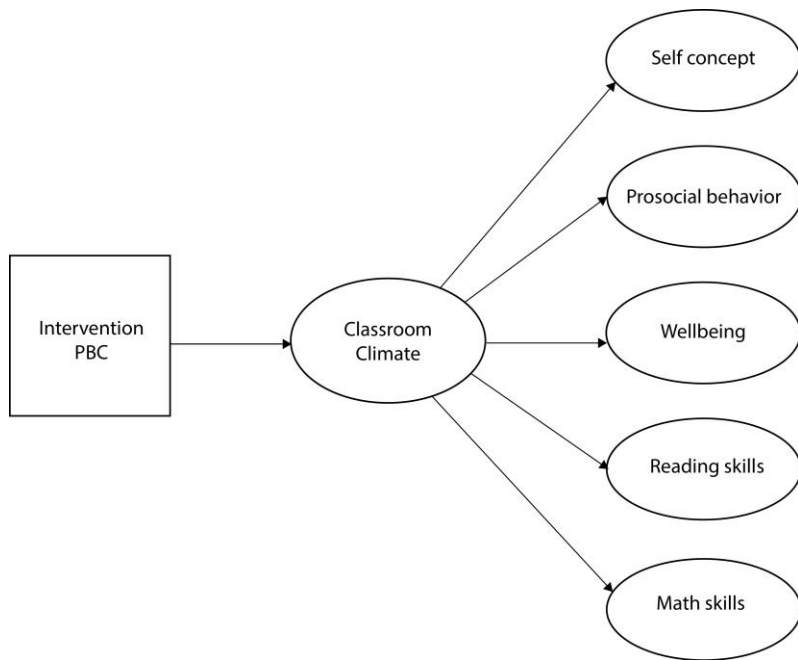
Figure 2. Conceptual model of the intervention. The PBC intervention consisting of classroom evaluations, observations, and professional conversations is hypothesized to improve the classroom climate (Tier 1), indirectly benefiting students' outcomes.

Note. The figure is included in the submitted manuscript.

Theoretical Framework

The classroom climate is one of the dependent outcome variables in this thesis, measured using two instruments: Goals, Attitudes, and Values in School (GAVIS) and the Class Assessment Scoring System (CLASS). Because the GAVIS instrument is currently being developed in Sweden, this thesis used both the GAVIS and the CLASS instruments. The purpose of this section is to introduce the general framework of this thesis before describing how these instruments are theoretically framed and how they relate to the social climate of learning environments. A brief explanation of the SEL framework follows, which plays an essential role in ensuring a positive learning environment. The other outcome variables, self-concept, prosocial behavior, and well-being, are described in subsequent sections. Furthermore, the independent variable, the PBC intervention, is theoretically described in a later section.

General Framework

Throughout this thesis, three general theories are applied: the Science of Learning and Development, SoLD (Cantor et al., 2019), Self-Determination Theory, SDT (Deci & Ryan, 2008), and Social-Emotional Learning, SEL (Weissberg et al., 2015). They all focus on understanding human behavior and development, particularly in educational contexts. There is a recognition that the environment and social context play an important role in shaping human development and learning. Relationships play a crucial role in influencing an individual´s development and well-being. Human development is viewed holistically in each theory. Rather than focusing on one aspect of an individual´s life, multiple aspects are examined, including cognitive, emotional, social, and motivational factors. As a result, they provide educators with insights into how they can design teaching strategies, create supportive learning environments, and foster students´ overall development and well-being.

Although the theories share many commonalities, they also differ in their emphasis. SoLD (Cantor et al., 2019) suggests that developing cognitive capacities and functions is malleable. Emotions and social contexts play an important role in shaping the brain. These experiences activate neural path-

ways necessary for new thinking and performance (Cantor et al., 2019). SDT emphasizes autonomy and intrinsic motivation (Deci & Ryan, 2008). SEL theory emphasizes the development of emotional intelligence and interpersonal skills (Weissberg et al., 2015). By integrating insights from these three theories, a comprehensive understanding of human development and educational practices can be developed.

GAVIS (an Indicator of Classroom Climate)

GAVIS is a conceptual model and measurement instrument for understanding the social climate in the classroom resulting from relationships between students and teachers, as well as between students (Allodi, 2010a). GAVIS is operationalized as having ten aspects characterizing the classroom climate: stimulation, achievement, self-efficacy, safety, control, helpfulness, participation, responsibility, influence, and creativity (Allodi, 2010a).

In the development of GAVIS, several theories have been derived to describe the model, including Lewin's field theory, which involves the idea that behavior is determined as a function of the individual and environment (Lewin, 1951). The individual´s behavior occurs as an interplay between the individual and the environment, and behavior is not only caused by the characteristics of the individual. In addition, Moos (1979) contributed to the advancement of these ideas by providing a theoretical model for psychosocial environments, which has been used in numerous studies (e.g., Aldridge et al., 2020; Fraser & Tobin, 1989). Psychosocial environments can be broadly classified into three categories, according to Moos (1979): relationships, personal development, and change or stability. As another theoretical model relevant to this study, Schwartz (2010) proposed ten universal human values: self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, benevolence, and universality (Schwartz, 2010). Moos and Schwartz's theories have been linked to describe goals, attitudes, and values that characterize learning environments so that they can relate to the opposing poles of altruism-self-enhancement and tradition-openness to change (see Figure 3).

The ten aspects of the social climate are based on narratives from 185 Swedish students (7-17 years of age) across 16 schools in ten municipalities

(Allodi, 2010a). According to these narratives, general categories have been developed and compared to Schwartz's human values (Allodi, 2002; 2007). A circumplex model of the social climate in learning environments was hypothesized based on how these aspects are related (Figure 3) (Allodi, 2010a). However, empirical analyses have yet to confirm a circumplex model for this instrument. Current evidence supports a second-order GAVIS model compatible with the constructs described in SDT (Deci & Ryan, 2008; 2012). Psychological needs are believed to drive motivation and determine actions according to SDT. In order to promote well-being and optimal development, meeting these needs is essential. SDT is based on three fundamental psychological needs. *Autonomy* is defined as a sense of control over one's actions and decisions. An individual who feels autonomous is more likely to engage in activities willingly and to feel satisfied with the results. *Relatedness* refers to a strong sense of belonging and a desire to be connected to others. Individuals' sense of relatedness motivates them to collaborate, cooperate, and act prosocially. *Mastery* refers to the desire to feel capable and effective in overcoming challenges and achieving desired goals. Mastery motivates individuals to take on challenges and persevere despite obstacles. These three categories correspond to the aspects of the social climate model: autonomy – stimulation, creativity, and influence; relatedness – helpfulness, participation, and responsibility; and mastery – achievement, efficacy, safety, and control (Allodi, 2002; 2007).
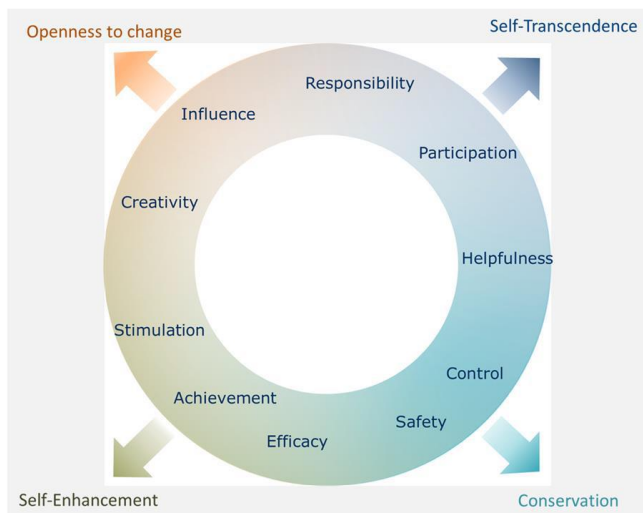
Figure 3. GAVIS' theoretical framework builds on research on values and psychosocial environments and hypothesizes a circumplex model.

CLASS (an Indicator of Classroom Climate)

CLASS instrument (CLASS, 2015) was derived from the Teaching Through Interactions framework (TTI, Hamre & Pianta, 2007), which posits that interactions between teachers and students represent the central driver of learning and development. The TTI focuses on three main domains of classroom processes: emotional support, classroom organization, and instructional support (Downer et al., 2010), consistent with other descriptions from psychological and educational research (e.g., Eccles & Roeser, 1999; Pressley et al., 2003).

The emotional support domain encompasses the presence of a supportive and warm classroom climate; teachers´ awareness and responsiveness to students´ social-emotional and academic needs; positive interactions; and efforts to provide relevant content and encourage students' autonomy and interests (Downer et al., 2010). The theoretical underpinnings of this domain are two broad areas of developmental theory: attachment theory (Bowlby, 1969) and self-determination theory, SDT (Connell & Wellborn, 1991). These theories have also been used to describe the model of the social climate. Attachment theory assumes that when students receive emotional support and a safe and consistent environment, they become more autonomous and willing to explore and take risks (Bowlby, 1969). SDT posits that students are motivated to learn when they have positive interactions and a supportive social context.

The classroom organization domain captures clear behavioral expectations, time management, routines, and student engagement. Research indicates that students´ self-regulation and executive functioning skills are crucial to academic achievement (Blair, 2002; Ponitz et al., 2009). When the classroom has more consistent routines for time management and behavior, students are supported in developing these skills (Emmer & Strough, 2001; Evertson et al., 1983; Ponitz et al., 2009). Intervention studies aimed at enhancing classroom organization indicate improvements in students´ self-regulatory skills (e.g., Raver et al., 2009).

The instructional support domain refers to the degree to which the teacher facilitates higher-level thinking skills, namely problem-solving, analysis, reasoning, metacognition, and creation, and to what extent feedback expands learning and encourages student participation (Downer et al., 2010). This domain has been developed from theory and previous research on the development of cognitive and communication skills (e.g., Taylor et al., 2003). Effective instructional support is emphasized rather than rote instruction

(Mayer, 2002). High scores in this domain have been linked to academic achievement (Hamre & Pianta, 2005; Howes et al., 2008). Research has demonstrated that students who attend classrooms with higher overall scores on the three domains tend to have higher academic achievement (Hamre et al., 2014; La Paro et al., 2004; Mashburn et al., 2008) and better social skills (Burchinal et al., 2010; Curby et al., 2009; Mashburn et al., 2008).

Social-Emotional Learning

SEL is a field of research and best practices disseminated by the Collaborative for Academic, Social, and Emotional Learning, CASEL (CASEL, 2020). In the United States, the CASEL has supported the use of SEL programs, which has resulted in SEL becoming an increasingly common practice (CASEL, 2020). Early childhood education guidelines in Sweden acknowledge the importance of social-emotional development, but this aspect is not emphasized. There is, however, no systematic measurement of social-emotional development among young children in the Swedish education context. Despite these limitations, there is a growing interest in promoting children's social-emotional competence, as evidenced by recent intervention trials of SEL programs such as Promoting Alternative Thinking Strategies (PATHS) in Swedish preschool environments (Eninger et al., 2021). Although promoting children's social-emotional development is an undisputed goal of Swedish educational policy and practice, much empirical work remains in order to gain a deeper understanding of social-emotional competence in a Swedish preschool and elementary school context. Gender may be important to consider in this work, as evidenced in the aforementioned PATHS trial (Eninger et al., 2021). A moderation analysis conducted on the PATHS trial, for instance, indicated that participation in PATHS resulted in unique intervention-related benefits for girls as compared to participants in a control group (Eninger et al., 2021).

The emphasis on educating the whole child is often overshadowed by a focus on children's academic performance as Swedish children progress from preschool to elementary school and beyond (Allodi, 2010b; Dalman et al., 2021). According to the CASEL Competency Framework, developed by Weissberg et al. (2015), five key social and emotional competencies are addressed: self-awareness, self-management, social awareness, relationship skills, and problem-solving skills (Weissberg et al., 2015). The development of these competencies not only enhances children's academic abilities as well

as their ability to engage in positive social behaviors and develop relationships during school but also results in greater well-being and less emotional distress (e.g., Durlak et al., 2011). In this study, the competencies of self-awareness, social awareness, and relationship skills were of particular importance.

Students´ Outcomes

This thesis examined the associations between indicators of social-emotional competence that included children's self-concept (an indicator of self-awareness) and teacher-rated prosocial school behaviors (an indicator of social awareness and relationship skills). Also taken into account were other important indicators of the whole child, such as the child's self-assessed well-being at school, academic skills based on reading and math achievement measures, and the child's social environment.

There is evidence that changes in one domain of development may influence changes in another domain of development, and this has been described as a developmental cascade (Masten et al., 2005). Based on the concept of a possible developmental cascade model, it would appear that positive changes in the social climate may have indirect and, in this case, beneficial consequences for student outcomes. In theory, effects may be direct and unidirectional, direct and bidirectional, or indirect through a variety of pathways. As stated, developmental cascades are supposed to affect a child's development because different domains of development are integrated and work together (Masten et al., 2015). Therefore, an intervention may have buffering or not directly targeted effects that may be beneficial, e.g., improvements in the social climate in learning environments increase the likelihood of better performance in other domains (Cicchetti & Curtis, 2006).

Self-concept (Child Level Indicator)

A key index of self-awareness within the CASEL framework (Weissberg et al., 2015) is a child's self-concept (Weissberg et al., 2015). The concept involves children's psychological awareness in relation to whom they are, rooted in their viewpoints and influenced by others' perspectives (Brummelman & Thomaes, 2017). Social relationships, feedback, social comparisons, and cultural values shape children's self-concept (Brummelman & Thomaes,

2017). In this study, the generalized view of the children was examined, with the self-concept operationalized according to the CASEL framework (in the CASEL domain of self-awareness) and in accordance with the social developmental approach (Brummelman & Thomaes, 2017). Even though this study focused on a generalized view of self-concept, domain-specific aspects of self-concept are also crucial to understanding how children adjust and develop within key proximal contexts, such as school. In order to measure self-concept, the student-rated UMESOL was selected because it can be used with young children. Using this instrument, children can describe their experiences rather than rely on their parents or teachers to convey their experiences. Furthermore, UMESOL can be used by teachers, is easy to administer, and allows large amounts of data to be collected in a short time, i.e., in whole-group settings.

