

Universal Prevention and Special Educational Needs

The PAX Good Behavior Game in Mainstream Education Settings

Maria Jornevald



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Academic dissertation for the Degree of Doctor of Philosophy in Special Education at Stockholm University to be publicly defended on Friday 5 June 2026 at 13.00 in ALB-hörsal 4, Albano, hus 2, plan 2, Albanovägen 12 and online via Zoom, public link is available at the department website.

Abstract

This thesis examines how the PAX Good Behavior Game (PAX GBG) functions in mainstream classrooms that include students with diverse special educational needs (SEN). Although designed as a universal preventive intervention, PAX GBG is implemented in contexts characterized by heterogeneous learner needs. The thesis focuses on how the intervention is enacted, adapted, and experienced in everyday classroom practice.

The thesis combines a scoping review with qualitative studies conducted in Swedish primary schools (grades F–3). Study 1 mapped research on the GBG and PAX GBG in relation to students with SEN. Studies 2 and 3 examined teachers' and students' perspectives on the use of PAX GBG. Across studies, the analysis focused on mechanisms, participation, adaptation, and variability in how the intervention functioned in practice.

The findings suggest that core components of PAX GBG, such as structured routines, explicit expectations, and positive reinforcement, were recognizable in classroom practice and were often described as supporting predictability, behavioral regulation, and participation for many students, including students with SEN. At the same time, the functioning of PAX GBG varied across students and classroom contexts. Teachers frequently adapted PAX kernels to support participation, and such adaptations appeared important for sustaining the intervention. For some students, PAX GBG also appeared to provide a shared framework on which additional support could build.

However, a smaller group of students with more complex needs participated less consistently or experienced the routines as demanding. In these cases, the intended mechanisms did not fully take hold, and teachers described difficulties in adapting the intervention within the constraints of the classroom.

Taken together, the findings suggest that PAX GBG can function as a meaningful component of inclusive classroom practice in mainstream education, but that its accessibility for students with SEN is shaped by how it is adapted and supported within broader educational support systems. The thesis contributes a more context-sensitive understanding of how universal interventions operate in heterogeneous classrooms and highlights the importance of aligning classroom practices with structured systems of support.

Keywords: *special education; accessible learning environments; inclusion; universal prevention; preventive interventions; classroom environment; student behavior; school-based interventions; student perspectives; teacher perspectives; PAX Good Behavior Game.*

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Department of Special Education

Stockholm University, 106 91 Stockholm



UNIVERSAL PREVENTION AND SPECIAL EDUCATIONAL NEEDS

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In memory of my
mother- the first devoted
teacher and special
educator I knew. Thank
you for your unwavering
belief in people and in
the possibility of change.

Abstract

This thesis examines how the PAX Good Behavior Game (PAX GBG) functions in mainstream classrooms that include students with diverse special educational needs (SEN). Although PAX GBG is designed as a universal preventive intervention, it is typically implemented in classrooms characterized by substantial variation in students' behavioral, emotional, social-communication, and learning-related support needs. The thesis therefore investigates how a universal classroom model operates under conditions of inherent heterogeneity, with particular attention to participation, accessibility, and the contextual conditions under which intervention processes unfold.

The thesis uses an iterative design consisting of a scoping review and qualitative studies conducted in Swedish primary schools (grades F-3). Study 1 reviewed research on the Good Behavior Game and PAX GBG in relation to students with SEN in mainstream education. The review identified generally positive reported outcomes across several studies, including large trials, but also considerable variation in how SEN populations were defined, limited subgroup-specific analyses, and a predominant focus on average effects rather than variability in accessibility and responsiveness within heterogeneous classrooms. Study 2 examined teachers' perspectives on implementing PAX GBG in classrooms with diverse learners, focusing on perceived benefits, challenges, and adaptations. Study 3 added a student perspective by exploring how children experienced participation in classroom routines shaped by PAX kernels. Across studies, the analysis focused on intervention processes, participation, teacher adaptations, and classroom factors influencing how PAX functioned in practice.

The findings indicate that core components of PAX GBG, including structured routines, explicit expectations, behavioral rehearsal, and positive reinforcement, were recognizable in everyday classroom practice. Teachers and students often described these practices as supporting predictability, self-regulation, prosocial behavior, and classroom participation. For many students, including many students with SEN, the intended intervention pathways appeared to function as an accessible and meaningful part of ordinary classroom life.

At the same time, the findings show substantial variation across students and classroom contexts. Teachers frequently adapted PAX kernels to sustain participation and respond to differing needs, suggesting that adaptation was central to implementation in heterogeneous classrooms rather than peripheral to it. Some students also appeared to benefit from PAX GBG as a shared behavioral framework within which additional supports could be organized.

However, a smaller group of students with more complex regulatory, social-communication, or learning-related needs participated less consistently or experienced the routines as more demanding. In these cases, the intended processes were less evident, and teachers described difficulties in meeting individual needs within ordinary classroom constraints.

The thesis further suggests that how PAX GBG functions in practice is shaped not only by implementation of core kernels, but also by classroom factors, teacher adaptations, and broader support conditions. Teachers described academic, behavioral, and social adaptations intended to sustain participation, some of which resembled more targeted supports and required time, collaboration, and professional resources.

Taken together, the findings suggest that PAX GBG can function as a meaningful component of more accessible classroom practice in mainstream education, but not as a sufficient response for all students. How the intervention pathways unfold appears to depend on student variability, teacher adaptations, classroom conditions, and the availability of additional supports beyond universal routines. The thesis contributes a more context-sensitive understanding of how universal interventions operate in heterogeneous classrooms.

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List of Papers

The thesis is based on the following three academic papers

Study I

Jornevald, M., Pettersson-Roll, L., & Hau, H. (2023). The Good Behavior Game for students with special educational needs in mainstream education settings: A scoping review. *Psychology in the Schools*.
<https://doi.org/10.1002/pits.23086>.

Study II

Jornevald, M., Broström, I., Pettersson-Roll, L., & Ginner Hau, H. (2025). PAX for everyone? Swedish teachers' perspectives on adopting a universal prevention model in a mainstream education setting. *European Journal of Psychology and Educational Research*, 8(2), 83-95.
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Study III

Jornevald, M., and Ginner Hau, H. (2026). Swedish Primary Students' Perspectives on the PAX Good Behavior Game in Mainstream Classrooms
Manuscript submitted for publication

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Key Concepts and Abbreviations

ABA: Applied Behavior Analysis

ABC framework: Antecedent- Behavior-Consequence model used to describe how behavior is influenced by environmental conditions.

Adaptations: Adjustments made by teachers to PAX practices to support participation and accessibility for students with diverse needs in classroom contexts.

GBG (Good Behavior Game): A classroom-based behavioral intervention using interdependent group contingencies to promote prosocial behavior and reduce disruptive behavior.

Heterogeneous classrooms: Mainstream classrooms characterized by variation in students' capacities and support needs across behavioral, social, and learning domains.

Interdependent group contingency: A behavioral arrangement in which a group of students shares a common goal and outcomes depend on the behavior of all group members.

Kernel (evidence-based kernel): A fundamental unit of behavioral influence; a brief, well-defined behavioral procedure with documented effects on specific behaviors. In PAX GBG practice, kernels are implemented as structured classroom routines.

Mainstream classroom: A general education classroom in which students with and without identified special educational needs are taught together.

Mechanisms (of intervention): Processes through which an intervention influences behavior, such as clarifying expectations, structuring practice, and providing reinforcement.

MTSS (Multi-Tiered System of Supports): A framework for organizing support across levels of intensity, including universal (Tier 1), targeted (Tier 2), and individualized (Tier 3) interventions.

Nurturing environments: Environments that support positive development and well-being through clear expectations, predictability, and reinforcement of prosocial behavior.

PAX GBG (PAX Good Behavior Game; PAX): An expanded version of the Good Behavior Game that integrates multiple evidence-based kernels into everyday classroom practice.

Prevention (school-based): Approaches aimed at reducing the risk of behavioral or learning difficulties by shaping classroom environments and promoting adaptive behaviors.