Prosocial Behavior (Child Level Indicator)

Social awareness and relationship skills are also represented in this study within the CASEL framework (Weissberg et al., 2015). Prosocial school behaviors may be measured in research with a broad range of ratings within these domains. These behaviors have been identified as crucial to academic adjustment and social development in school by teachers (DiPerna & Elliott, 2002; Pennefather & Smolkowski, 2015). The teacher-rated ESBA construct was used to measure prosocial behavior because strength-based ESBA identifies specific, observable prosocial skills and behaviors predictive of students' academic success and school adjustment (Cummings et al., 2008; Pennefather & Smolkowski, 2015).

Well-being at School (Child Level Indicator)

The concept of well-being was used in this study to describe the child's level of satisfaction with their lives, namely the predominance of positive emotional states over negative emotional states in the child's daily life at school (Diener, 1984). Based on Hascher's (2008) observation, children's well-being has educational value in and of itself. In addition to being an indicator of learning, well-being is also an indicator of wellness (Suldo & Shaffer, 2008). Considering the lack of empirical evidence in this area, examining the well-being of children in this age group is warranted. A systematic literature re-

view identified a vital knowledge gap in understanding young children's well-being and other mental health indicators (Gustafsson et al., 2010). In this thesis, the student-rated HIFAMS, an easy-to-use construct for children, was selected to measure well-being. Currently, the knowledge regarding the subjective well-being of young students is limited, which makes the HIFAMS helpful in providing insight into this population.

Intervention PBC (the Tested Intervention)

Through the PBC program, early childhood professionals are provided with job-embedded coaching to enhance the implementation of evidence-based teaching practices (Snyder et al., 2015). Collaboration between the teacher and the coach is essential in this program (Snyder et al., 2015). Social-emotional teaching practices have been shown to benefit from this type of coaching (Artman-Meeker et al., 2012; 2014; Hemmeter et al., 2011). The framework of PBC is based on a cyclical model that focuses on effective teaching practices at its core (Snyder et al., 2015). Action planning, observation, and coaching feedback are key components of the framework. These components are associated with changes in teacher practices and student outcomes (Shannon et al., 2021). Teachers' implementation of evidence-based practices can be measured through observation instruments, e.g., the CLASS instrument. Studies of observation systems demonstrated that students' development is positively affected when teachers are supported and objectively evaluated in improving their teaching (Biancarosa et al., 2010; Taylor & Tyler., 2012). Students with learning disabilities may benefit from teacher observation systems since these allow teachers to evaluate their teaching practices and provide feedback on improving them (Johnson et al., 2021).

Summary of Studies

Study I. The study examined the psychometric properties, i.e., the factor structure and internal consistency, of a Swedish edition of ESBA, which measured children's prosocial behaviors.

Hypothesis 1: We hypothesized that a one- or two-factor model for ESBA would be supported; however, a three-factor model could be an alternative, according to previous research.

Study II. The study aimed to examine the associations between children's self-concept, prosocial behaviors, well-being, and academic skills and to determine if there were group differences by gender for these constructs.

Hypothesis 1: Based on prior empirical research and theories, we posited positive and significant associations between self-concept, prosocial behaviors, well-being, and academic skills (as indexed by reading and math ability).

Hypothesis 2: Based on prior empirical research, we expected there to be significant average (mean level) gender-related differences in prosocial behaviors. As an exploratory extension of Hypothesis 2, we also examined if there were gender-related differences in the other study constructs (i.e., children's self-concept, well-being, and academic skills).

Study III. This study aimed to test the effects of a practice-based coaching intervention involving self-assessment, observation, and coaching with the aim of changing the social climate in learning environments and students´ well-being, behavior, prosocial skills, self-concept, and academic achievement.

Research question 1: Is the intervention associated with pre- to post-test improvements in students´ self-concept, prosocial behavior, well-being, and achievement in core subjects compared to students in control schools?

Research question 2: Is the intervention associated with pre- to post-test improvements in the classroom climate compared to control schools?

Methodology

This chapter presents the quantitative approach and the basis of epistemology, followed by an overview of the designs and data organization. Following this, sample and data collection procedures, measurements, statistical analyses, and considerations of reliability, validity, and ethics are discussed.

The Quantitative Approach

Educational research benefits from the quantitative approach because it can be used to assess the effectiveness of various teaching methods and interventions (Pring, 2015). An objective quantitative approach is intended to provide knowledge about measurable phenomena. However, because some phenomena are not directly observable and cannot be measured without substantial error, the interpretative viewpoint can also be adopted in educational research (Pring, 2015). Therefore, researchers must be critical in their approach and carefully measure what is considered the objective reality, as well as be clear about the strengths and problems of any approach used (Pring, 2015).

The methodological approach in this dissertation aimed to apprehend subjective empirical experiences as objectively as possible. Multiple indicators based on previous research were chosen to match the theoretical conceptualizations as accurately as possible. These indicators were tested in order to determine whether they captured the suggested manifestations that might provide information regarding the latent construct (the true phenomenon) proposed by theory or shown in past research. A clear understanding of the inter-relationships between these latent variables and their relationship with manifest variables (observed variables) is essential for making effective decisions (Wang & Wang, 2020). In this approach, the theory was primarily used deductively, beginning from a theory, developing hypotheses from the theory, then developing research questions and testing the hypotheses. The examined relationships between the variables can be explained by the theories (Creswell, 2014).

Sample and Recruitment Procedure

Participant and cluster eligibility criteria included 1) municipal primary schools, 2) second-grade classes, 3) teacher certification. Ten schools meeting the selection criteria were invited to participate in June 2019. Students and teachers were recruited through the enrollment process of the municipal schools. Prior to recruitment, the schools were not informed about their allocation but were informed that they could be randomly assigned to an intervention or control group. In total, four schools were recruited as a result of teachers accepting the invitation. There were two second-grade classes in each school, totaling eight classes (see flow chart diagram Table 1). In total, 196 students were invited to participate in the study. The number of students in each class at the beginning is shown in Table 2. Written consent was obtained from the students and their parents prior to their participation in the study. The parents were reminded about the study several times to ensure that as many responses as possible were received. The response rate was 73%. The 27% non-response rate was attributed to parents not wanting their children to be video-recorded or general non-response to the study invitation.

In the subsequent phase, schools were randomly assigned to either intervention or control groups. In total, 66 children were in the intervention group, and 77 children were in the control group (Table 2). In total, 143 children participated in the study [74 girls, M age = 8.33 years, SD = 0.34 years) and 69 boys (M age = 8.31 years, SD = 0.35 years)]. Students' outcomes were modeled as potentially responsive to the learning environment's social climate and the intervention itself; teachers were included in this study. Eight teachers participated, one per class. A total of two commuter (suburban) municipalities and one large city in Sweden were selected as recruitment sites (Table 2).

Table 1. Flowchart diagram of student participants.
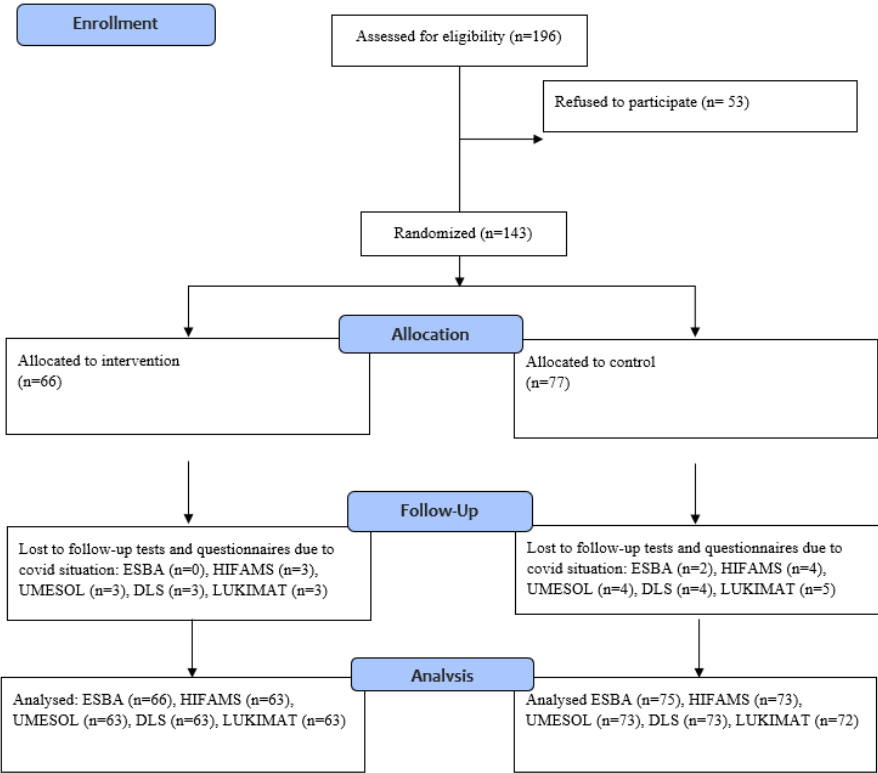
Note. The flowchart diagram was included in submitted manuscript III.

Table 2. Descriptive statistics of demographics: schools, teachers, and student participants.

Variables	Intervention Group		Intervention Group		Control Group		Control Group I	
School	I		II		III		IV	
Type of municipality	Rural		Large city		Rural		Suburban	
Number of inhabitants	21 564		962 154		21 564		112 848	
SES index	75*		40*		54*		48*	
Class	I	II	III	IV	V	VI	VII	VIII
N	10	14	21	21	18	12	24	22
F/M rate	6/4	10/4	10/11	9/12	5/13	6/6	14/11	13/9
Teacher Year of birth	1975	1974	1970	1983	1986	1976	1968	1982

Note. *SES index based on parents' occupation, income, and economic aid. Higher scores indicate higher poverty. The score range between schools is 20 to 596, and the mean is 106 (The Swedish National Agency for Education, 2018).

Procedure

During regular school hours in students' classrooms, pre-tests and post-tests of self-concept, well-being at school, math, and literacy were conducted. The

children were asked to rate their self-concept and well-being. In order to measure academic skills, performance tests were administered in reading comprehension and mathematics. During the study, the questions were read aloud to participating students (as a group), and they filled out the questionnaires and tests individually with the help of a researcher who guided them as needed. Teachers provided ratings of prosocial school behaviors for participating students. In intervention schools, teachers self-assessed the social climate and had professional conversations with the researcher after school hours. The same researcher conducted classroom observations during regular school hours. Teachers allocated to the control group completed their self-assessments of the social climate after school hours without guidance. In the control schools, teachers were placed on a waiting list. It was planned to provide them with the intervention in June 2020; however, restrictions on access to schools were imposed later during the COVID-19 pandemic, which prevented this from being accomplished.

Intervention

The intervention pertains to the cluster level. A five-month intervention was conducted. In accordance with the PBC model (Snyder et al., 2008; 2015), it consisted of three key components. The total intervention time the main researcher spent with teachers engaging in intervention activities was 360 minutes, including 180 minutes with teachers in pairs and 180 minutes one to one. The total observation time was 120 minutes per classroom. Teachers in the intervention group assessed the social climate in their classroom with the GAVIS instrument together with the researcher at two time points (T2-T3) (see Table 3). The time frame was five months. At T4, intervention teachers evaluated their social climate with GAVIS independently. Teachers in the control groups assessed the social climate with the GAVIS instrument independently without the researcher's presence at two time points (T2-T3).

   Action planning: teachers in the intervention group (*n*=4) assessed the social climate in their classroom with the GAVIS instrument. The total dosage for action planning was 180 minutes. Based on needs assessment information from the GAVIS instrument at two time points (T2 and T3), teachers at the same school in the intervention group worked in pairs to reflect on their classroom climate. They decided to make a change in one of the dimen-

sions of the GAVIS model. The teachers, in pairs, could select the domain they wanted to change but often chose the same dimension.

The coaching researcher was available to answer questions if teachers were uncertain how to proceed. As an example, teachers chose to change the participation dimension. Several children were not very involved in group activities in these classes. There was a concern among the teachers that these students did not feel like they were valued members of the group or that they belonged. The teachers aimed to engage all students in daily activities with their classmates. Furthermore, after choosing a domain to change, the teachers planned one action. Cooperative learning was the action planned in this example. The students were divided into groups of three children each. The children were assigned one of several roles: secretary, chairperson, and thinker. Whenever the teacher gave a question or task, the students were expected to collaborate within their roles.

Table 3. Timeframe for intervention and pre- and post-data collection.

Oct-Nov 2019	Oct-Dec 2019	Mar-May 2020	May 2020
T1	T2	T3	T4
Pre-data collection	Intervention	Intervention	Post-data collection
UMESOL ESBA HIFAMS DLS-base LUKIMAT	GAVIS, 90 min CLASS, 60 min COACHING, 90 min	GAVIS, 90 min CLASS, 60 min COACHING, 90 min	UMESOL ESBA HIFAMS DLS-base LUKIMAT
	Control GAVIS	Control GAVIS	Intervention GAVIS

Note. The table is included in the submitted manuscript III.

Observations: Four intervention classrooms were assessed using the CLASS instrument at two time points: pre- (T2) and post- (T3). The researcher collected information on general classroom practice and the chosen domain through observation and recording during regular school hours. Two

observation sessions were conducted, with a total dosage of 120 minutes of video recording. No observations were conducted in the four control classrooms.

Professional conversations: were conducted between the intervention teachers and the researcher at two time points, (T2) in October-December and (T3) in March-May. During these coaching conversations, the intervention teachers were one to one with the researcher, in total, for 180 minutes. This component focused on identifying challenges and successes relating to teaching practices as gathered from the GAVIS and CLASS instruments (Snyder et al., 2015). Based on the strengths of the teaching practices, the feedback was intended to provide support and information about performance (Snyder et al., 2015).

Table 4. Overview of the Practice-Based Coaching PBC components

Component 1: Action planning	Component 2: Observation	Component 3: Professional conversation
Reflection on the social climate in the learning environment and assessment by GAVIS.	Observation with the CLASS instrument.	Discussion and reflection on teacher practices gathered from GAVIS and CLASS instruments.
Choose a domain and create an action plan.	Video-record information overall and on the chosen domain.	"See and support" implementation concerning general practice and chosen domains.
Coaching partnership between teacher and researcher.		Share strength-based feedback, providing supportive information.

Note. The table was included in submitted manuscript III.

Missing Data and Attrition

The missing data were imputed using Full Information Maximum Likelihood (FIML). FIML is a missing data estimation approach for SEM, which has been demonstrated to produce parameter estimates and standard errors under MCAR (Missing Completely at Random) and MAR (Missing at Random) (see Enders & Bandalos, 2001). The range of missing at the post-test T4 was 1 % - 6 %.

To estimate parameters in Mplus, FIML was applied. This method makes use of all the available data in the model in order to estimate the parameter values. Several variables were associated with attrition, including UMESOL 5 %, ESBA 1 %, HIFAMS 5 %, DLS 5 %, and LUKIMAT 6 %.

Overview of Studies

Table 5. Overview of the three studies in the thesis.

No. of Study	Design	Participants	Instruments	Data collection	Data analysis
Study I	Cross-sectional	143 students	ESBA	Baseline	Descriptive statistics. Confirmatory factor analysis.
Study II	Cross-sectional	143 students	UMESOL ESBA HIFAMS DLS-base LUKIMAT	Baseline	Descriptive statistics. Structural and measurement SEM model.
Study III	Experimental	8 teachers 143 students	GAVIS CLASS Teacher Coaching UMESOL ESBA HIFAMS DLS-base LUKIMAT	Two time points during the intervention. Pre- and post-test.	Descriptive statistics. Autoregressive model analysis.

Instruments

Self-assessment Instrument GAVIS

The GAVIS instrument´s ten domains describe the social environment in the classroom, which is linked to positive student outcomes (Allodi, 2007; 2014). The following is a brief description of the domains. *Stimulation:* Engaging in satisfying activities, such as play, laughter, and breaks, provides stimulation. In addition, it can also be about positive emotions and engaging and enthusiastic teaching. *Achievement:* Refers to a learning environment in which children are given the opportunity to develop their abilities and skills to the fullest extent possible. *Self-efficacy:* Students develop self-efficacy as a result of their teachers' belief in their ability to learn and from the support that they receive from the teachers. *Safety:* Teachers strive to provide students with a safe and secure environment through appropriate structures and procedures. *Control:* The teacher's supervision and direction of student interaction. Introducing rules and ensuring their compliance leads to a sense of well-being and participation. *Helpfulness:* Refers to environments that foster cooperation, support, and friendly relationships between teachers and students. *Participation:* Each student feels a sense of belonging and a sense of value as a member of the group. *Responsibility:* Taking responsibility for important tasks is encouraged among students. *Influence:* Allowing students to be heard and express their opinions. To maintain influence, all voices must be allowed to be heard. *Creativity:* The learning environment facilitates the development of creativity and free expression through a variety of media, which acts as a counterbalance to the school's criteria and control requirements. (Allodi, 2010a).

The GAVIS questionnaire has five items per dimension (described above) and is a 50-item teacher-reported instrument. GAVIS is assessed on a Likert scale that ranges from 1 to 5: (1) great challenge, (3) development opportunities, and (5) strength. The social climate score is derived by summing all items on each dimension, with a maximum score per dimension of 25 and a total score of 250. Descriptive statistics of GAVIS are reported in (Wikman et al., 2023).

In Sweden, GAVIS (Allodi, 2002) was developed based on the conceptual model of classroom climate and empirically on the analysis of student narratives regarding their experiences of the classroom climate. Additional studies have operationalized GAVIS as a student questionnaire (Allodi,

2007). An assessment questionnaire for teachers has been piloted by several smaller studies (Allodi et al., 2015; 2018). The GAVIS classroom observation protocol is being developed (Ginner Hau et al., 2022; Westling Allodi & Ringer, 2022).

Observational Instrument CLASS

The CLASS instrument (Hamre et al., 2007) measures the classroom environment regarding the interactions between teachers and students as the primary way students learn and develop (Hamre & Pianta, 2005). The instrument consists of three primary domains and ten dimensions, which are linked to positive student outcomes: the Emotional Domain = Dimensions of Positive Climate, Negative Climate, Teacher Sensitivity, and Regard for Students' Perspectives; the Classroom Management Domain= Dimensions of Behavior Management, Productivity, and Instructional Learning Formats; the Instructional Domain= Concept Development, Quality of Feedback, and Language Modeling. Each dimension is assessed on a seven-point Likert scale: low (1, 2), mid (3, 4, 5), and high (6, 7). A scoring average is calculated for each domain. For Negative Climate, the average score is reversed by subtracting eight from the average NC score. The maximum score is 70 (Pianta et al., 2008).

In the Emotional Domain, the focus is on the levels of positive and negative interactions between students and the teacher's awareness of students' academic and emotional needs as well as their autonomy. In the Classroom Management Domain, the teacher is assessed on the ability to manage student behavior effectively, utilize time effectively, and maintain student interest. In the Instructional Domain, teachers are evaluated for their ability to stimulate students' thinking skills, provide feedback effectively, and promote language development (Pianta et al., 2008).

Raters may observe for one to six cycles. The observation period for each cycle is 20 minutes (Pianta et al., 2008). As part of the present study, a researcher trained in rating classrooms observed each classroom for three cycles, pre- and post-observation. Having completed a two-day workshop on the CLASS system, this researcher passed a reliability test within one point of the master-coded tapes on 80 percent of scores across five video clips. To maintain certification, the researcher is required to pass this test every year.

CLASS was developed in the United States at the Curry School Center for Advanced Study of Teaching and Learning to assess quality in pre-kindergarten –grade 12 classrooms. The instrument has been validated in

over 4,000 classrooms, and the program is used widely throughout the United States and several other countries. The current study focuses on the K-3 version (preschool through third-grade classrooms) (Pianta et al., 2008). In past research with CLASS, intraclass correlation coefficients for the domains were 0.77 for emotional support, 0.82 for classroom organization, and 0.73 for instructional support, respectively. ICC for the dimensions ranged from 0.64 to 0.78, except for Negative Climate 0.50 (Allen et al., 2013).

In the present study, CLASS items ranged from 2.75 to 5.83 (SD=0.96-1.11); descriptive statistics of the instrument CLASS are reported in (Wikman et al., 2023). Due to the limited number of classrooms (i.e., four classrooms in two schools), no group-based statistical analyses were conducted with the CLASS assessment instrument.

Comparison GAVIS and CLASS

GAVIS and CLASS share the majority of domains (see Table 6). Still, there is no corresponding domain in the GAVIS instrument for the language modeling dimension in the instructional support domain of the CLASS instrument.

Table 6. GAVIS and CLASS domain comparison

GAVIS domains	CLASS domains
Creativity	Emotional and instructional support
Stimulation	Classroom management and instructional support
Achievement	Emotional and instructional support and classroom management
Self-efficacy	Emotional support
Safety	Emotional support and classroom management
Control	Classroom management
Helpfulness	Emotional support
Participation	Emotional support
Responsibility	Classroom management
Influence	Emotional support

Self-concept: Child Report

The UMESOL is a child-rated, 20-item measure of a child's self-concept (Taube et al., 1984). The items address the level of confidence one has in one's ability to cope with peer relationships and schoolwork. UMESOL is assessed on a two-point Likert scale (1) for positive self-concept and (0) for negative self-concept. In previous research with UMESOL, the mean sum score was 16.34 ($SD = 2.54$), and the reported split-half reliability was 0.49 (Taube et al. 1984). The present study's mean sum score was 12.13 ($SD = 2.79$), and split-half reliability was 0.72. The instrument's factor structure was tested using confirmatory factor analysis (CFA) with self-concept as a latent variable. Following the parceling technique that Little et al. (2013) mapped, the 11 items with the highest factor loading were randomly divided into parcels: a_selfp1, a_selfp2, and a_selfp3. Across the three self-concept parcels, there was a positive and moderate correlation ($r > 0.33$). For further information, see Wikman et al. (2022).

Prosocial School Behaviors: Teacher-rated

The ESBA, Pennefather & Smolkowski, 2015) is a teacher-rated assessment of prosocial behaviors at school. The ESBA is composed of 12 items rated on a three-point Likert scale. Low scores indicate less than typical behavior, while high scores indicate more prosocial behavior. In prior research with ESBA, it was found that there was a high degree of internal reliability (Cronbach's alpha = 0.94) (Pennefather and Smolkowski 2015).

In the present study, the average score of Cronbach's alpha was 0.92, and the mean score on the items ranged from 2.2 to 2.9. With parceling, a latent variable for prosocial behavior was constructed. The 12 items of the test were constructed with means and randomly divided into parcels named a_socp1, a_socp2, and a_socp3. There was excellent internal reliability for the total average score (Cronbach's alpha = 0.94). The latent factor *prosocial behavior* demonstrated that items a_socp1 – a_socp2 were positively and highly correlated ($r > 0.83$). For further information, see Wikman et al. (2022).

Well-being: Child Report

The "How I Feel About My School" (HIFAMS Allen et al., 2018; Ford, 2013) questionnaire is a child-rated measure of subjective well-being at

school. HIFAMS consists of seven items rated on a three-point Likert scale. Each student responded by selecting an emoticon representing the appropriate emotion: sad (0), OK (1), and happy (2). A higher score indicates greater well-being. The total score is the sum of the items on this scale (scores ranging from 0 to 14). Previous research indicated that the sum score ranged between 10.7 (*SD* 2.6) and 11.1 (*SD* 2.4), and Cronbach's alpha ranged between 0.62 and 0.67 (Allen et al., 2018). Based on the results of the present study, the total average score demonstrated moderate internal reliability (Cronbach's α =0.76). There was an average sum score of 11.4 (*SD* 2.0). With parceling, a latent variable for well-being was created. The seven items of the test were constructed from the means and randomly assigned to the parcels named a_wellp1, a_wellp2, and a_wellp3. Additionally, the latent factor well-being showed that items a_wellp1 - a_wellp3 were positively and moderately correlated ($r > 0.57$). For further information, see Wikman et al. (2022).

Reading Skills: Child Performance Task

The DLS base standardized diagnostic test (Järpsten & Taube, 2013) measures students' reading comprehension and fluency. An interwoven story of 20 sentences is included in the measure. For children in second grade, the reading time was five minutes. The maximum score was 20. The internal reliability of the reading skills constructs (parcels) calculated using Guttman's split-half coefficient was 0.71. Using parceling, it was possible to construct a latent variable for reading skills. A total of four parcels, Lt1-Lt4, were constructed with the means of five items per parcel. The latent variable *reading* indicated that items a_lt1 to a_lt4 were positively and moderately correlated ($r > 0.24$). For further information, see Wikman et al. (2022).

Math Skills: Child Performance Task

The LUKIMAT test (Koponen et al., 2011) is a measure of a student's mathematical ability. A Swedish version of the test was used. The total score on the test was 52 points. The test was adapted and designed according to the needs of students of this age group. The test is divided into six items: assessment of smallest/largest number, comprehension of sequences of numbers, mastering number symbols, addition, subtraction, and money counting (Koponen et al., 2011). There was a completion time of 40 minutes. Parceling was used to create a latent variable for math skills. The six items were divided into parcels and built using the means a_ord, a_seq, a_num, a_ari,

and a_mon. Based on their similarity (counting addition and subtraction), the fourth and fifth items conveyed one parcel, a_ari. Good internal reliability was evidenced by the average score (Cronbach's alpha = 0.83). The latent factor *math* showed that items a_ord, a_seq, a_num, a_ari, and a_mon were positively and moderately correlated ($r > 0.52$). For further information, see Wikman et al. (2022).

Statistical Analyses

Statistical analyses were constructed in all three articles using SPSS and Mplus version 8.4 (Muthén & Muthén, 1998-2017). SPSS was used to examine the univariate normality (item and scale level), item-total correlations, split-half reliability (Guttman's), and scale reliability (Cronbach's alpha). The Mplus program was used to run different models. Changes to all the tested models were guided by theory and modification indices (Brown, 2015). The determination of model fit was based on the cut-offs for several fit indices: the Comparative Fit Index (CFI, value at or greater than 0.95), Root Mean Square Error of Approximation (RMSEA, value at or below 0.08), and Standardized Root Mean Square Residual (SRMR, value at or below 0.08) see e.g., Kline, (2016).

A maximum likelihood with robust standard errors (MLR) estimator was used to construct the models in study I. This study did not contain any missing data. Due to prior evidence supporting a one- and two-factor structure, a series of CFA were planned, starting with the most parsimonious model (one-factor) and progressing to a two-factor model. The one and two-factor CFA indicated the need to test additional models. The exact fit could be determined based on the chi-square test (p >.05; Kline, 2016).

Study II examined the measurement and structural SEM model in Mplus to test Hypotheses 1 and 2. A maximum likelihood (ML) estimator was used for the tested model. In order to estimate the missing data, FIML was used.

In study III, an autoregressive measurement and structural SEM model with equivalent constraints were examined in Mplus (Figure 2). An MLR estimator was used for the tested model. The missing data were estimated with FIML. The model consisted of parcels in the SEM model and corresponding items from the self-concept index (11 items), ESBA questionnaire (Soc 1–12), HIFAMS (Well 1–7), Literacy test (Lt 1–20 items), and Math test (1–52 items) (see Wikman et al., 2022). The parcels' measures are the

means of the corresponding items using the parceling technique outlined by Little et al. (2013).

Structural Equation Modeling

Structural equation modeling (SEM) is a statistical procedure that allows the estimation of the unobserved latent variables from the observed indicators and the relations between the latent variables (Kline, 2016). Adaptability is an additional advantage, as it allows for the modeling of multiple complex relationships, including indirect and direct associations and effects, as well as interactions between them (Kline, 2016). The model in Study II was run with the ML estimator, the default estimator for a CFA model with correlated factors measured by continuous factor indicators (Muthén & Muthén, 1998-2017). Study I and Study III had data that were not normally distributed. Therefore, data analyses were conducted using the MLR estimator. This estimator means that a numerical integration algorithm was used. Numerical integration becomes increasingly more computationally demanding as the number of factors and the sample size increase (Muthén & Muthén, 1998-2017).

Parceling

Parceling refers to the process of computing average scores or sums across multiple items. In SEM, parcels, as opposed to individual items, are used as indicators of latent factors (Little et al., 2002). For structural model estimation, parcels are preferred to items, particularly when small sample sizes, since parcels have fewer estimated parameters, are more parsimonious, and are less likely to generate correlated residuals or dual loadings (Little, 2002). In this thesis, parceling was used in studies II and III.