Prosocial behavior: Behaviors that support positive social interaction, such as cooperation, helping, and respectful communication.

Self-regulation: The ability to regulate attention, behavior, and emotional responses in relation to situational demands

SEN (Special Educational Needs): An umbrella term referring to students who, due to a range of difficulties or impairments, may require additional support to access learning and participate in the school environment.

Tier 1 / Tier 2 / Tier 3: Levels of support within tiered models: universal (Tier 1), targeted (Tier 2), and individualized (Tier 3).

Universal intervention: An intervention delivered to all students within a classroom or school, regardless of individual level of need.

A note on language

Identity-first and person-first language: Both person-first and identity-first terminology are used in research and practice. This thesis primarily uses person-first formulations (e.g., *students with autism*, *students with SEN*) for consistency, while recognizing that language preferences vary across individuals and communities.

List of Appendix and Supplementary Materials

Appendix

Appendix A. PAX materials in Swedish

Supplementary Materials

Study 1

Supplement 1. Overview of included studies

Study 2

Supplement 2. Interview guide for individual interviews and focus groups

Study 3

Supplement 3. Fidelity checklist

Supplement 4. Invitation letters to caregivers, and children

Supplement 5. Child interview guide based on How I Feel About My School (HIFAMS), and How I Feel About PAX

Supplementary materials are cited in the text by study number and supplement number (e.g., Study 3, Supplement 4).

1 Introduction

“I only hope that he can get through school as unharmed as possible.”

(Father of a child with autism, personal communication, 2012)

This statement reflects concerns commonly expressed by parents of children with neurodevelopmental conditions, for whom school may be experienced less as a place of learning than as a source of stress, exclusion, and emotional strain (Attention Sweden, 2022; Autism and Asperger Association, 2022). For some families, expectations of academic success may gradually give way to a more modest hope: that the child can participate in schooling without lasting harm.

Such concerns highlight the importance of how classroom environments are structured to support diverse learners. In mainstream classrooms, teachers are responsible for the learning and well-being of the entire student group. While individualized adaptations are essential for some students, these must be balanced with approaches that are feasible at the classroom level and that promote participation for all students. This tension between individualized support and collective classroom practice forms an important backdrop for the present thesis. It is particularly relevant for universal classroom-based interventions, which aim to influence group-level processes while being implemented in classrooms characterized by substantial variability in student needs.

Research and international reports indicate that students with special educational needs (SEN) are at elevated risk of academic underachievement, peer difficulties, and poorer longer-term educational and health outcomes (Adams et al., 2016; Arnold et al., 2020; European Agency for Special Needs and Inclusive Education [EASNIE], 2026; UNESCO, 2020; Woodgate et al., 2020). In many educational systems, including Sweden, a substantial portion of students with SEN are educated in mainstream settings (EASNIE, 2026). Inclusive education therefore requires not only individualized support but also classroom practices that support predictability, psychological safety, and opportunities for meaningful participation.

In response to these challenges, universal school-based preventive programs have been developed to strengthen classroom climate and promote pro-

social behavior. Meta-analytic research indicates that universal social-emotional and behavioral interventions can produce improvements in student behavior and social outcomes (Durlak et al., 2011; Weare & Nind, 2011). One extensively studied example is the PAX Good Behavior Game (PAX GBG; Embry et al., 2016), an adaptation of the original Good Behavior Game (GBG; Barrish et al., 1969). Across multiple studies, the GBG and its adaptations have been associated with reductions in disruptive behavior and increases in prosocial behavior (Bowman-Perrott et al., 2016; Flower et al., 2014; Smith et al., 2021), as well as longer-term outcomes related to academic achievement and mental health (Kellam et al., 2008; Kellam et al., 2011).

The PAX GBG is typically implemented as a universal Tier 1 intervention in mainstream classrooms, aiming to influence classroom processes by establishing shared expectations, reinforcing prosocial behavior, and reducing coercive interactions (Embry et al., 2016; Embry & Biglan, 2008). At the same time, inclusive classrooms are characterized by heterogeneity. Students differ in attentional capacity, self-regulation, social communication, and responsiveness to shared behavioral contingencies. While existing research suggests that the PAX GBG may benefit many students, including those with identified difficulties (Bowman-Perrott et al., 2016; Kellam et al., 2014), less is known about how such universal, contingency-based approaches function in classrooms that include students with more complex or extensive support needs. Previous research has also pointed to variability in student responsiveness and raised questions about implementation in diverse classroom contexts (Nolan et al., 2014; Tingstrom et al., 2006).

This gap is particularly relevant in the Swedish context, where the ideal of “a school for all” has long influenced educational policy and inclusion reforms, and where support for many students with SEN is expected to be delivered within mainstream education under the Swedish Education Act (*Skollag*, SFS 2010:800; see also Göransson et al., 2015). The PAX GBG has been culturally adapted for use in Sweden (Ghaderi et al., 2017) and implemented in an increasing number of municipalities (Swedish National Board of Health and Welfare, 2021). As universal preventive approaches become more widely used, it becomes important to examine how they function in practice for students with diverse special educational needs.

The overall aim of this thesis is to advance understanding of how the PAX GBG functions in mainstream classrooms that include students with diverse SEN. The thesis examines how core intervention mechanisms operate in everyday classroom contexts, under what conditions they are sustained or disrupted, and how teachers adapt PAX practices to support participation across heterogeneous student groups.

To address this aim, the thesis first examines how the Good Behavior Game, including the PAX GBG, has been studied in relation to students with SEN. It then explores how the PAX GBG is used and experienced in Swedish

mainstream classrooms where students with SEN are part of everyday classroom practice. Across a scoping review and qualitative studies, the thesis investigates perceived benefits, challenges, and mechanisms of change, as well as how the intervention is adapted in heterogeneous classroom contexts.

.

2 Background

This chapter situates the thesis within its conceptual and empirical context. Given the focus on how a universal classroom-based intervention functions in heterogeneous mainstream classrooms that include students with SEN, the chapter begins by clarifying how SEN is conceptualized in mainstream education. The chapter then outlines the logic of school-based prevention and introduces the PAX GBG as a universal preventive intervention within this framework.

2.1 Special Educational Needs in Mainstream Education

Mainstream classrooms in many educational systems are characterized by student diversity in terms of learning profiles, language backgrounds, and regulatory capacities. Inclusive education policies emphasize that students with varying support needs should, as far as possible, be educated within mainstream settings (EASNIE, 2015; UNESCO, 2020). As a result, teachers are expected to address a broad range of academic and social-behavioral needs within the same classroom context.

In this thesis, the term SEN is used in line with the definition provided by EASNIE (2013). According to this definition, students with SEN are those who, because of a wide range of difficulties or impairments, may experience challenges in reaching educational goals or in adapting to the demands of the school environment. SEN is therefore treated as an umbrella term that captures the diversity of needs present in contemporary classrooms. When referring to individuals, the formulation “students with SEN” is used.

In practice, the term includes students with neurodevelopmental conditions such as attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), language disorders, or intellectual disability. It also encompasses students identified by teachers or assessments as having academic or behavioral difficulties, as well as those who are formally eligible for SEN services. This broad usage reflects the variation in how learning, participation, and support needs manifest in everyday school settings and underscores the

importance of understanding how universal classroom practices function for students with differing profiles of strengths and challenges.

International estimates show that a sizeable minority of students need extra support in school. Although figures vary depending on national definitions and classification systems, global and European sources indicate that roughly 10–20% of school-aged children may require additional help (UNESCO, 2020; OECD, 2017; WHO, 2011). Prevalence rates differ widely across countries: some use diagnostic or administrative criteria, while others apply broader pedagogical judgments. Across European countries, the proportion of students formally designated as having SEN ranges from about 1% to more than 20% (EASNIE, 2026). In Nordic countries, including Sweden, the concept typically encompasses students at risk of not meeting learning goals regardless of diagnosis (Giota & Emanuelsson, 2011). Taken together, these differences highlight that SEN is not a fixed category but a broad description of diverse learning, behavioral, and social-emotional needs, and students with SEN constitute a substantial portion of the mainstream classroom.

2.1.1 Conceptualizations of SEN

Students conceptualized as having SEN form a heterogeneous group, and their support needs cannot be reduced to any single profile or diagnostic category. At the same time, different theoretical traditions conceptualize SEN in distinct ways.

Within neurodevelopmental and clinically informed frameworks, SEN is often understood as reflecting relatively stable individual differences in cognitive functioning, information processing, language, or behavioral regulation (DSM 5, American Psychiatric Association, 2022; Nigg, 2017). From this perspective, difficulties with attention, social interaction, or learning are associated with underlying neurobiological or developmental differences. Diagnostic classifications such as ADHD, autism spectrum disorder, or intellectual disability are commonly used to describe such profiles (DSM 5, American Psychiatric Association, 2022; Gillberg, 2010).

In contrast, relational and interactional perspectives conceptualize educational difficulties as emerging in the interaction between the student and the learning environment (Göransson & Nilholm, 2014; Nilholm, 2021). From this viewpoint, challenges are not understood solely as properties of individuals, but as arising when classroom demands, instructional practices, or social structures do not sufficiently accommodate diverse ways of learning and participating.

Contemporary special education research increasingly treats these perspectives as complementary rather than mutually exclusive (Nilholm, 2021; Shakespeare, 2014). Neurocognitive differences may influence how students process information, regulate behavior, or interpret social cues (Nigg, 2017;

Gillberg, 2010), but the functional impact of these differences depends strongly on environmental conditions and contextual supports (Sameroff, 2009; WHO, 2001). The present thesis adopts an interactional stance, recognizing both individual variation and contextual influences in shaping educational participation.

Across neurodevelopmental conditions, several cross-cutting cognitive and regulatory vulnerabilities have been documented, particularly in domains of executive function and self-regulation (Nigg, 2017; Rommelse et al., 2011). Executive functions- including inhibitory control, working memory, and cognitive flexibility- are commonly understood as cognitive processes that support self-regulation and goal-directed behavior (Diamond, 2013; Miyake et al., 2000). Social cognitive processes influence how students interpret social cues, anticipate peer responses, and engage in collaborative activities (Frith & Frith, 2007).

These processes are central to self-regulation and everyday classroom functioning. Their practical significance, however, depends on the structure of the learning environment. High levels of noise, rapid transitions, ambiguous expectations, or heavy reliance on independent regulation may intensify existing regulatory difficulties. Conversely, predictable routines, explicit norms, structured reinforcement, and supportive peer climates may reduce cognitive load and facilitate participation (Biglan et al., 2012; 2020; Blair & Raver, 2015; Sweller, 2011; Westling Allodi (2010). Such environmental structuring is a central principle in preventive classroom interventions designed to support regulatory development.

Over time, persistent mismatches between student characteristics and classroom demands may contribute to cumulative patterns of academic and social difficulty. Contemporary developmental frameworks emphasize how early difficulties can initiate reciprocal processes in which academic and social challenges increasingly interact over time (Sameroff, 2009). Such trajectories have been documented among students with neurodevelopmental and special educational needs, including elevated risks of peer victimization, poorer educational outcomes, and psychosocial strain (Adams et al., 2016; Arnold et al., 2020; Charman et al., 2016; Woodgate et al., 2020). These dynamics are particularly relevant for students with regulatory vulnerabilities, where the impact of neurocognitive differences depends on environmental conditions (Nigg, 2017). These patterns highlight the importance of examining how classroom practices may either buffer or intensify regulatory difficulties, thereby shaping developmental trajectories over time.

2.1.2 Educational Setting - Inclusion or Mainstream?

Since the Salamanca Statement (UNESCO, 1994), inclusive education has been established as a guiding principle in many educational systems. Subsequent international policy documents have reaffirmed that students with SEN

should, as far as possible, be educated within mainstream school environments (EASNIE, 2015; UNESCO, 2020). Although definitions vary across contexts, inclusion is commonly understood as ensuring access to meaningful participation, appropriate support, and opportunities for academic and social development within mainstream classrooms (EASNIE, 2015; UNESCO, 2020).

A central premise of inclusive education is that diversity is a natural and expected characteristic of classrooms, and that learning environments should be designed to accommodate this diversity rather than requiring students to adapt to rigid instructional structures (Bölte et al, 2021; Göransson & Nilholm, 2014). In Scandinavian special education research, inclusion is often conceptualized as a relational process in which participation depends on the interaction between individual characteristics and contextual conditions (Nilholm, 2021).

Across Europe, the majority of students identified as having SEN are educated in mainstream settings (EASNIE, 2015, 2026; UNESCO, 2020). However, placement in a mainstream classroom does not in itself constitute inclusion. EASNIE distinguishes between mainstreaming, which refers to physical placement, and inclusion, which concerns the quality of participation, access to support, and engagement in learning (EASNIE, 2015). Comparative data indicate substantial variation across countries in how inclusion is defined, organized, and implemented (EASNIE, 2015, 2026; UNESCO, 2020).

In Sweden, the Education Act (SFS 2010:800) states that education should be equitable and accessible to all students and that teaching should take students' differing needs into account. Support is typically provided within ordinary classrooms through general pedagogical measures, extra adaptations, and, when required, special support. Unlike systems with formalized multi-tiered frameworks, where movement between levels of support is guided by explicit decision rules, Swedish schools typically organize support through needs-based and context-sensitive assessments within mainstream settings (Education Act, SFS 2010:800; Göransson et al., 2015; Swedish National Agency for Education [SNAE], 2022). In this context, Swedish mainstream classrooms commonly include students with diverse support needs, many of whom receive support within ordinary educational settings (SNAE, 2024; Swedish Government Official Reports, [SOU] 2025:44). See Chapter 3 for a more detailed description of the Swedish educational context.

This context is important for the present thesis. Two of the studies were conducted in ordinary Swedish school environments characterized by heterogeneity in student needs. The thesis does not evaluate the broader quality of inclusive practice within these schools. Instead, it examines how a universal classroom-based intervention operates within mainstream settings where inclusion is an explicit policy aim but enacted under varying practical conditions. For this reason, the term *mainstream education* is used throughout to describe the empirical context of the study.

2.2 Prevention in Mainstream Education

International reports indicate increasing levels of reported emotional distress and behavioral difficulties among children and adolescents. The World Health Organization notes that mental health conditions are among the leading causes of disability in young people worldwide (WHO, 2020). In its *State of the World's Children* report, UNICEF (2021) characterizes the global burden of youth mental health problems as substantial and calls for efforts to ensure that schools become more supportive and safe environments for children. Although these developments are shaped by multiple societal factors, schools are among the few universal systems that provide sustained access to children across developmental periods.

A growing body of prevention-oriented scholarship argues that treatment-focused responses alone are insufficient to increase levels of reported emotional distress and behavioral difficulties, and that greater emphasis must be placed on strengthening everyday developmental environments (Fonagy et al., 2024; Biglan et al., 2012; Ogden & Amlund Hagen, 2018). From this perspective, prevention involves structuring contexts in ways that promote psychological safety, predictable routines, and supportive relationships before maladaptive patterns become entrenched. In educational settings, this implies attention to how classroom norms, transitions, expectations, and peer interactions are organized.

Prevention frameworks commonly distinguish between universal, targeted, and indicated levels of support (Gordon, 1987; Sugai & Horner, 2009). The present thesis focuses on universal classroom-based approaches. Universal prevention is implemented for all students and aims to modify shared classroom structures and interaction patterns. By increasing predictability, clarifying expectations, and reinforcing prosocial conduct, such approaches seek to strengthen the instructional and social ecology of the classroom.

Meta-analytic evidence indicates that universal school-based programs can produce small to moderate improvements in social competence, emotional regulation, and classroom behavior (Durlak et al., 2011; Wilson & Lipsey, 2007). Follow-up analyses further suggest that some of these effects may be sustained over time, indicating potential longer-term benefits for students' developmental trajectories (Kellam et al., 2008; Taylor et al., 2017). Evidence from school-wide behavioral frameworks also indicates that structuring classroom and school environments can improve student behavior and classroom climate (Bradshaw et al., 2010).