Reliability

Reliability determines whether a measurement's results can be trusted (Shadish et al., 2002). Regarding the observation, an expert on rating classrooms according to CLASS was trained to observe each classroom for three cycles, including pre- and post-observations. The researcher passed a reliability test within one point of the master-coded tapes on 80 percent of the scores across

five video clips after attending a two-day workshop on the CLASS system. This test is required every year in order for the researcher to maintain certification.

Validity

The term 'validity' refers to the approximate truth of an inference, i.e., the correlation between the theoretical and the operational definition. The assessment of validity requires judgments; therefore, validity is not absolute. Different degrees of validity can be determined (Shadish et al., 2002).

Statistical conclusion validity concerns how substantial the inference about treatment and outcome is (Shadish et al., 2002) and entails choosing appropriate statistical methods. With the analyses conducted in this thesis, missing data could be imputed; in addition, the parceling approach supports the use of reliable indicators even with small samples; the use of SEM reduces the likelihood of inflating Type I errors.

Construct validity refers to the trustworthiness of inferences concerning the relationships between the assessments and the representative constructs. This entails the "double challenge," that is, assessing the construct in addition to understanding it. (Shadish et al., 2002). Regarding the first challenge, understanding, this thesis builds on existing research. A combination of previous evidence of the psychometric properties of the instruments and the application of statistical tools, primarily CFA and reliability estimations, was used to determine the second point (how well the observed indicators assess the intended phenomenon).

Internal validity in an intervention refers to the credibility that any relationship between treatment and outcome is causal (Shadish et al., 2002). It is more commonly viewed as a goal to strive for, rather than an ideal to be perfectly met. Studies I and II were cross-sectional, and the variables were measured simultaneously. The purpose of these studies was to evaluate the validity of the instruments so that they could be used in study III. Testing was conducted following the exact instructions and standardized procedures to minimize possible threats to validity. Study III was conducted in 2019 and 2020. The intervention was carried out in the spring of 2020 when the COVID-19 pandemic negatively affected the human population worldwide,

and no vaccines were available. The elementary schools in Sweden remained generally open during the spring of 2020. Still, local health authorities could decide to shut down a school if many teachers or students were infected. The schools in this study were not shut down, but the participant students and teachers could have been affected by the unfolding of the pandemic during this time. Despite the lack of information about whether Covid circumstances affected participants, the school and social environment in which the events occurred were unprecedented and exceptional (Taylor et al., 2022). These circumstances can be considered a "history" that is an event other than the independent variable that occurred, which might threaten the study's internal validity (McMillan, 2007; Shadish, 2002).

External validity concerns whether a test would produce the same results over time and from each participant. This thesis utilized convenience sampling, which limits the generalizability of these findings to children in other Swedish elementary schools in grade two and other grades and ages that are not included in the sample.

Ethical Considerations

This project was reviewed by the Swedish Ethical Review Authority, protocol number (#2019-03058), and it was determined by this authority that it did not need to ethically vet the study or give ethical approval. Several ethical considerations were considered and helped shape the study procedures.

Written informed consent was obtained from headmasters, teachers, parents, and students. This ethical consideration (active, informed consent) was implemented due to the participating children's age. Students may not understand the purpose of a study at a young age (Alderson, 2014). For this reason, oral and written information was given clearly and age-appropriately. There were a few instances where children consented, but the parents did not. Therefore, this group of children was offered other non-research activities during the research sessions. As a result, the students may have felt unwillingly excluded at those times, which posed a challenging situation. The researcher was available to these students if they desired, allowing them to ask questions. There were two instances where a student did not wish to proceed with the survey or test. Participation was voluntary, so those students stopped participating and were allowed to continue later if desired.

There was also the ethical consideration that the teachers may feel pressured to participate by the headmaster. An informational meeting was held with the researcher and teachers in pairs to prevent this. It was apparent that teachers felt uncomfortable being videotaped in their classrooms. An observer must maintain a discrete demeanor to avoid disrupting participants' work (Hammersley, 2014). Participants were aware of the observer at the beginning of the study, but as the observation progressed, they became unaware of the observer's presence. Stress is another risk associated with participation in the study for teacher participants. Teachers in Sweden are generally overworked. Taking these factors into account, the study reduced the amount of time that teachers were required to spend attending additional meetings. As a result of the hoped-for benefits of knowledge gained, there are potential harms and inconveniences to participants that these potential benefits could justify.

In order to maintain the confidentiality of the students, a coding system was developed, which allowed the matching of tests and questionnaires for each individual to be secured. For researchers, this resulted in data files that contained no personally identifying information, as well as the replacement of school names and class names by codes. All the collected data were stored in a secure location.

Results

Summary of Findings of Study I

Psychometric Properties of the Elementary Social Behavior Assessment (ESBA) in Swedish Primary School: A Teacher-Rated Index of Children´s Prosocial School Behaviors. Co-authors: Mara Westling Allodi and Laura Ferrer-Wreder.

In this cross-sectional study, the main objective was to examine the psychometric properties of the Swedish adaptation of the ESBA. Based on the results of this sample, the mean ESBA scores ranged from 2.2 to 2.9, indicating that the majority of teachers believed that their students had mastered the social skills examined in this study. There was a positive and significant correlation between items ($r > .48$) in addition to a very high level of internal reliability (Cronbach's $\alpha = 0.92$).

Based on the results of the CFAs, Tables 7 and 8 (Wikman et al., 2021) provide a description of fit indices and standardized item loadings.

Table 7. Fit indices of the three models. Confirmatory factor analysis

Tested models	Single factor	Two factors	Three factors
Fit statistics			
x2	80.2	74.6	66.3
Df	50	51	48
p- values	<.00	<.02	<.04
CFI	.941	.954	.964
RMSEA	.065	.057	.067
SRMR	.054	.054	.050

This table reports the model fit for a one-, two- and three-factor ESBA confirmatory factor analysis (CFA). Acceptable model fit is a Comparative Fit Index (CFI value at or higher than .95), Root Mean Square Error of Approximation (RMSEA, estimated value below at or below .08), Standardized Root Mean Square Residual (SRMR value at or below .08), and non-significant p-value > 0.05 (Kline, 2016). Tables 7 and 8 are included in study I (Wikman et al., 2021)
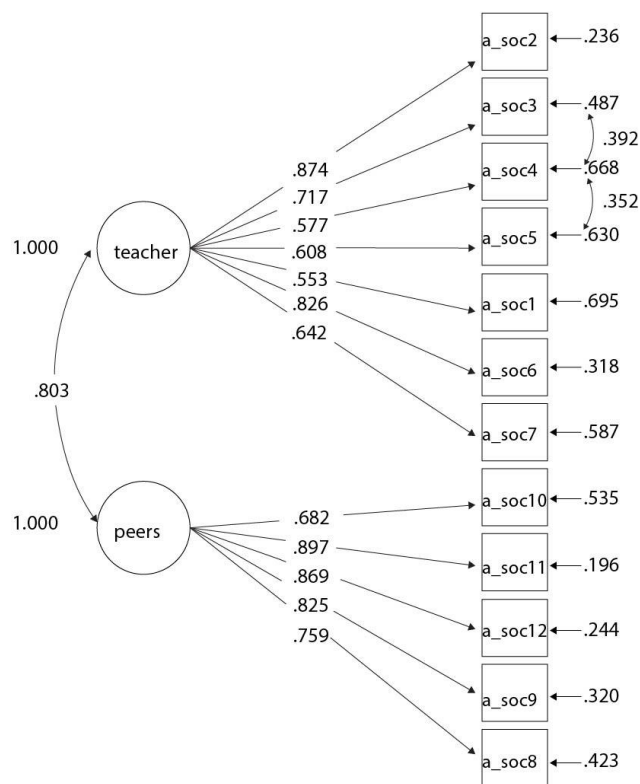
Table 8. Factor loadings.

No	Item	Single factor Soc.	Two factors Teacher	Two factors Peer	Three factors Teacher	Three factors Work	Three factors Peer
	Latent variables	*Soc.*	*Teacher*	*Peer*	*Teacher*	*Work*	*Peer*
1	Listens to and respects the teacher	.53	.55		.54		
2	Follows the teacher´s directions	.84	.87			.91	
3	Works with effort	.68	.72			.74	
4	Does seatwork assignments as directed	.57	.58			.60	
5	Makes assistance needs known in an appropriate manner	.62	.61			.61	
6	Follows rules	.80	.83		.88		
7	Avoids breaking rules even when encouraged by a peer	.63	.64		.67		
8	Behaves appropriately outside the classroom	.73		.76	.42		.41
9	Works out strong feelings appro-priately	.83		.83			.82
10	Can have "normal" conversations without becoming hostile	.69		.68			.70
11	Gets along with peers	.78		.90			.90
12	Resolves peer conflicts adequately without teacher assistance	.75		.87			.88

None of the 12 ESBA items loaded onto a single factor had an acceptable fit on the CFI index (e.g., 0.94), but they all had an acceptable to good fit on all other indices. Standardized factor loadings for the single-factor model were from 0.53 to 0.84. The two-factor CFA was based on previous ESBA analyses in Norway (Arnesen et al., 2018), with the first factor called Teacher (called Academic Engagement in the Norwegian study, Arnesen et al., 2018) with seven items (items 1 – 7 see Table 2 for items) (Wikman et al., 2021), and the second factor entitled Peer with five items (items 8 – 12), see Table 2 for items Wikman et al., 2021). See Figure 4 for CFA. Standardized factor loadings for the two-factor model were from 0.55 to 0.87 for the Teacher factor with seven items and 0.68 to 0.90 for the Peer factor with five items. The latent correlation between these two factors was significant and positive at 0.80. Cronbach's alpha for items on the Teacher factor was 0.86, and for the Peer factor was 0.90.

A three-factor model was tested based on the contents of the items. See Figure 5. Factor 1 consists of items related to teacher instructions aimed at enhancing a student's academic engagement. In factor 2, items relate to students' social competence when working independently, while in factor 3, items relate to situations when students are working with or playing with other students. Standardized factor loadings for items on these three factors were generally acceptable, with the exception of item 8. This item loaded at 0.42 on the peer and teacher factors. The content for item eight is "Behaves appropriately outside the classroom." Standardized factor loadings for the Teacher factor ranged from 0.42 to 0.88 (Cronbach's scale alpha = 0.78), Work ranged from 0.60 to 0.91 (Cronbach's scale alpha = 0.85), and for Peer ranged from 0.42 to 0.91 (Cronbach's scale alpha = 0.90). The latent correlations between these factors ranged from 0.74 to 0.89

Figure 4.

The results from a CFA of a two-factor model with a good fit. Standardized factor loadings are acceptable for the teacher factor, with loadings ranging from 0.55 to 0.87 (Cronbach's scale alpha = 0.86) and the peer factor ranging from 0.68 to 0.90 (Cronbach's scale alpha = 0.90). The latent correlation between these two factors is significant at .80. This figure was included in published study I (Wikman et al., 2021).

Figure 5.
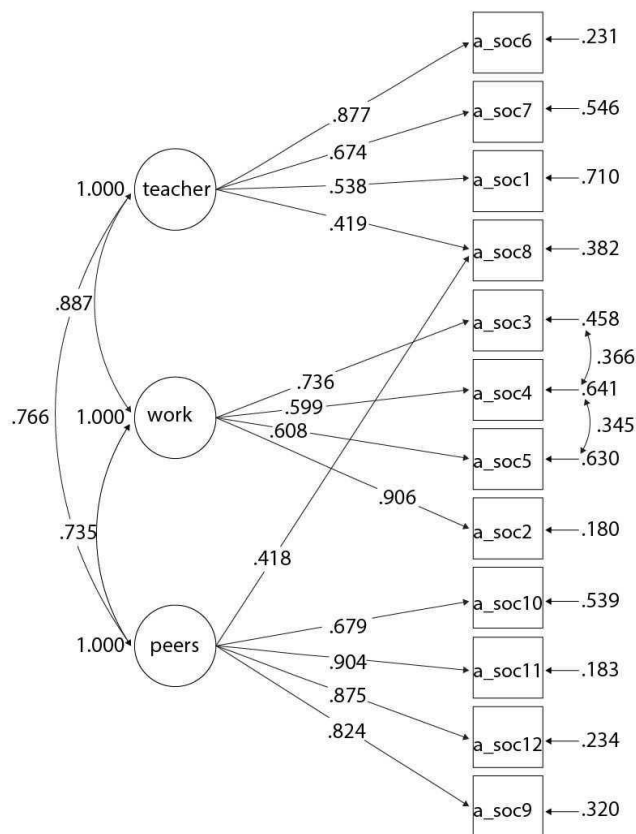
The results from a CF of a three-factor model with a good fit. Standardized factor loadings are largely acceptable except for item 8 (item loads 0.42 and 0.42 on two factors; the item is "Behaves appropriately outside the class-room"). Acceptable standardized factor loadings for the teacher factor range from 0.54 to 0.88 (Cronbach's scale alpha = 0.78), the work factor ranges from 0.60 to 0.74 (Cronbach's scale alpha = 0.85), and the peer factor ranges from 0.42 to 0.91 (Cronbach's scale alpha = 0.90). The latent correlations between these factors are positive and significant, ranging from 0.74 to 0.89. This figure was included in published study I (Wikman et al., 2021).

Summary of Findings of Study II

Self-Concept, Prosocial School Behaviors, Well-Being, and Academic Skills in Elementary School Students: A Whole Child Perspective. Co-authors: Mara Westling Allodi and Laura Ferrer-Wreder.

The purpose of this cross-sectional study was to examine the associations among children's self-concept, prosocial behaviors, well-being, and academic skills and assess whether there were differences by gender for each of these constructs. As shown in Table 1 by Wikman et al. (2022), the descriptive statistics for the instruments are summarized with sum scores, standard deviations, and variances. The descriptive statistics (e.g., mean, standard deviation, variance, skewness, and kurtosis) are presented in Appendix A (Wikman et al., 2022). At the parcel level, item correlations and internal reliability were examined for all items, and reliabilities are reported in the Measures section in Wikman et al. (2022). Appendix B in Wikman et al. (2022) contains the parcels and items. The standardized estimates of the structural model with the correlation between the latent variables can be found in Appendix C (Wikman et al., 2022).