Although individual effects are often modest, such environmental structuring may influence overall classroom climate and reduce the likelihood that emerging difficulties escalate over time. At the same time, research on multi-tiered systems of support indicates that universal interventions may not be sufficient for all students, particularly those with more pronounced or complex

needs, highlighting the importance of additional targeted and intensive supports (e.g. Fuchs & Fuchs, 2006; Lane et al., 2015, 2020).

Within inclusive mainstream classrooms characterized by heterogeneous support needs, these considerations raise an important question about how universal preventive approaches operate for students with diverse regulatory and learning profiles. Although such approaches are implemented at the group level, their mechanisms may interact differently with individual characteristics and contextual conditions. Examining these interactions is central to understanding how universal classroom-based interventions function in heterogeneous classroom contexts.

2.3 The PAX Good Behavior Game

The PAX Good Behavior Game (PAX GBG; Embry et al., 2016) is a universal school-based intervention designed to support positive behavior and establish structured classroom environments in early primary education. The program integrates the original Good Behavior Game (Barrish et al., 1969), a well-established group contingency, with a coordinated set of behavioral kernels- brief, clearly defined procedures embedded in daily classroom practice. Together, these components aim to create predictable instructional routines, clarify behavioral expectations, and reinforce prosocial conduct at the whole-class level. In Sweden, PAX GBG has been implemented in several municipalities (Swedish National Board of Health and Welfare [Socialstyrelsen], 2021) as part of broader preventive initiatives targeting wellbeing and behavioral difficulties in mainstream classrooms.

2.3.1 The Good Behavior Game

The Good Behavior Game (GBG) was originally developed as a classroom-based approach to reduce disruptive behavior during instruction (Barrish et al., 1969). In its classic form, the teacher divides the class into small teams and introduces a small set of clearly defined classroom rules. During academic activities, teams receive marks for rule violations. Teams that remain below a predefined limit receive a brief reward at the end of the game period.

The GBG is usually described as an interdependent group contingency, meaning reinforcement is given to the group and depends on the collective behavior of its members (Litow & Pumroy, 1975; Skinner et al., 1996). This structure links individual actions to shared outcomes and creates peer-mediated contingencies within the classroom. Over time, the setup aims to increase on-task behavior and decrease disruptive conduct during instruction. Since the GBG is implemented at the whole-class level, it is viewed as a universal preventive intervention suitable for mainstream classrooms.

2.3.2 PAX GBG version

The PAX version of the GBG extends the original game by organizing classroom practice around a coordinated set of evidence-based kernels (Embry & Biglan, 2008). Kernels are defined as fundamental units of behavioral influence, brief, well-defined procedures with documented effects on specific behaviors, that can be combined into broader intervention systems. In PAX GBG, these kernels are embedded in everyday classroom routines and function together to structure expectations, attention, participation, and reinforcement.

Rather than relying solely on the group-based contingency of the game, PAX GBG establishes a broader behavioral framework within which the game operates. Across the school day, kernels are used to clarify expectations, regulate transitions and attention, and reinforce prosocial behavior, thereby shaping the classroom environment in which the game is later implemented. Evidence based kernels in the PAX GBG are shown in Table 1.

2.3.2.1 Establishing Shared Expectations

The intervention begins with the PAX Vision, in which students and teacher collaboratively define desired and undesired classroom behaviors. Desired behaviors are labeled “PAX” (peace, productivity, health, and happiness), while undesired behaviors are referred to as “Spleems,” a neutral term intended to reduce personal attribution. These expectations are made visible and revisited across activities.

Additional structures, such as mini-visions and Predict–Monitor–Reflect, are used to specify expectations in specific contexts and to support self-regulation. Together, these practices establish a shared behavioral framework and increase student participation in defining and monitoring classroom norms.

2.3.2.2 Regulating Attention and Participation

A second set of kernels targets recurring classroom situations, particularly attention, transitions, and participation. Signals such as PAX Quiet are used to efficiently gain attention, while tools such as PAX Voices and PAX Hands and Feet clarify expected behavior across different activities. Participation is structured through practices such as PAX Sticks, which promote distributed engagement, and transitions are supported through timed routines such as Beat the Timer. These kernels function to reduce ambiguity and increase predictability in everyday classroom interactions.

2.3.2.3 Reinforcing Prosocial Behavior

Positive reinforcement is embedded throughout the model. Kernels such as PAX Tootle Notes encourage students to attend to and acknowledge prosocial

behavior in peers, while group-based rewards, such as Grandma’s Whacky Prizes, provide immediate and socially engaging reinforcement contingent on meeting behavioral expectations.

Together, these practices aim to increase the frequency of desired behaviors and to establish a classroom climate characterized by cooperation and shared success.

2.3.2.4 Integration with the PAX Game

Once these routines are established, the PAX Game is introduced. While it follows the structure of the original GBG, it operates within an already structured behavioral environment. Shared expectations, attention signals, and reinforcement practices support the functioning of the group contingency, allowing the game to build on an existing system of classroom regulation rather than operating in isolation.

Table 1 Evidence-based Kernels in the PAX GBG

Evidence-based kernel	Description
PAX Vision	A joint vision for the classroom created in collaboration with the students. To create the most wonderful classroom in the world, what would the students like to see, hear, feel and do more of (PAX) and less of (Spleems). The answers go onto a large poster, which remains prominently posted in the classroom throughout the year, often referred to, and updated when necessary. A "mini vision" is set before new or complicated activities to clarify expectations.
PAX Leader	The PAX Leader kernel engages students in self-modeling in which they describe things that they and other students do to promote PAX.
PAX Quiet	A sound signal and a visual response. Aims to help the teacher get the students attention and lets the student practice self-regulation.
Grandma’s Whacky Prizes	A fun activity used as a reinforcement for positive behaviors (PAX).
PAX Hands and feet	Used to set clear expectations about how to handle hands and feet in the classroom
PAX Voices	Clarifies expectations for different levels of voices suitable for different activities in the classroom, and allows students to continuously practice different levels of voice.

Evidence-based kernel	Description
PAX Sticks	Used by the teacher to randomly select student for different activities in the classroom. Allow for students to practice self-regulation and active participation.
PAX Beat the Timer	Used to add an element of excitement to choirs to tend to take a lot of time, like cleaning up in the classroom, collecting materials, sitting down after recess etc.
Ok/not Ok	Used by the teacher as a way to discreetly reinforce students for PAX or remind them about bliim.
PAX Tootle Notes	Trains students in monitoring PAX and praising others for PAX.
PAX Game	A “soft competition” where students collaborate in teams to reach classroom goals.

2.3.3 Other versions of the GBG

In addition to the PAX version of the GBG, several other versions and adaptations have been used in research, including the American Institutes for Research version (AIR; Dolan et al., 1989; Ford et al., 2014), the Dutch version (Van der Sar & Goudswaard, 2001), the Good Inclusion Game (Dillenburg et al., 2019), and the Caught Being Good Game (Bohan & Smyth, 2022). In Sweden, the GBG has also been adapted as Höjaspelet (Djamnezhad et al., 2025)

While these versions share a common foundation in the GBG, they differ in several key design features. The AIR version, for example, typically relies on a set of predetermined rules to define expected classroom behaviors, and teachers are often encouraged to minimize interaction with students during gameplay. In contrast, the Dutch version emphasizes positive, explicitly stated rules and actively encourages students to support one another during the game.

Other adaptations alter the underlying contingency structure. The Caught Being Good Game emphasizes reinforcing positive behaviors instead of tallying rule infractions, while the Good Inclusion Game explicitly promotes inclusive behaviors within the classroom.

Compared to these variants, PAX GBG does not depend on fixed rule sets but instead focuses on co-creating classroom expectations and integrating multiple behavioral kernels. This enables greater flexibility in how norms are established and provides opportunities to explicitly address participation and inclusion within classroom practices.

2.4 Evidence Base for the PAX /GBG

To date, there is limited evidence separating the unique contribution of the PAX behavioral kernels from the effects of the Good Behavior Game (GBG) itself. No published experimental studies have directly compared PAX GBG with other GBG variants, and the specific additive value of the PAX components therefore remains largely untested. Quasi-experimental evidence suggests that the use of PAX kernels alone may reduce disruptive behavior prior to the introduction of the group contingency component (as discussed in Wilson et al., 2014). These findings suggest that the kernels may independently support improvements in classroom behavior, although conclusions are tentative due to the study design (Johansson et al., 2020).

Because PAX GBG builds on the core GBG structure, and because many empirical syntheses do not distinguish between GBG variants, the broader research base on the GBG is relevant when considering the empirical foundation of PAX. Previous reviews have generally treated different versions of the GBG- including PAX- as one broad intervention category. As a result, the evidence summarized in this section reflects findings across GBG variants rather than effects specific to the PAX version alone.

A range of reviews and meta-analyses have examined the effects of the GBG in general education settings (Bowman-Perrott et al., 2016; Flower et al., 2014; Nolan et al., 2014; Smith et al., 2021; Tankersley, 1995; Tingstrom et al., 2006). Across these studies, the GBG has been associated with reductions in disruptive and aggressive behavior, increases in on-task behavior, and improvements in cooperation and other prosocial behaviors.

For example, Flower et al. (2014) reported moderate to large reductions in off-task, disruptive, and aggressive behaviors, emphasizing the importance of consistent application of reward procedures. In a meta-analysis of single-case experimental studies, Bowman-Perrott et al. (2016) found substantial decreases in problem behavior and increases in prosocial responding.

More recent evidence has been more heterogeneous. Smith et al. (2021) found that the GBG was superior to control conditions for some outcomes, such as teacher- and peer-rated conduct problems and peer-rated withdrawn behaviors, while showing no significant effects on inattention or teacher-rated withdrawal. They also reported a small positive effect on reading comprehension for boys, but not girls. These findings highlight that effects may vary depending on outcome domain and student characteristics.

Findings from a large-scale trial in England further underscore the importance of implementation conditions. Ashworth et al. (2020) reported no overall positive effects of the GBG on behavioral, social-emotional, or academic outcomes and identified challenges in achieving consistent implementation. Subsequent analyses by Humphrey et al. (2021) similarly reported null results overall, while identifying implementation fidelity and classroom context as key moderators. Together, these studies suggest that the effectiveness

of GBG-based interventions depends on how and under what conditions they are implemented.

Several studies have examined long-term outcomes of the GBG. Findings from the Baltimore Prevention Program, in which children were followed from early elementary school into adulthood, suggest that early participation in the GBG has been associated with reduced rates of substance use, antisocial behavior, and mental health problems later in life (Kellam et al., 2011; Poduska et al., 2008). Although such long-term effects cannot be assumed across contexts, these findings illustrate the potential developmental significance of classroom-based preventive practices. Embry (2002) has described the GBG as a potential “behavioral vaccine,” referring to its capacity to influence long-term risk trajectories when implemented consistently over time.

In Sweden, evaluations of GBG-based interventions remain limited, and national reviews have highlighted the need for further research on school-based programs targeting behavioral and psychosocial outcomes (Swedish Agency for Health Technology Assessment and Assessment of Social Services [SBU], 2022). Recent studies have begun to examine the implementation and outcomes of GBG in Swedish classrooms, including a cluster-randomized trial evaluating classroom-level effects (Djamnezhad et al., 2025). In addition, ongoing research projects, including a large-scale randomized controlled trial of PAX GBG in Sweden, aim to further examine program effects under contemporary educational conditions.

2.5 PAX GBG and Students with SEN

From a behavioral and prevention perspective, these features suggest that PAX GBG may benefit many students with regulatory or social–communication difficulties. At the same time, the program does not constitute an individualized intervention. It is designed as a preventive, classwide structure based on shared routines and interdependent group contingencies. An important question, therefore, is how such universal classroom-based supports function for students with heterogeneous support needs in mainstream classrooms.

Research on universal prevention consistently shows that responses to universal Tier 1 supports vary based on individual skill profiles and contextual fit (Fuchs & Fuchs, 2006). Students with more significant difficulties in attention, impulse control, or social understanding may need additional scaffolding to benefit fully (Adamson et al., 2019; Ashworth et al., 2020). Evidence from GBG research also indicates that intervention effects can differ depending on students’ initial risk levels and behavioral profiles (Ialongo et al., 1999). Within the broader GBG literature, authors have noted that while the interde-

pendent group contingency is often effective, it may create challenges for students who struggle with rule-following or self-regulation. Concerns discussed mainly relate to potential risks rather than proven harms. These include the possibility that repeated loss of team rewards may discourage some students and that disruptive behavior may draw peer attention in ways that interfere with intended contingencies (Skinner et al., 1996; Tingstrom et al., 2006). Early GBG studies also reported individual cases where some children did not respond as expected (Barrish et al., 1969). Although such findings have not been consistently shown in previous studies, they highlight reasonable concerns about accessibility for students with more complex needs.

At the same time, a growing body of research suggests that many students with SEN can benefit from GBG-based approaches. Studies conducted in specialized or targeted settings report reductions in disruptive behavior and improvements in engagement among students with emotional and behavioral difficulties (Bowman-Perrott et al., 2016) and among students on the autism spectrum (Vargo et al., 2020). Broader evaluations have been associated with reductions in problem behavior, which may, in turn, reduce the need for more intensive or individualized supports (Bradshaw et al., 2009) and, in some cases, yield stronger effects for students with elevated behavioral risk than for their typically developing peers (Bowman-Perrott et al., 2016). Long-term follow-ups from the Baltimore Prevention Program further indicate sustained benefits for children with early behavioral vulnerabilities (Kellam et al., 2008, 2014). Adapted versions of the GBG have also been implemented with promising results in specialist settings for children with psychiatric disorders and SEN (Breeman et al., 2016; Groves et al., 2021).

Taken together, the available evidence suggests substantial potential for PAX GBG to support students with SEN, while also indicating that responsiveness may vary. What remains less well understood is how the program functions in inclusive mainstream classrooms, where regulatory demands, peer dynamics, and instructional expectations differ from those in specialized or tightly controlled research contexts. Addressing this gap provides the rationale for the present thesis.

3 Theories and Frameworks

This thesis is situated within the academic field of special education, which examines how educational environments and instructional practices can be organized to support participation, learning, and developmental outcomes for students with diverse support needs (Odom, 2009; Cook & Odom, 2013). Within this field, increasing attention has been directed toward identifying and implementing classroom practices that can support positive behavioral, social, and academic development within ordinary school settings.

Universal classroom interventions such as the PAX GBG represent one approach to structuring everyday classroom practices to promote prosocial behavior, support students' regulatory capacities, and facilitate sustained engagement in learning activities. Understanding how such interventions are expected to operate requires drawing on several complementary theoretical perspectives.

Prevention science provides an overarching framework for understanding how modifying everyday environments can influence developmental trajectories by reducing exposure to risk factors and strengthening prosocial behavior (Biglan et al., 2012; Dishion & Snyder, 2016; Kellam et al., 2011). Applied behavior analysis explains how antecedents, reinforcement, and contingencies shape observable behavior within these environments (Cooper et al., 2020). Developmental research on self-regulation and executive functions situates these processes within trajectories of emerging inhibitory control, attention regulation, and goal-directed behavior across childhood (Kopp, 1982; McClelland et al., 2010). Contemporary conceptualizations of PAX GBG emphasize self-regulation as a central developmental process and highlight that classroom change is achieved through structured contingencies, shared routines, and collective practices that shape everyday interaction patterns between students and teachers (Embry & Biglan, 2008; O'Keeffe, 2021).

The purpose of this chapter is to outline the theoretical perspectives relevant for understanding these mechanisms. The chapter first situates the PAX GBG within prevention science and tiered models of support. It then addresses behavioral and environmental mechanisms through which classroom routines influence behavior, including applied behavior analysis, interdependent group contingencies, and evidence-based kernels. Subsequent sections discuss the role of shared language and relational framing, developmental perspectives on self-regulation and executive functions, and the implementation conditions

that influence how interventions operate in practice. The chapter concludes by synthesizing these perspectives in a logic model that summarizes how the PAX GBG is commonly theorized to influence classroom processes and student development.