Hypotheses 1 and 2 were tested using a SEM model with five latent variables: self-concept, prosocial behaviors, well-being, reading, and math, as shown in Figure 6. Initially, it was hypothesized that there would be a moderately positive association between these five latent constructs (Hypothesis 1). To examine the possibility of gender differences in the study constructs, particularly for prosocial skills (Hypothesis 2), gender was also included in the model. Additionally, the model provided CFAs for all latent constructs in the model (i.e., a test of the construct validity of the measures used with their respective factor loadings and error variances). As a result of the tested SEM model, the overall model fit was acceptable. The SEM model fit indices for the measurement and structural model tested in Figure 6 were $X^2 = 242$ and df = 138, p < 0.00. The CFI was 0.90, RMSEA was 0.07, and SRMR was 0.07. Due to the present study's sample size, the chi-squared value could be overestimated (Kenny et al., 2003), and the RMSEA and SRMR fit measures met the cut-off values (Kline, 2016). The overall fit of the model was therefore considered acceptable. All factor loadings for the five latent construct parcels were significant in terms of the measurement aspects of the model (Figure 6).

Regarding Hypothesis 1, the correlations between latent variables were low to moderate (ranging between 0.01 and 0.69; Appendix C, Table A3) (Wikman et al., 2022). A moderately high significant correlation was found between reading and math (0.59), constituting academic achievement. The indicators of social-emotional competence that included children's self-concept (an indicator of self-awareness) and teacher-rated prosocial behaviors (an indicator of social awareness and relationship skills) were moderate and significantly (0.48) related to one another, which was consistent with the CASEL model. Based on the other important indicator of the whole child in the present study, children's self-rated well-being at school demonstrated a moderately high and significant correlation with self-concept (0.69) and a moderate and significant correlation with prosocial behavior (0.43). Furthermore, academic achievement and prosocial behavior were moderately and significantly correlated, i.e., reading—prosocial behavior (0.20) and math—prosocial behavior (0.32). A moderate and significant correlation was found between math and well-being (0.23).

Figure 6.
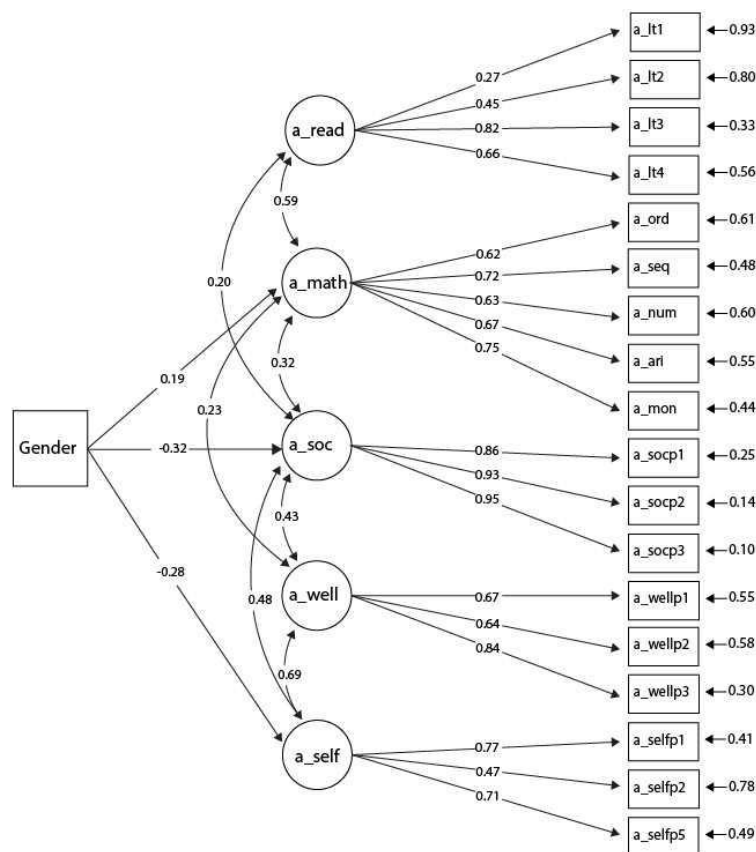
Structural and measurement SEM model tested with standardized estimate coefficients between observed variables (parcels) and latent variables (a_read, a_math, a_soc, a_well, a_self); correlations between latent variables; significant standardized estimates of math skills, prosocial school behaviors (soc), and self-concept (self) on gender (gender coded: female=1 and male=2). The figure was included in published study II (Wikman et al., 2022).

Hypothesis 2 was tested by including gender in the SEM model. While the analysis was primarily concerned with gender-related differences in prosocial skills, it also investigated the possibility of other gender-related differences across all the major study constructs. Significant standardized path coefficients were found between gender and math performance (0.19), gender and prosocial behavior (-0.32), and gender and self-concept (-0.28). As a result, boys scored higher on math tests in this sample than girls, and girls scored higher on prosocial behavior and self-concept tests than boys. Standardized estimates and effect sizes (ES) are reported in Wikman et al. (2022) (see Table 6).

Summary of Findings of Study III

A Cluster Randomized Controlled Trial of a Teacher Coaching Intervention A Proof of Concept Study. Co-authors: Mara Westling Allodi and Laura Ferrer-Wreder.

This study aimed to test the effects of a practice-based coaching intervention that involves the introduction of certain activities, self-assessment, observation, and coaching that could beneficially change the social climate in learning environments and students´ self-concept, prosocial behavior, well-being, and academic achievement. Descriptive statistics on the instruments UMESOL, ESBA, HIFAMS, DLS-base, and LUKIMAT at pre-test, including sum scores, standard deviations, parcels, and items, are presented in Wikman et al. (2022). Furthermore, descriptive statistics are presented for GAVIS and CLASS since there were four classrooms in two schools; consequently, no group-based statistical analysis was conducted for these two assessment instruments in Wikman et al. (2023). The correlations of the items and the internal reliability were examined for all items at the parcel level for UMESOL, ESBA, HIFAMS, DLS-base, LUKIMAT, and GAVIS (Wikman et al., 2023).
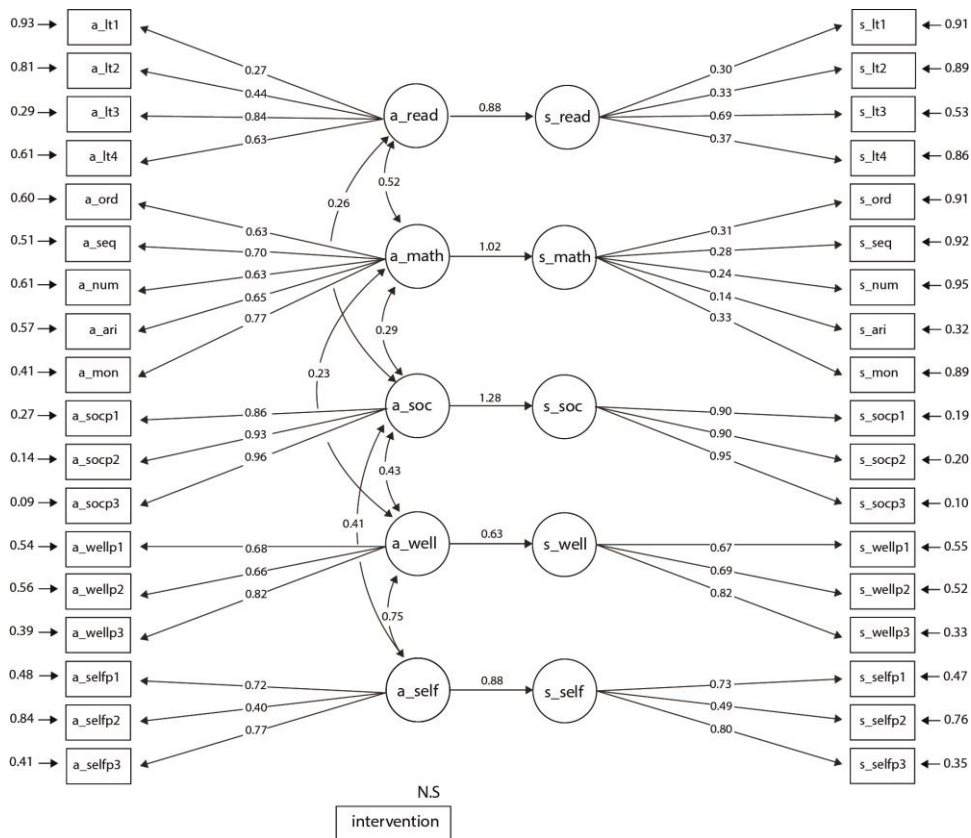
An autoregressive measurement and structural SEM model with five latent variables were used to analyze the research questions: self-concept, prosocial behaviors, well-being, reading, and math (see Figure 7). A dummy variable representing the intervention was used in this model, along with

GAVIS scores, in order to examine the impact of the intervention. A CFA was also provided for all latent constructs in the model as part of this model.

According to Figure 7, the SEM model fit indices for the measurement and structural model were $X^2 = 939$ and df = 650 p < 0.00. The Comparative Fit Index (CFI) was 0.88, the Root Mean Square Error of Approximation (RMSEA) was 0.06, and the Standardized Root Mean Square Residual (SRMR) was 0.08 (Wikman et al., 2023). The chi-squared value could be overestimated due to the present study's sample size (Kenny, 2003), and the RMSEA and SRMR fit measures met the cut-off values (Kline, 2016). The overall fit of the model was therefore considered acceptable. Based on the measurement aspects of the model, all factor loadings were significant for each parcel of the latent constructs (see Figure 7).

Regarding the research questions, low to high correlations were found between the latent variables in the pre-test (ranging between 0.04 and 0.75; see Appendix A, Table A3) (Wikman et al., 2023). A high and significant correlation was found between self-concept and well-being (0.75). The indicators of social-emotional competence that included teacher-rated prosocial behaviors and students´ self-concept correlated moderately and significantly (0.41). In relation to well-being, prosocial behaviors correlated moderately and significantly (0.43). Reading and math skills correlated moderately and significantly (0.52). Additionally, there was a moderate and significant correlation between math skills and prosocial behavior (0.29), math skills and well-being (0.23), and reading skills and prosocial behavior (0.26).

The intervention was included in the autoregressive model in order to test its effect on the social climate. There were significant standardized path coefficients for all latent variables pre- and post-test (ranging from 0.63 to 1.28); see Appendix A, Table A4 (Wikman et al., 2023). The standardized estimates are presented in Table 4 (Wikman et al., 2023). Additionally, standardized path coefficients regarding the intervention were found to be non-significant. Therefore, no observable effects of the coaching intervention were detected at the student level or within the classroom climate.

Figure 7. Autoregressive structural and measurement SEM model tested with standardized estimate coefficients between observed variables (parcels) and latent variables (a_read, a_math, a_soc, a_well, and a_self), correlations between latent variables, and significant standardized estimates of intervention. *Note*. The figure was included in submitted manuscript III.

**Assessing the Social Climate with GAVIS and CLASS**

This study also aimed to test the feasibility and proof of concept; therefore, the descriptive results from assessing the social climate with the instruments GAVIS and CLASS are presented further.

Figure 8. Teachers´ sum scores pre- and post-assessment (T2 and T4) of the social climate with GAVIS. Intervention classes 1-4 and control classes 5-8.
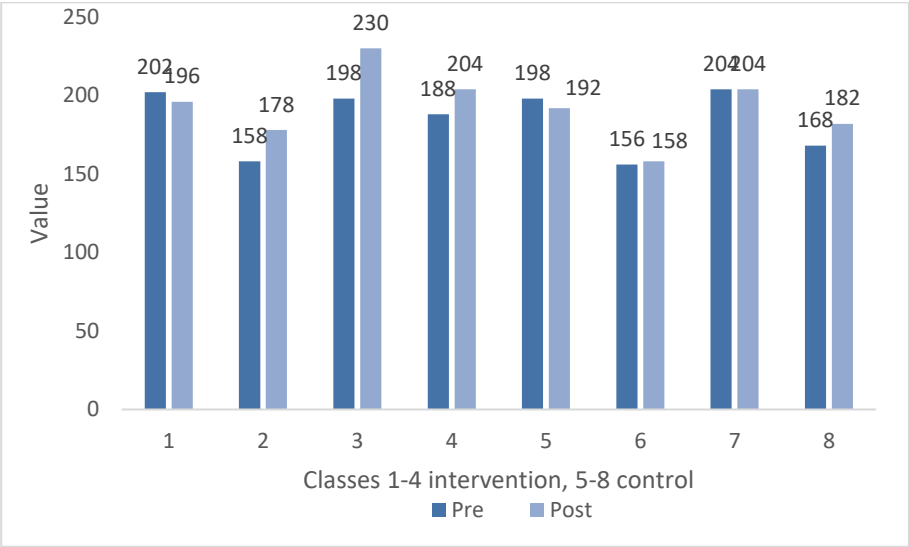
The GAVIS pre-scores in the four intervention classrooms ranged from 158 to 202 (the maximum GAVIS score was 250), whereas the post-scores ranged from 178 to 230. The GAVIS pre-scores in the four control class-rooms ranged from 156 to 204, and the post-scores ranged from 158 to 204. In intervention classes 1-4, three teachers had higher scores on post-assessment than pre-assessment (Figure 8). Scores increased between 18 and 32 points in these classes. The teacher in class 1 had a lower score on post-test 196 than pre-test 202. Teachers´ assessment with GAVIS in the control schools showed higher scores in two schools in the post-test. The increase varied between 2 and 14 points. In class 5, there was a decrease from 198 to 192 points. In class 7, the scores did not change between pre- and post-assessment.