3.1 Prevention Science

Prevention science provides a framework for understanding how schools can organize environments that promote positive developmental trajectories and reduce the likelihood that behavioral, emotional, or academic difficulties become entrenched over time. A central premise within this field is that children's development is shaped through continuous interaction with social environments, including classrooms, peer groups, and instructional practices. Preventive interventions, therefore, aim not only to address individual problems once they emerge but also to modify contextual conditions in ways that reduce exposure to risk factors and increase opportunities for adaptive behavior and participation (Biglan et al., 2012; Dishion & Snyder, 2016; Kellam et al., 2011).

From this perspective, preventive environments are deliberately structured to support positive developmental processes. Such environments typically involve clearly communicated expectations, opportunities to practice desired behaviors, and reinforcement systems that support prosocial participation. By shaping interaction patterns within everyday settings, preventive approaches seek to influence developmental pathways before patterns of academic failure, behavioral escalation, or social exclusion become firmly established (Biglan et al., 2012; Dishion & Snyder, 2016).

Within prevention science, Gordon's (1987) tripartite model distinguishes between universal, selective, and indicated prevention. These categories describe preventive logics rather than specific interventions. Universal prevention targets entire populations and assumes that all individuals benefit from supportive and predictable environments. Selective prevention focuses on groups exposed to elevated contextual risk, while indicated prevention targets individuals already showing early signs of difficulty. Importantly, these categories refer to levels of preventive focus rather than mutually exclusive intervention systems, and many preventive frameworks combine strategies across levels.

3.1.1 Nurturing environments

One influential framework for understanding how environments shape developmental trajectories within prevention science is the concept of nurturing environments (Biglan et al., 2012). This framework emphasizes that behavioral development is shaped through everyday interaction patterns rather than

by individual traits alone. Nurturing environments are characterized by four central features: minimizing exposure to biologically and socially toxic conditions, explicitly teaching and reinforcing prosocial behavior, limiting opportunities and reinforcement for problem behavior, and fostering psychological flexibility and adaptive regulation (Biglan et al., 2012).

Rather than focusing on individual deficits, this perspective highlights how systematically structuring environments can influence behavioral development across groups of children. In educational settings, nurturing environments can be understood as classroom contexts in which expectations are predictable, prosocial behavior is explicitly reinforced, and coercive interaction patterns are minimized. This perspective is particularly relevant in classrooms, where academic engagement, behavioral regulation, and social participation are closely interconnected. Practices that clarify expectations, structure participation, and reinforce appropriate behavior may therefore support multiple domains simultaneously by protecting instructional time, strengthening classroom norms, and facilitating cooperative participation.

The PAX Good Behavior Game draws explicitly on this preventive logic. A central aim of the intervention is to cultivate nurturing classroom environments characterized by clear expectations, shared norms, and frequent reinforcement of prosocial behavior (Embry, 2002; Embry & Biglan, 2008; Embry et al., 2016). Through structured routines, reinforcement systems, and collaborative classroom practices, PAX seeks to alter the social ecology of the classroom by increasing the density of positive reinforcement while reducing opportunities for disruptive interaction patterns. In this sense, the intervention operates primarily at the level of environmental design: rather than targeting individual students directly, it aims to modify the interaction patterns and contingencies that shape behavior across the classroom.

3.1.2 Tiered models of support

In educational contexts, prevention principles have also been translated into tiered systems of support, which organize interventions along a continuum of increasing intensity. Within this framework, Tier 1 represents universal support for all students, Tier 2 includes targeted support for students who require additional assistance beyond the universal level, and Tier 3 involves intensive, individualized intervention. The rationale underlying such models is preventive rather than reactive: schools aim to establish strong universal environments while maintaining the capacity to provide additional support when students require more than the universal foundation alone (Fuchs & Fuchs, 2006; Lane et al, 2015; Sugai & Horner, 2009).

Tiered systems should not be understood as a single unified model. Rather, the literature describes a set of related frameworks that differ in historical

origin, domain emphasis, and implementation structures. Response to Intervention (RTI) was initially developed in relation to academic difficulties, particularly for early identification and support of students experiencing reading and learning challenges (Jimerson et al., 2016; Stoiber & Gettinger, 2016). School-wide Positive Behavioral Interventions and Supports (SWPBIS) emerged as a prevention-oriented framework focusing on behavior and school climate through the systematic teaching and reinforcement of expected behaviors (Sugai & Horner, 2009).

More recently, broader frameworks such as Multi-Tiered Systems of Support (MTSS) have been proposed to integrate these approaches into a coordinated system that addresses multiple domains of student functioning (Jimerson et al., 2016; Stoiber & Gettinger, 2016). Within MTSS, tiered structures organize academic, behavioral, and, in some cases, social-emotional supports within a common prevention-oriented framework. One example of such an integrative approach is Comprehensive, Integrated, Three-Tiered (Ci3T) model, which explicitly organizes support across academic, behavioral, and social domains within a unified tiered structure (Lane et al., 2020). Tiered systems are not intended to replace special education services. Rather, intensive Tier 3 support often overlaps with or is delivered within special education, while the tiered framework provides a structure for organizing support across intensity levels.

When implemented effectively, such frameworks may strengthen schools' capacity to support heterogeneous student populations within shared educational environments. By combining universal preventive practices with increasingly intensive support, tiered systems aim to create conditions under which diverse learners can participate in common instructional settings while still receiving individualized assistance when necessary (Adamson et al., 2019; Fuchs & Fuchs, 2006; Lane et al., 2020).

Within a prevention-oriented framework, the PAX Good Behavior Game can be understood as a universal classroom-based intervention aligned with Tier 1 support. PAX is implemented with entire classes and aims to influence everyday interaction patterns by establishing shared expectations, structuring opportunities for behavioral practice, and reinforcing prosocial behavior. In this sense, it contributes to the universal preventive environment emphasized in tiered models. Although PAX is primarily conceptualized as a Tier 1 intervention, its practices may, in some cases, be adapted or extended to support students requiring more targeted or intensive support.

The following sections outline the behavioral, linguistic, developmental, and implementation-related processes through which these classroom practices are expected to influence participation and student development over time.

3.2 Behavioral Mechanisms of the PAX GBG

3.2.1 Applied Behavior Analysis

The behavioral principles underlying the PAX Good Behavior Game are grounded in applied behavior analysis (ABA). Drawing on the work of B. F. Skinner, ABA examines how behavior is shaped and maintained by environmental contingencies (Skinner, 1953). From this perspective, behavior is understood as a function of interactions between antecedent conditions, observable actions, and their consequences.

A central analytic framework within ABA is the Antecedent–Behavior–Consequence (ABC) model, which describes how environmental cues trigger behavior and how consequences influence the likelihood that the behavior will occur again (Cooper et al., 2020). In classroom contexts, both prosocial and disruptive behaviors may be reinforced, often unintentionally, through teacher attention, peer reactions, or access to preferred activities.

Peer processes are particularly influential in group settings. Social attention from peers can reinforce disruptive behavior and contribute to the development of coercive interaction patterns within classrooms (Dishion & Tipsord, 2011). Conversely, altering the reinforcement structure within peer groups can promote prosocial norms and reduce disruptive behavior.

Within the PAX GBG, these behavioral principles are operationalized through structured contingencies embedded within everyday classroom routines. By systematically modifying antecedent cues, reinforcement systems, and opportunities for behavioral practice, the intervention aims to shift classroom interaction patterns over time (Embry, 2002; Embry & Biglan, 2008).

3.2.2 Interdependent group contingencies

A central behavioral mechanism in the original GBG and the PAX Game is the use of interdependent group contingencies. In such arrangements, reinforcement for each individual is contingent on the group's collective performance. This structure aligns individual behavior with group outcomes and increases opportunities for peer-mediated reinforcement.

Research on group contingencies has shown that linking reinforcement to collective performance can reduce disruptive behavior and increase task engagement in classroom settings (Barrish et al., 1969; Skinner et al., 1996; Tankersley, 1995). By altering the reinforcement structure within peer groups, interdependent contingencies encourage students to support one another in maintaining shared behavioral goals.