Figure 9. Intervention class 1, teacher´s assessments of the social climate on GAVIS domains at T2, T3, and T4.
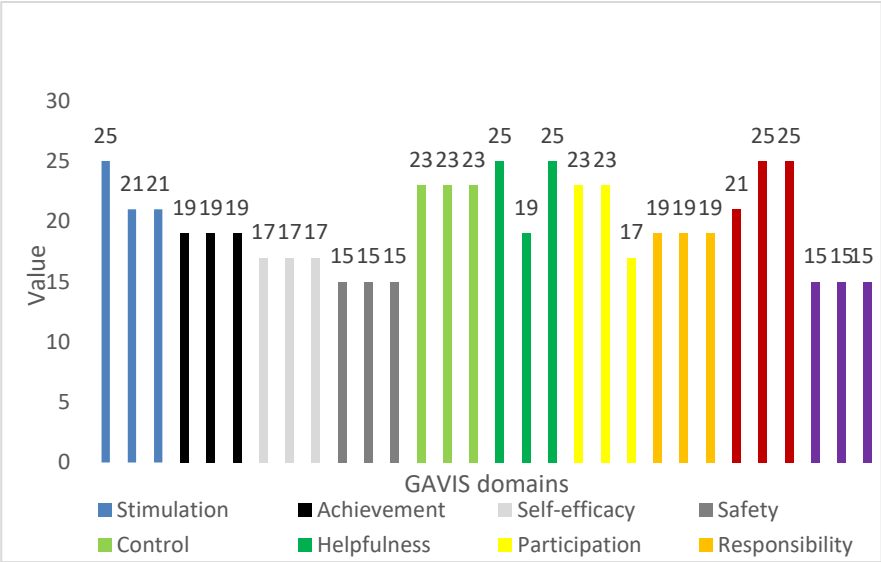
Classroom 1 had high ratings (15-25), with the maximum score in pre-assessment T2 for the domains, stimulation, and helpfulness (the maximum GAVIS score for the domains was 25) as part of the post-assessment, T3, influence, and T4, helpfulness, and influence had the highest scores (Figure 9). There was a decrease at post-assessment at T3 in the domains of stimulation 25-21) and helpfulness (25-19) and an increase in influence (21-25). A decrease was also found at T4 in participation (23-17) and an increase in helpfulness (19-25).

**Figure 10.** Intervention class 2, teacher´s assessments of the social climate on GAVIS domains at T2, T3, and T4.
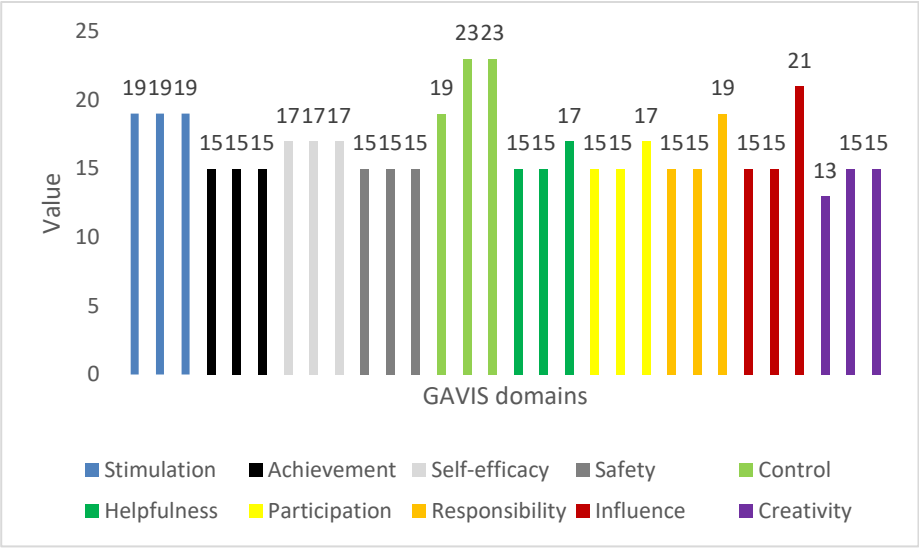
Classroom 2 had lower scores (13-23) than Class 1 (Figure 10). There were higher scores in the post-assessment at T3 for the control (19-23) and creativity domains (13-15); at T4, there was an increase in helpfulness (15-17), participation (15-17), responsibility (15-19), and influence (15-21).

Figure 11. Intervention class 3, teacher´s assessments of the social climate on GAVIS domains at T2, T3, and T4.
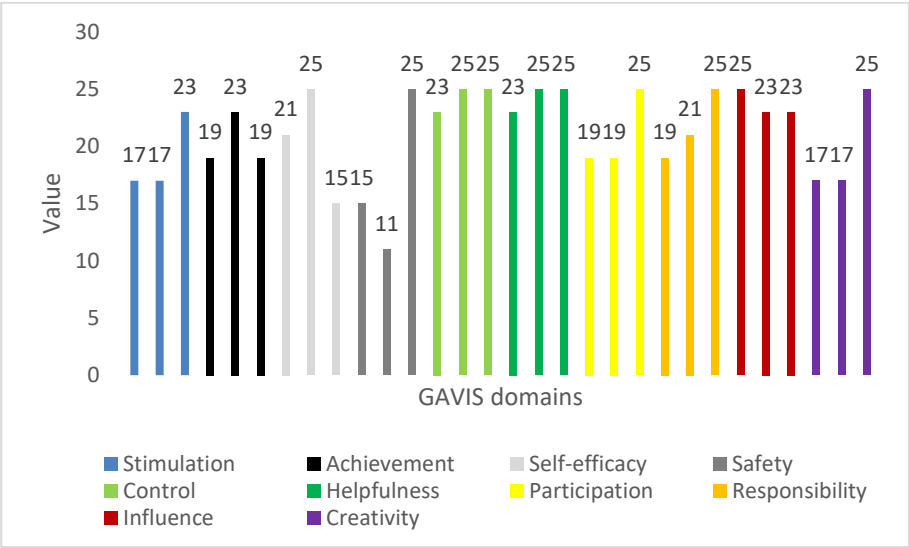
Pre- and post-assessment ratings of Classroom 3 were generally high (11-25), with the maximum score at pre-assessment T2 for the influence domain and the maximum score at post-assessment T3 for the domains self-efficacy, control, and helpfulness (Figure 11). Safety, control, helpfulness, participation, responsibility, and creativity were rated with the highest scores at T4. There were higher scores in the post-assessment at T3 for achievement (19-23), self-efficacy (21-25), control (23-25), helpfulness (23-25), and responsibility (19-21). There was a decrease in safety (15-11) and influence (25-23). Higher scores were also found at T4 for stimulation (17-23), safety (11-25), participation (19-25), responsibility (21-25), and creativity (17-25). Decreases were found for achievement (23-19), self-efficacy (25-15), and influence (25-23).

Figure 12. Intervention class 4, teacher´s pre- and post-assessments of the social climate on GAVIS domains at T2, T3, and T4.
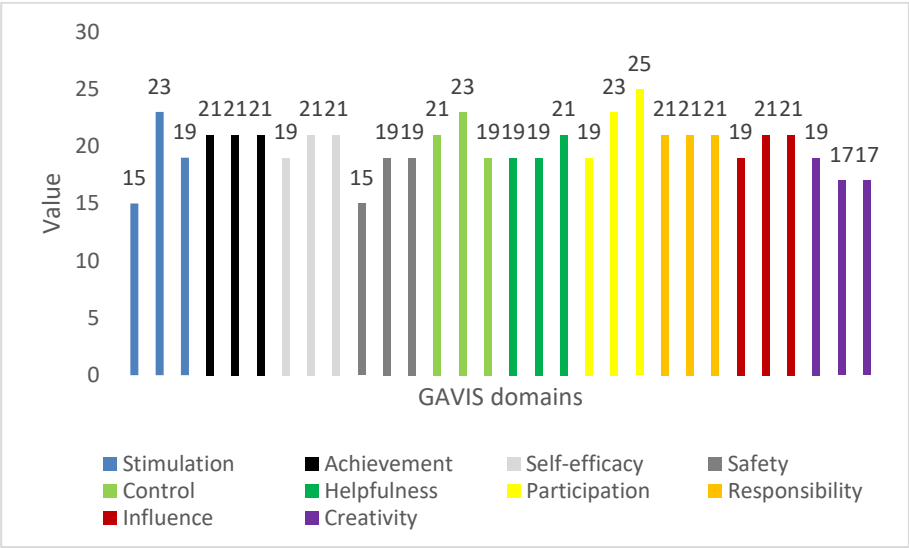

Classroom 4 had, in general, moderate ratings pre- and post-assessments (15-25). Participation was rated with the maximum score at post-assessment T4 (Figure 12). There was an increase in post-assessment T3 in six domains: stimulation (15-23), self-efficacy (19-21), safety (15-19), control (21-23), participation (19-23), and influence (19-21). Creativity (19-17) decreased at T3. At T4, helpfulness (19-21) and participation (23-25) increased. As a result, the level of participation reached its maximum. Stimulation (23-19) and control (23-19) decreased at T4.

Figure 13. Sum score intervention classes at pre-assessment T2 and post-assessment T3 of the social climate with CLASS.
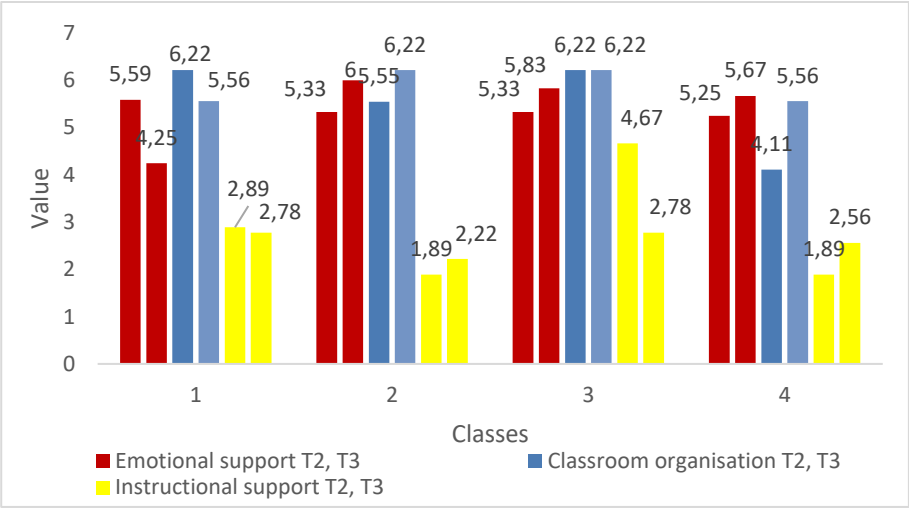
The observational assessment of the classroom climate in the intervention schools using the CLASS instrument showed that instructional support was rated from 1.89 to 4.67 at pre-assessment T2 and at post-assessment T3, 2.22 to 2.78 (the maximum score is seven on the CLASS domain average scores) and CLASS domains other than instructional support received higher ratings (Figure 13). Emotional support scores ranged from 5.25 to 5.59 and 4.25 to 6.00, whereas classroom organization scores ranged from 4.11 to 6.22 and 5.56 to 6.22. In classroom 1, all three CLASS dimensions scores decreased at T3. Classes 2 and 4 had higher scores for all dimensions at T3. Class 3 scored higher at T3 for emotional support, and classroom organization remained unchanged. However, instructional support decreased from T1 to T2 in classroom 3.

In sum, the sample of classrooms was rated highly on emotional support and classroom organization (according to CLASS) and highly on influence, helpfulness, participation, and control (according to GAVIS). The GAVIS domains, influence, helpfulness, and participation, correspond to the CLASS

domain of emotional support, and the GAVIS domain of control corresponds to the CLASS domain of classroom organization.

The process of changing the social climate

Table 9. Intervention process: selected domains and activities.

Class	Domain T2	Activity T2	Domain T3	Activity T3
1	Participation	Cooperative Learning	Self-efficacy	Formative assessment
2	Participation	Cooperative Learning	Self-efficacy	Formative assessment
3	Creativity	Cooperative Learning/ Drama	Participation	Discussing and practic-ing values
4	Creativity	Cooperative Learning/ Drama	Helpfulness	Helpfulness tasks and sharing

After considering the assessment results from GAVIS, the teachers selected one domain to change during component one of the intervention. For collaboration, teachers from the same school selected the same domain on the first occasion T2 (Table 9). On the second occasion, T3, teachers 3 and 4 chose different domains to change. Teachers 1 and 2 chose to change the participation domain on the first occasion, T2, by focusing on collaborative learning strategies. Teachers 3 and 4 intended to change the domain of creativity and selected two activities, drama and collaborative learning.

Following the initial assessment with GAVIS, the teachers self-assessed the social climate of the classroom after five months at T3 to determine whether there had been any changes. The ratings indicated that teacher 1 had the same score on participation (23) at T3 as at T2. Teacher 2 also had the

same score (15) as on the previous occasion. Teacher 3, who chose to change the creativity domain, did not show any change (17), and teacher 4 had a decrease (19-17) in this domain. A partial explanation of the results for teachers 3 and 4 might be that these teachers had focused on collaborative learning and had not had time to implement drama. Rather than increasing creativity, collaborative learning might increase participation to a greater extent. Teacher 3 had the same score (19) on participation as before, whereas Teacher 4 had an increase in this domain (19-23).

As part of their second action planning session at T3, teachers 1 and 2 decided to change the self-efficacy domain with formative assessment. The score for teachers 1 and 2 at post-assessment T4 was the same (17) as the previous assessment. Teacher 3 chose to change participation at T3 by discussing and practicing values with the students. Participation had improved at T4 from a score of 19 to 25. In order to change the domain of helpfulness, teacher 4 provided students with helpfulness tasks and encouraged them to share the results of their activities with others. This domain improved from 19 to 21.

During the second component of the intervention, the observation assessment of the classroom climate showed that all three CLASS domains in classroom 1 decreased. Prior to the observation assessment, teacher 1 disclosed that something had shaken her, resulting her not being her usual self. All the other classes increased in every domain, except for class 3 on instructional support. In the first lesson at T2, teacher 3 engaged with the students to a high degree, but in the second lesson at T3, the students worked alone or with peers. This might have affected the results of the instructional support since the teacher had a more passive role.

The third component of the intervention involved professional conversations with teachers at T2 and T3, who viewed videos one-on-one with the researcher. CLASS focused the teacher's attention on classroom interactions within the domains of emotional support, classroom organization, and instructional support. Teachers received feedback based on their strengths, and challenges were also identified. In addition to being a new experience for the teachers, this was also highly appreciated. Since time had passed since the T2 session, at T3, the focus was also placed on the GAVIS domain that teachers wanted to change. Teachers 1 and 2 had chosen to change the

GAVIS domain participation, corresponding to the CLASS emotional support domain. In order to increase the creativity domain, teachers 3 and 4 decided to use drama and cooperation learning strategies. However, the planned action drama could not be implemented. Since collaborative learning is likely to increase participation, this GAVIS domain was in focus at T3. An example of a coaching session focusing on the emotional support of teacher 1 at T2 and T3 is presented in Table 10.