During the Game, teams work to keep instances of undesired behavior below a predetermined criterion. This arrangement creates repeated opportunities for behavioral inhibition, sustained attention, and coordinated responding

with peers. Through repeated exposure to predictable contingencies and socially mediated reinforcement, such arrangements may strengthen both individual and group-level regulation over time (Embry, 2002; Embry & Biglan, 2008).

3.2.3 Evidence-based kernels

Within behavioral science, the concept of evidence-based kernels refers to simple, indivisible behavioral procedures that have experimentally demonstrated effects on specific behaviors (Embry, 2004; Embry & Biglan, 2008). Kernels represent the smallest functional units of behavioral influence. Each kernel alters behavior by modifying antecedent conditions, structuring opportunities for practice, or changing the consequences associated with particular actions. In this context, “evidence-based” refers to the fact that these kernels are derived from behavioral procedures that have demonstrated effects on specific behaviors in experimental or applied research, rather than implying that each individual kernel has been evaluated as part of a standardized intervention package.

Kernels can therefore be understood as practical operationalizations of behavioral principles derived from applied behavior analysis, particularly within the ABC framework (Cooper et al., 2020). By embedding such procedures within everyday interactions, kernels enable behavioral mechanisms to be applied in flexible, contextually responsive ways.

In the PAX GBG, the term “kernels” refers to structured classroom tools that combine several behavioral procedures into coherent routines (Johansson et al., 2020; Embry et al., 2016). A commonly cited example is the PAX Quiet kernel. The teacher signals with a brief harmonica tone, prompting students to stop ongoing activity and orient their attention toward the teacher. Rapid responding is typically followed by brief positive acknowledgment. Within the ABC framework, the harmonica tone functions as an antecedent cue signaling that a specific response is expected; the coordinated stopping and orienting constitute the practiced behaviors; and the contingent acknowledgment strengthens rapid compliance. Through frequent repetition across the school day, such routines provide structured opportunities for students to practice attentional shifting, response inhibition, and coordinated behavior with peers. Importantly, these kernels operate continuously within classroom routines, shaping the contingency structure of the environment.

Conceptually, the original Good Behavior Game can be described primarily as an interdependent group contingency. In contrast, the PAX GBG represents a coordinated system of kernels embedded across everyday classroom activities. These kernels collectively target several complementary processes, including clarification of expectations, attentional cueing, behavioral rehearsal, peer-mediated reinforcement, and contingent reward delivery.

Together, these procedures shape the classroom's ongoing contingency structure. By increasing predictability, specifying expected responses, and providing repeated opportunities for practice, the kernels establish the conditions for the interdependent group contingency of the PAX Game to function effectively. In this thesis, the term kernels refers to the specific evidence-based practices that make up the PAX GBG, such as structured signals, shared expectations, and reinforcement strategies, which are enacted as part of everyday classroom routines.

3.2.4 Language and Shared Meaning: Relational Frame Theory

While applied behavior analysis explains how antecedents and consequences shape observable behavior, Relational Frame Theory (RFT) provides a complementary perspective on how language and shared meaning influence behavior in classroom environments (Hayes et al., 2001). RFT extends the behavior-analytic tradition by describing how verbally mediated relations influence how individuals interpret events and regulate their behavior.

According to RFT, individuals learn to connect words, actions, and social cues with one another in meaningful ways. These learned relations influence how situations are understood and how individuals respond. For example, people learn what behaviors belong together, which actions are different, and what is considered more or less appropriate in a given context. In this way, language helps shape interpretation and behavior (Hayes et al., 2001). Within classroom contexts, shared language may therefore play an important role in shaping behavioral norms. When teachers and students repeatedly use common terms to describe desired and undesired behaviors, these terms can become linked to expectations that influence attention, interpretation, and action.

Johansson et al. (2020) draw on RFT to explain how several PAX routines rely on the development of such shared relational frames. Through repeated use of terms such as PAX and Spleems, the collaboratively developed PAX Vision, and routines such as Predict–Monitor–Reflect, teachers and students construct a shared verbal framework for interpreting classroom behavior. Over time, these verbal cues may become linked to expectations about cooperation, attention, and prosocial conduct.

The terminology used in PAX illustrates this process. Behaviors that support the shared classroom vision are labeled as PAX, while behaviors that interfere with it are labeled as Spleems. The term Spleem is intentionally introduced as a neutral word without existing evaluative associations (PAXIS Institute, 2023). By avoiding evaluative labels such as “bad behavior,” the intervention aims to reduce negative emotional reactions and shift attention toward problem solving and collective regulation (Johansson et al., 2020).

At the same time, the word PAX functions as a positive relational anchor within the classroom's shared language. When behaviors are labeled as PAX, they become linked not only to the specific action but also to the broader network of values and expectations expressed in the PAX Vision. Through repeated use, these relational frames may strengthen the reinforcing value of prosocial behavior by connecting individual actions to shared goals and group identity (Gil-Luciano et al., 2017; Johansson et al., 2020).

From this perspective, language becomes part of the classroom's regulatory infrastructure. Shared verbal cues help coordinate behavior across students by shaping how actions are interpreted and evaluated within the group. When such relational frames become well established, they may support stable classroom norms and guide behavior even outside the immediate reinforcement contingencies embedded in the PAX Game.

3.3 Self-Regulation and Executive Functions

The behavioral and linguistic processes described in the preceding sections operate within broader developmental trajectories of self-regulation. Self-regulation is commonly defined as the set of processes through which individuals manage attention, emotion, and behavior in accordance with goals, contextual expectations, and social norms (Duckworth & Carlson, 2013). In educational settings, these capacities are closely related to students' ability to sustain attention during instruction, inhibit impulsive responses, follow multi-step directions, and coordinate behavior with peers during collaborative activities.

The concept of self-regulation is closely related to executive functions, which refer to a set of cognitive control processes involved in goal-directed behavior. Although theoretical models differ in emphasis, many converge on three core components: inhibitory control, working memory, and cognitive flexibility (Diamond, 2013; Miyake et al., 2000). Other influential accounts highlight the central role of behavioral inhibition in enabling executive processes and self-regulation (Barkley, 2012). Together, these processes support the maintenance of task goals, resistance to distraction, updating of relevant information, and adaptation to changing situational demands. In classroom contexts, they provide a cognitive foundation for sustained engagement and coordinated participation in group activities.

Self-regulation in classroom settings is not only an individual capacity but also a social process. Effective participation in group activities requires students to interpret social cues, coordinate actions with peers, and contribute to shared goals. In this sense, regulatory capacities are closely intertwined with prosocial behavior and cooperative participation, both of which have been linked to positive school adjustment and engagement (Wentzel, 2014). This

broader interpretation is also consistent with developmental models of nurturing environments that emphasize the active promotion of prosocial behavior and supportive peer relations (Biglan et al., 2012).

Contemporary developmental perspectives conceptualize self-regulation as a dynamic capacity that emerges through ongoing interactions between children and their social environments (Blair & Ursache, 2011; McClelland et al., 2010). Early in development, regulatory processes are supported through co-regulation, in which caregivers and teachers structure situations, provide cues, and guide children's responses (Kopp, 1982; Feldman, 2007). Through repeated participation in structured social contexts, these externally supported processes may gradually become internalized.

Classroom environments play a central role in this developmental process. Predictable routines, explicit expectations, and consistent feedback provide forms of external scaffolding that support students' ability to regulate their behavior in complex social settings (McClelland & Cameron, 2012). In contrast, environments characterized by ambiguity, rapid transitions, or inconsistent expectations may increase regulatory demands and place greater strain on emerging regulatory capacities. Difficulties in inhibitory control and related executive processes have been associated with challenges in sustaining attention, regulating impulses, and coordinating behavior in classroom contexts (Barkley, 2012).