Table 10. Example of a professional conversation in a coaching session, focusing on emotional support at T2 and T3.

Dimensions of the Emotional Support Domain	T2	T3
Positive Climate	Physical proximity, shared activities, and peer assistance. No social conversations. Some matched affect. Sometimes positive affects, smiled. Some laughter between the children. Sometimes enthusiasm in expectations. No verbal or physical affection. Eye contact and calm voice. Used names and said thanks. Children listened and collaborated.	Physical proximity, shared activities, and peer assistance. No social conversations. Flat affect. The teacher smiled once. No affections. Not much eye contact. Students smiled and made eye contact. Respectful conversations. Used names and said thanks. Children listened and collaborated.
Negative Climate	No negative affect, punitive control, disrespect, or severe negativity.	No negative affect, punitive control, disrespect, or severe negativity.
Teacher Sensitivity	Anticipated problems and planned appropriately. Sometimes noticed a lack of under-	Anticipated problems and planned appropriately. Sometimes noticed a lack of under-

		standing. Provided comfort and assistance. Provided individualized support. Sometimes helped in an effective and timely manner. Helped resolve problems. Sometimes students sought support and guidance, participated freely, and took risks.	standing. Sometimes provided individualized support. Sometimes helped in an effective and timely manner. Helped resolve problems. Did not notice everyone.
Regard for Student Perspectives		No choice or follow students' lead. Gave one student responsibility. The teacher sharpened students´ pencils. Some restrictions of movement.	Moderately teacher-regimented. Small groups with a lot of student talk.

During professional conversations, the teacher and researcher reviewed all three domains by viewing the video film and stopping at particular sequences to reflect (Table 10). Since there was extra focus on the emotional support domain, Table 10 shows what could be reflected in this domain.

Discussion

The overall purpose of this thesis was to conduct a trial of an intervention at the universal level targeting the social climate in the classroom and to empirically examine how the intervention with teacher self-assessment, observation, and professional conversations could potentially benefit the classroom climate and student outcomes. The thesis includes three studies. Two studies provide a basis for understanding student outcomes, and the third reports the results of the intervention trial. The results of each study will be discussed, followed by a general discussion. Generalizability, limitations, implications for practice, and future research close this thesis section.

Study I

Study I investigated the psychometric properties of ESBA, an instrument teachers can use to better understand students' prosocial behavior. The reliability of the observed scale was consistently good across all tested models. Based on the results of the CFA, the one-factor model showed a good fit, with the exception of the CFI fit index. A single factor model has been supported in prior studies in the United States and Norway (Arnesen et al., 2018; Pennefather & Smolkowski, 2015). In order to determine the ultimate value of a single-factor model for the ESBA with Swedish children, additional Swedish studies should be conducted. Due to its parsimonious nature, the single-factor model was employed in this thesis.

In addition to the one-factor model, there was some support for a three-factor and two-factor model in this sample. In the three-factor structure, there is an instructional part *teacher*, a part in which students are expected to work more independently in class *work,* and a part in which students are expected to interact with peers, *peers*. The two-factor structure included an instructional part (teacher) and a peer component (peers). There is support for a two-factor model in the Norwegian ESBA study (Arnesen et al., 2018). The present study sample consists of second graders, whereas the Norwegian study sample consisted of students in grades one to six. While the three-factor model demonstrated good fit and largely acceptable factor loadings, item eight demonstrated less than ideal loadings on two factors and a strong

correlation between the teacher and work factors (r =.887). Psychometric studies using ESBA with Swedish children would provide further evidence in favor or against the future use of the three-factor model.

The two-factor and three-factor models are similar in some ways from a practical perspective; however, they address different aspects of social skills. Therefore, the scales can be used for a variety of screening purposes. In smaller groups, the subscales can be presented with supportive instruction (e.g., extra help in the classroom or support in interacting with peers outside the classroom and handling intense feelings).

Study II

Study II examined the associations between the indicators of children's social-emotional competence (i.e., self-concept and prosocial behaviors) and their well-being and academic skills (as indexed by reading and math ability). Furthermore, the possibility of gender differences was explored in these variables.

According to the findings, reading and math were moderately high and significantly correlated. There are many similarities between learning to read and count, such as concentration, attention, and resilience (Lundberg & Sterner, 2006). The indicators of social-emotional competence, self-concept, and prosocial behaviors showed significant correlations. Accordingly, these findings are theoretically consistent with the CASEL model of social-emotional competence (Weissberg et al., 2015). Based on the findings of this study, the association between social-emotional competence indicators is consistent with several meta-analyses indicating moderate positive associations between these indicators (Taylor et al., 2017; Wiglesworth et al., 2016). The indicators also correlate with well-being, a key indicator of the whole child approach. In addition, prosocial behaviors were correlated with academic achievement, indicating that children are more successful in school when they possess relationship skills and understand social norms for behavior (Weissberg et al., 2015). Studies indicate that a general self-concept cannot adequately reflect the diversity of specific academic subjects (Marsh et al., 1988). The present study does, however, indicate that self-concept contributed to the present model overall due to the associations between this indicator and well-being and prosocial behavior. In accordance with Hypothesis 1, self-concept was significantly correlated with well-being and moderately associated with prosocial behavior. To our knowledge, the items

of the UMESOL self-concept questionnaire have not previously been modeled with CFA using SEM. In this study, the results suggest that UMESOL may be appropriate for use as an indicator of self-concept in young students of elementary school age, possibly for both educational and research purposes. It will be beneficial for future research to employ instruments such as UMESOL that can be used with young children since such research can contribute to the increasing understanding of the experiences of young children during the early school years regarding self-concept. This concept is still more thoroughly understood in older children and adolescents. As part of the further development of UMESOL, a better understanding of its concurrent validity in the Swedish context is necessary.

The present study also found a moderate correlation between well-being and math skills. According to Nordlander and Olofsdotter Stensöta (2014), children's grades were positively related to their self-rated well-being. The children in the present study were eight years old. Everyday life satisfaction is something that children are familiar with and are most knowledgeable about (Ben-Arieh, 2005). Children's self-reported well-being may be harder to assess at this young age than older ones (Wikman et al., 2022).

The results also indicated that there appeared to be some gender differences in a subset of the study constructs. According to the results, in this sample, the boys performed better in math on average compared to girls. This finding is consistent with other research (e.g., Garon-Carrier et al., 2015). Additionally, the results of this study indicated that, on average, girls had better prosocial skills and self-concepts than boys in this sample. Childhood is a time of significant biological and cognitive development, with considerable individual variation also observed in development. The girls' earlier maturation may be a contributing factor to their better scores in prosocial behavior and self-concept as compared to the boys in the present study (Quilez-Robres et al., 2021); however, maturation was not assessed in this study, and future research should explore this possibility. The present study showed no significant differences between genders in reading ability and well-being. In Hypothesis 2, we were conservative in our expectations concerning gender-related differences; however, the hypothesis was supported.

Nevertheless, on the other hand, other areas in which gender played a significant role in child development in this sample were split based on academic ability, with gender similarities at the reading level. In this sample, the boys performed better than the girls on average regarding math skills. In terms of the social-emotional constructs, girls in this sample demonstrated

higher prosocial skills and a higher self-concept than boys (which is partially consistent with what was predicted for Hypothesis 2). Recently, it has been discovered that gender was related to group differences in well-being due to the increase of adolescent girls' mental health problems in comparison with adolescent boys in Sweden (e.g., Dalman et al., 2021). At approximately eight years old, some aspects of mental health indexed by well-being appear to be similar rather than different between genders.

Study III

In study III, the aim was to test the effects of an intervention. The study results indicated no significant changes in the examined outcomes between pre-and post-test (either for the classroom climate or student level outcomes, i.e., self-concept, prosocial behavior, well-being, and academic achievement in math and reading). These findings can be interpreted in a variety of ways. To begin with, it may be the case that the intervention does not have any effect or was implemented in a non-optimal way. Only further replication studies with larger samples can address these possible explanations. Other avenues for intervention improvement could be found by seeking to understand how teaching practices and beliefs aligned with classroom level and student outcomes (i.e., an increased need for measuring intended changes in teacher views and practices as a result of the intervention) and then connecting this change to changes in the intended intervention outcomes.

   In terms of feasibility and proof of concept, in interactions with the teachers, they clearly expressed acceptance of the intervention. One reason for this intervention's acceptability may be that they were provided with strengths-based feedback and information about the social climate that they found useful. Furthermore, the teachers expressed interest in participating in a more extended intervention. The intervention, therefore, appears to be feasible, and there is some degree of acceptability with this sample of teachers. Attempts may be made to conduct intervention trials with a longer duration, multiple classroom assessments using GAVIS and CLASS, and professional conversations with teachers. Based on Pianta et al. (2022), the number of coaching cycles can significantly influence the success of an intervention program.

Considerations of Child-Level Instruments

Furthermore, the instruments utilized to collect pre- and post-test outcome data were chosen because they provided indicators of the studied constructs. Considering the fact that children's own experiences of educational settings should be given consideration, self-report questionnaires were used to assess well-being and self-concept at school. Self-report measures of self-concept and well-being at a young age are desirable (Gustafsson et al., 2010) but are not well established. Using self-reports with young children will benefit from further psychometric development. For better model fit, the measurement model of self-concept retained a smaller number of items. In future studies, self-reports of well-being and self-concept may still be used.

Prosocial behavior was assessed using the ESBA instrument by the teachers, and the instrument was considered acceptable, possibly due to the positive wordings of the items. However, Arnesen et al. (2017) proposed that a five-grade scale would be more sensitive to student prosocial behavior changes. Future trials may consider adopting additional outcomes, including measures of students' behavior and engagement (Hojnoski et al., 2020; Ritosa et al., 2020). Students' engagement level in early childhood education predicts a wide range of positive outcomes (Gustafsson et al., 2021). An RCT showed that coaching indirectly impacts students' engagement; however, there was no effect on children's literacy skills (Pianta et al., 2022).

The DLS-base and the LUKIMAT were used to assess literacy and math achievement. Although these tests are standardized and validated, other tests may be considered if they are more sensitive to the development of children's literacy and math abilities. In the present study, literacy was examined by assessing reading comprehension. However, other aspects of literacy may be assessed in future trials, such as self-reports of students' interest in reading and writing.

General Discussion

The findings of this thesis support the concept of a whole child approach to education because the results indicated significant correlations between indicators of SEL, well-being, and academic achievement. Consequently, this supports the idea that students can flourish when they receive support in these areas (Lou et al., 2022). According to the UN Convention on Child

Rights, a whole child approach is important for academic skills and social-emotional development (Article 29). The Swedish curriculum states that schools are expected to embody and transmit the values and rights stated in the UN Convention on the Rights of the Child (Lgr 2011). Nevertheless, in Swedish schools, an emphasis on academic skills in the curriculum may overshadow the efforts to work for the development of the whole child.

A whole child education develops academic skills and fosters healthy relationships and respect for others (Greenberg, 2023). Thus, there is a reciprocal link between a positive classroom climate and the whole student development (Brown et al., 2010; Hamre & Pianta, 2007; Wang et al., 2020). A joyful, supportive, caring, and challenging classroom environment promotes the whole child's development, and developing the whole child promotes a positive classroom climate. As a result of a possible development cascade model, it would seem that positive changes in the social climate can have an indirect, and in this case positive, impact on students, socio-emotionally as well as in terms of academic performance (Masten et al., 2005).

According to a Swedish government investigation (SOU 2021: 11), students' learning environment plays a critical role in their development. The social context plays a significant role in shaping the brain and wider aspects of development and behavior, according to SoLD (Cantor et al., 2019). Social contexts have a significant impact on motivations and well-being, as recognized by SDT (Deci & Ryan, 2008). According to SDT, creating supportive social climates that foster autonomy, competence, and relatedness is essential for students´ optimal development. All students benefit from learning environments characterized by positive relationships and socio-emotional dynamics (Kiuru et al., 2015; Pakarinen et al., 2014). However, many schools lack the knowledge necessary to evaluate and develop classroom climates (SOU 2021: 11). Problems are often seen as deficits in the student´s ability rather than having some roots in the learning environment and being multi-determined in general (SOU 2021: 11). Students' health care teams in Sweden are described as primarily working reactively with additional adjustments and special support to respond to existing problems rather than focusing on the promotion of learning and health, the prevention of learning difficulties, and behavior and mental health problems (SOU 2021: 11).

As a result of the great emphasis on remedial support, the first support level of the MTSS, i.e., the universal level, has been somewhat neglected in Swedish schools. At this level, all students in the classroom receive high-quality instruction and differentiated support (Hemmeter et al., 2017), and the universal level can serve as an arena for evaluating and developing the classroom climate. By identifying areas for improvement, teachers may be able to assess student needs better and improve the learning environment (Prasse et al., 2012). This allows a focus on prevention and promotion rather than reactive efforts. According to the Swedish National Agency for Education (2014), the classroom environment should be structured, and individual support efforts should be implemented if necessary. As a result, preventive measures can be implemented that are clear and focused in order to improve students' learning and development (SOU 2021: 11).

However, there is uncertainty in Swedish schools about how to measure and assess the classroom climate in order to provide a basis for improvement. Currently, in Sweden, there is no instrument in special education practices that is used systematically to assess the classroom climate. As a result, teachers are left to subjectively evaluate the social climate within the classroom.

Because the number of classrooms participating in study III in this thesis was limited, no statistical analyses were constructed on the social climate variables; however, a preliminary attempt was made to assess social climate as the first component (self-assessment) and the second component (observation) of the coaching intervention as this is merely a descriptive example of how the classroom can be assessed, a more comprehensive evaluation is required in the future. Two instruments were used: CLASS, a reliable measure commonly used in the United States, and the teacher self-assessment questionnaire of GAVIS, a Swedish instrument for which a classroom observation protocol is currently under development. Some progress has been made through this trial, where these two instruments were used and compared.

Social-emotional Learning

An emphasis on developing a whole child approach involves both academic and social-emotional skills. According to the CASEL Competency Framework, social-emotional competencies include student self-awareness, self-

management, social awareness, relationship skills, and problem-solving (Weissberg et al., 2015). By developing these skills, students may make further progress in their education and improve their well-being (Belfield et al., 2015). Researchers have found that SEL programs have a positive influence on whole child development (Blewitt et al., 2018; Boncu et al., 2017; Corcoran et al., 2018; Durlak et al., 2011; Goldberg et al., 2019; Lou et al., 2022; Mertens et al., 2020; Murano et al., 2020; Sklad et al., 2012; van de Sande et al., 2019; Wiglesworth et al., 2016; Yang et al., 2019). A number of studies have demonstrated that SEL programs enhance student engagement, foster stronger relationships between teachers and students, and enhance prosocial behavior in the classroom (Brown et al., 2010; Hagelskamp et al., 2013). Additionally, research has shown that these programs positively impact the classroom climate (Wang et al., 2020). However, despite a large body of research emphasizing the benefits of social-emotional learning, SEL is not emphasized in Swedish education, and there is no systematic method for measuring social-emotional development that is widely used as a standard barometer of child development in Swedish schools.

This thesis examined the associations between indicators of social-emotional competence that included students, i.e., self-concept (an indicator of self-awareness), prosocial behavior (an indicator of social awareness and relationship skills). In addition to these indicators, other important aspects of the whole child were also considered, including the child's self-assessed well-being at school, academic skills based on reading and mathematics achievement measures, and the social climate. In a Swedish context, these constructs confirm the association of the SEL indicators with each other (of theoretical significance, confirming the CASEL model) (Weissberg et al., 2015). According to the results, SEL is positively associated with early academic achievement indicators, aligning with relevant meta-analysis findings (Durlak et al., 2011).

In Sweden, teachers might benefit from incorporating evidence-based activities that promote social and emotional development into their classrooms, in addition to using these assessment instruments to assess the whole child, including children's social-emotional development and academic achievement, in order to provide appropriate support.

Mental Health Promotion Context

The Swedish educational system provides student support in a reactive, rather than proactive, manner to address low performance without being framed within a health promotion context (SOU 2021: 11). In an effort to increase student academic performance, the importance of addressing the whole child is often overlooked. A decline in school-related well-being has recently been observed in Sweden, partly due to an increased focus on academic achievement in the classroom (Klapp et al., 2023). A child's development is not only a matter of academic achievement but also of emotional well-being. A whole child approach can be particularly effective in preventing school failures and disengagement as it fosters healthy relationships and respect for others (Greenberg, 2023). The Swedish government's official investigation (SOU 2021: 11) concluded that a functioning environment with positive relationships protects mental health. According to Milkie and Warner (2011), classroom climate may significantly impact children's mental health. Working proactively to develop the classroom climate at the universal level is essential to preventing behavioral and health problems (SBU, 2014).

Generalizability

In this thesis, schools were selected based on convenience sampling. Consequently, these findings are not indicative of other Swedish elementary school children in grade two; therefore, the generalizability of these results is limited. It should also be noted that the children who participated in the study were approximately eight years old, and the results may differ for children of younger or older ages. Consequently, these findings are limited by the developmental stage of the childhood examined. Nonetheless, this study contributes empirically to educational research because it adds new evidence regarding children in primary school who are under-studied since the majority of the existing research on school-aged children in Sweden tends to focus on middle and high school students.

Furthermore, study II examined the cross-sectional associations between the study constructs. In this exploratory study, the sample size was adequate; however, future research should include larger and more diverse samples based on factors such as geography and age.

Study III assessed the classroom climates in four classrooms in two schools. Thus, due to statistical power considerations, no group-based statistical analysis was conducted for the two assessment instruments (GAVIS and CLASS). Therefore, the presented results of study III regarding climate are descriptive and exploratory.

Limitations

The trial did not reach the planned number of participants and schools necessary to achieve moderate statistical power. In addition, only four intervention and four control schools participated in the study. A larger sample size is required to reach statistical power and to enable a thorough evaluation of the effectiveness of the intervention. The intervention was conducted at a limited number of two time points within five months since only one researcher collected data and provided coaching to the teachers.

Between fall 2019 and spring 2020, the pre-test data were collected, and the intervention was conducted at the onset of the COVID-19 pandemic. During these months, most Swedish schools remained open or were temporarily closed. Although we do not know whether these conditions affected the participants, the situation in schools and society was unprecedented (Taylor et al., 2022). Even though schools were open during the intervention, the pandemic probably psychologically impacted students and teachers. The number of social contacts, leisure activities, and intergenerational contacts among family members decreased (Lohmann et al., 2023; Rosenfeld et al., 2022). It can be argued that these circumstances represent a unique historical context that could compromise the study's validity (McMillan, 2007; Shadish, 2002), or on the other hand, they resulted in a unique study conducted at a unique moment in history.

Initially, the teachers and students on the waiting list were supposed to receive the intervention in the following fall of 2020 and spring of 2021. However, this goal was not met due to the restrictions on school access introduced later during the COVID-19 pandemic. There is a possibility that a coaching intervention with a longer duration and more sessions could have had more substantial effects than were demonstrated in this study. White et al. (2023) examined an intervention targeting the social-emotional learning environment with a duration of three years in a high-need area in the U.S. Students were 11-16 years old (N = 1300-1400). The majority of the students were immigrants and had a low socio-economic status. The results demon-

strated significant relationships between students´ perceptions of the social-emotional learning environment, discipline, and academic achievement. In the present study, there were some differences in the socio-economic index between the schools (ranging from 40 to 95). Compared to the mean of Swedish schools (106; higher scores indicate greater poverty), the participating schools had a better socio-economic status. Accordingly, this intervention could be effective in schools with clear challenges because observable changes may be more likely to occur under such circumstances. Furthermore, a time frame of three years for the intervention could be needed in order to observe measurable results.

Implications for Practice

The PBC intervention could not significantly affect classroom climate or student-level outcomes. There is a possibility that the intervention did not have any effect or was not implemented appropriately. However, the teachers expressed acceptance of the intervention since they were given strengths-based feedback and information about the social climate that they found useful.

   The findings of this thesis also suggest that children's social-emotional development and academic skills are empirically interconnected in this sample. Teachers may place academics above SEL or vice versa according to practical considerations. However, the results of this thesis indicate that these two issues are associated. Moreover, the findings demonstrate the importance of incorporating gender considerations into equity efforts. Swedish schools place a strong emphasis on gender equity, and teachers strive to achieve this among students in a variety of ways. It may be beneficial for teachers to reflect upon the possibility of documenting gender differences or similarities in the study constructs and use that information to enhance the pedagogical and social practices of their classrooms.

   Proactive approaches can be utilized to address student needs effectively rather than reactive remedial actions. Through proactive efforts, teachers may enhance the climate of their classrooms by identifying areas at the universal level that need improvement and implementing appropriate changes. In this thesis, assessment instruments are provided that can be used by Swedish teachers as part of this systematic process. Special educators are professionals with the necessary training that might fulfill the role of coaches in the

Swedish context. Teachers may benefit from coaching support provided by special educators through observation, feedback, and coaching.

In order to examine the whole child, the SEL-related screening instruments assessing student self-concept, prosocial behavior, well-being, and academic achievement can be applied to practice. By using ESBA, students' prosocial behavior can be better understood. Promoting prosocial behavior among students can have a number of benefits, including the promotion of a positive and supportive classroom environment. ESBA has value for identifying areas for improvement in terms of social skills and also reduces the likelihood of social-behavioral difficulties that can adversely affect academic performance.

Furthermore, the ESBA can be used for formative assessment, guidance in evidence-based practice, and measuring students' social skills. As a positively worded scale, ESBA can indicate areas where students may need additional assistance. Consequently, it allows teachers and parents to collaborate in order to provide support to children.

Proposals for Future Research

Accordingly, the strongest support was found for the two-factor model of the ESBA. However, a single-factor and a three-factor model were also promising. Future studies in Sweden will need to ascertain the value of these models with a larger sample size and various ages.

Furthermore, the SEL-related constructs measuring self-concept, prosocial behavior, and well-being may be helpful targets for academic support interventions inspired by the whole child perspective. By examining the relationship between academic skills and social-emotional factors in various national samples and populations, researchers may understand how academic skills are related to social-emotional factors.

Study III needs to be replicated by a trial with a higher power level to determine whether the intervention can yield the intended benefits (additional clusters) and to ensure that the intervention's potential for achieving the intended benefits is thoroughly examined before a more extensive scale RCT is conducted. Furthermore, the intervention could also be applied to high-needs schools as observable changes may be more likely to occur in schools with clear challenges.

The potential contribution of GAVIS and CLASS in understanding classroom climate requires more research with more classrooms. Further research is needed to determine how these instruments may best be used as outcome measures in intervention studies. The GAVIS project is undergoing further testing in elementary schools as it evolves from a questionnaire into an observation tool (Westling Allodi & Ringer, 2022).

Conclusion

In conclusion, this thesis can be summarized as follows: (I) In study I, the ESBA appeared to be a reliable and valid indicator of children's prosocial behavior and social skills in a sample of young Swedish children in second grade. (2) The two-factor model showed a good fit on all indices; therefore, the strongest support for this model was found. (3) The single-factor model did not have an optimal fit on the CFI index, but all other indices were acceptable or good. (5) A three-factor model showed a good fit for all indices but had cross-loading on one factor. (6) More studies are warranted to further examine the psychometric properties of the ESBA.

(7) Study II indicated significant correlations between indicators of social-emotional learning, well-being, and academic achievement. (8) These findings suggest that children's social-emotional development and academic skills are empirically interconnected in this sample. (9) Prosocial behaviors were positively correlated with early academic achievement in this sample, indicating that academically prepared children benefit from relationship skills and an understanding of what to do in social situations. (10) The findings also emphasized the importance of taking gender into account when planning educational settings and ensuring greater gender equity. (11) The assessment instruments may be used to understand students' social-emotional and academic development levels. (12) The assessment instruments could be important targets for academic support interventions inspired by the whole child approach.

(13) The results of study III indicated non-significant intervention-related changes in the examined outcomes between pre-and post-test, both for the classroom climate and for the student level outcomes, i.e., self-concept, prosocial behavior, well-being, and academic achievement in math and reading. (14) Depending on the number of coaching cycles involved in an intervention, its effectiveness may vary significantly. Therefore, an intervention with

a longer duration and multiple dosages of classroom climate assessments with GAVIS and CLASS and professional conversations with teachers could be tested (15). There is also a possibility that the intervention has no effect. (16) In terms of feasibility, the teachers found the intervention to be acceptable. (17) This may be due to teachers receiving strengths-based feedback and professional development regarding social climate. (18) Within the context of MTSS, reflection on and improvement of the social climate occur at the universal level. (19) Identifying obstacles in the classroom climate and pointing out "what is not working" is a proactive approach that teachers can utilize at this level to prevent problems in the future. (20) The classroom indicators GAVIS and CLASS are used descriptively and exploratively in this thesis. (21) Further research is necessary to understand these constructs better in the Swedish school context.

Swedish Summary

Relationer och det som händer socioemotionellt i klassrummet kan stödja eller hindra elevernas utveckling och lärande. Ett positivt och stödjande klassrumsklimat gynnar alla elever, speciellt de som har särskilda behov. Att förbättra lärmiljöns kvalitet betyder inte att man bortser från den akademiska utvecklingen. Eftersom forskning om hur klassrumsklimatet kan förbättras är begränsad, var avhandlingens syfte att utveckla en intervention med potential att påverka det sociala klimatet i klassrummet och elevers resultat.

De tre studierna i avhandlingen har sammankopplade syften. Den första och andra studien ger insyn i mätinstrumenten som använts på elevnivå. Den första studien undersökte de psykometriska egenskaperna hos ett instrument som används för att mäta elevers prosociala beteende. Den andra studien undersökte associationerna mellan elevers självuppfattning, prosociala beteende, skolrelaterade välbefinnande och akademiska prestation. Könsskillnader undersöktes också. Den tredje studien undersökte effekterna av en intervention som innehåller specifika aktiviteter som självbedömning, observation och coaching.

Dessa studier var empiriska undersökningar av ett urval av 143 elever i fyra grundskolor i en svensk storstadsregion. Datakällorna var elevers självrapporter och tester, lärares rapporter om elevers prosociala färdigheter, lärares bedömning av det sociala klimatet och videoinspelade observationer av skolklimatet.

Studie I och II hade en tvärsnittsdesign, och studie III hade en experimentell design med klusterrandomisering på skolnivå. Fyra klasser var interventionsklasser och fyra var kontrollklasser. För att undersöka hypoteserna och forskningsfrågorna, analyserades datan med strukturell ekvationsmodellering (SEM) i Mplus.

I studie I, undersöktes elevernas prosociala beteende med confirmatory factor analysis (CFA). Det fanns tydligt stöd för en två-faktormodell, men en singel-faktor och en tre-faktormodell kan inte uteslutas från den svenska kontexten. I studie II, analyserades resultaten vid baslinjemätningen med CFA och analysen visade att självuppfattning och prosocialt beteende som är socioemotionella indikatorer, välbefinnande och akademiska färdigheter var signifikant associerade. Resultaten stöder sambandet mellan socioemotionellt lärande och indikatorer av akademisk prestation, vilket bekräftar tidigare forskning. Studie III undersökte förändringar från för- till

efter-test som ett resultat av coaching interventionen med en autoregressiv modell. Coaching interventionen ansågs genomförbar, men det fanns inga interventionseffekter från för- till efter-test på de observerade variablerna: självuppfattning, prosocialt beteende, välbefinnande och akademisk prestation, eller på klassrumsklimat. Interventionen behöver replikeras med ett större urval, längre tid och flera tillfällen med självbedömning, observation och coaching.

Sammantaget bidrar den här avhandlingen till forskningen om en holistisk syn på utveckling och lärande. Indikatorerna för SEL, självuppfattning, prosociala beteenden och välbefinnande bidrar till att förstå den akademisk utvecklingen. Lärare kan använda dessa bedömningsinstrument för att förstå barns akademiska utveckling och nivå av socioemotionell utveckling för att ge lämpligt stöd.

Nyckelord: klassrumsklimat, socialt klimat, socioemotionellt lärande, holistisk utveckling, självuppfattning, prosocialt beteende, välbefinnande, intervention, praktikbaserad coaching intervention, grundskolan.

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