Within the PAX Good Behavior Game, several core practices are designed to structure opportunities for practicing regulatory skills. Kernels such as response signals, clearly defined expectations, and structured rehearsal routines provide repeated occasions for students to shift attention, inhibit impulses, and coordinate their behavior with classroom norms. The PAX Game further introduces an interdependent group contingency that links individual behavior to collective outcomes. By requiring teams to maintain behavior below a predetermined criterion, the game creates structured opportunities for students to monitor their actions, inhibit impulsive responses, and support peers in maintaining shared goals.

Through repeated exposure to predictable cues, behavioral rehearsal, and socially mediated reinforcement, participation in these routines may contribute to the gradual strengthening of regulatory capacities over time. This interpretation is consistent with developmental research indicating that structured classroom environments can support the internalization of regulatory skills across childhood (Blair & Raver, 2015).

Within the conceptual model guiding this thesis, self-regulation therefore occupies a dual position: it can be understood both as a developmental process through which structured classroom practices influence participation and behavior, and as a proximal outcome that may strengthen through sustained participation in predictable and supportive classroom environments.

3.4 Implementation of PAX GBG

Implementation refers to the process through which an intervention is translated from program design into everyday classroom practice. Within prevention science and school-based intervention research, implementation quality is widely recognized as a critical determinant of outcomes (Baffsky et al., 2023; Domitrovich et al., 2008; Durlak & DuPre, 2008). Even interventions with strong empirical support may produce weaker or inconsistent outcomes when core components are not delivered as intended.

Implementation research commonly distinguishes several dimensions of implementation quality, including fidelity, dosage, quality of delivery, and participant responsiveness (Durlak & DuPre, 2008). Fidelity refers to the extent to which core intervention components are delivered as intended, whereas adaptations involve adjustments made to fit local contexts or participants' needs. In classroom-based interventions such as the Good Behavior Game, implementation fidelity has been shown to be closely related to behavioral outcomes, particularly when core reinforcement contingencies are applied consistently (Flower et al., 2014; Ashworth et al., 2020).

At the same time, implementation in educational settings must be understood in relation to the realities of classroom practice. Teachers implement interventions in heterogeneous environments characterized by variation in student needs, instructional demands, and available resources (Odom, 2009; Jones et al., 2017). As a result, implementation often involves balancing adherence to core components with responsiveness to contextual conditions. This tension between fidelity and adaptation has become ...a central concern in implementation research, particularly for universal interventions applied in diverse classroom contexts (Iwai et al., 2025).

Within the PAX Good Behavior Game, implementation primarily involves the consistent use of kernels, classroom routines, and reinforcement structures designed to shape interaction patterns in the classroom (Embry, 2002; Embry & Biglan, 2008). These practices function as the active ingredients of the intervention: they structure antecedents, create opportunities for behavioral rehearsal, and modify reinforcement contingencies.

Implementation quality therefore influences whether these mechanisms can operate as intended. When kernels are used consistently and routines become predictable, the intervention is expected to generate classroom-level processes such as increased positive reinforcement, clearer expectations, and stronger prosocial norms. Conversely, when implementation is inconsistent or difficult to sustain, these processes may be weakened or unevenly distributed across students.

Although the present thesis does not directly measure implementation fidelity, teachers' accounts provide insight into how PAX kernels are enacted, adapted, and at times difficult to sustain in heterogeneous classroom contexts.

Examining these processes is therefore important for understanding how the theoretical mechanisms of the intervention unfold in everyday practice.

3.5 Synthesized Logic Model of the PAX GBG

Program theory refers to the set of assumptions about how an intervention is expected to produce change, including the mechanisms through which specific activities are linked to intended outcomes (Funnell & Rogers, 2011). Making these assumptions explicit is particularly important in complex classroom interventions, where multiple interacting processes contribute to observed effects.

Logic models are commonly used in intervention research as a way of representing program theory by specifying relationships between resources, intervention activities, and anticipated outcomes (Knowlton & Phillips, 2013; W. K. Kellogg Foundation, 2004). Within program evaluation, such models function as practical tools for articulating and organizing the assumptions that link intervention components to expected processes and outcomes.

In research on the GBG and PAX GBG, several publications describe how structured classroom routines, reinforcement systems, behavioral rehearsal, and interdependent group contingencies are expected to influence classroom interaction patterns and student behavior (Embry, 2002; Embry & Biglan, 2008; Coombes et al., 2019; O’Keeffe, 2021). Although these accounts vary in emphasis and level of specification, they generally describe a sequence in which intervention practices influence immediate classroom processes, which in turn contribute to short- and longer-term developmental outcomes. Some accounts foreground contingency management, others emphasize shared normative framing, and more recent work highlights the development of self-regulation (Coombes et al., 2019; Embry et al., 2016; Johansson et al., 2020; O’Keeffe, 2021). Rather than treating these as competing explanations, the present thesis conceptualizes them as complementary components within a broader preventive system.

To organize these assumptions systematically, this thesis draws on the logic model framework described in *Purposeful Program Theory* (Funnell & Rogers, 2011). Within this framework, intervention processes are analytically differentiated into inputs, activities, outputs, and short- and long-term outcomes. Inputs refer to the resources and conditions required for implementation, including training, coaching, and access to materials. Activities correspond to the intervention practices delivered in the classroom, such as PAX kernels. Outputs capture immediate changes in classroom processes, including increased predictability, a higher density of positive reinforcement, and the development of prosocial classroom norms. Short-term outcomes refer to proximal changes in student behavior and functioning, such as improvements in

self-regulation, prosocial behavior, and academic engagement, which may in turn contribute to longer-term developmental outcomes.

Figure 1 presents a synthesized logic model developed for this thesis. The model integrates recurring elements from published GBG and PAX GBG formulations into a coherent structure that links intervention components, classroom processes, and student outcomes. In this thesis, the model functions as an analytic framework for organizing the theoretical assumptions outlined in this chapter and for guiding the interpretation of findings in heterogeneous mainstream classrooms.

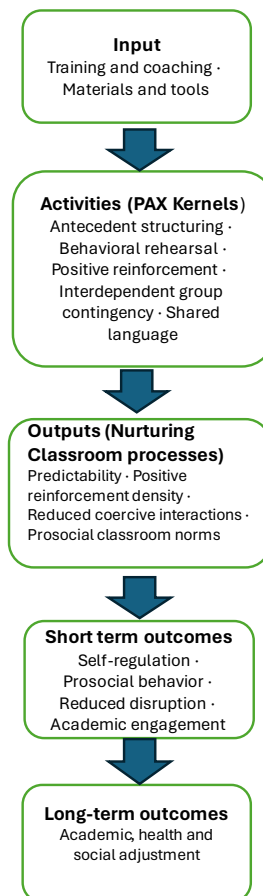


Figure 1: Synthesized Logic Model for the PAX GBG

4 The Swedish Context

Educational systems vary in how they conceptualize and organize support for students with SEN. Because school-based interventions are implemented within specific institutional and policy contexts, these broader educational structures are important for understanding how support practices and interventions are enacted in practice (Göransson & Nilholm, 2014; Nilholm & Göransson, 2017). Sweden, a Nordic welfare state with about 10 million residents and a decentralized school system across 290 municipalities, has long prioritized equity and participation in education. This commitment is reflected in the principle of a “school for all,” meaning that most students, including those with diverse support needs, are educated in mainstream classrooms (Giota & Emanuelsson, 2018; Nilholm, 2021; SNAE 2024).

Support for students with SEN in Sweden is regulated through the Education Act and organized within a needs-based framework comprising universal instruction (*ledning och stimulans*), additional adjustments (*extra anpassningar*), and special support (*särskilt stöd*) (SFS 2010:800; SFS 2022:146).

This structure has been described as resembling a tiered model of support, although decisions about intensifying support are typically guided by professional judgment and local organizational conditions rather than standardized decision rules (SFS 2010:800; Göransson et al., 2015; Nilholm, 2021; SNAE 2022a).

This chapter describes key aspects of the Swedish educational context relevant to the present study, focusing on the organization of support for students with SEN, variation in how support is implemented in practice, and the role of school-based preventive interventions. These conditions are important for understanding how universal classroom interventions such as the PAX Good Behavior Game are implemented in Swedish schools and how their accessibility may be shaped by the surrounding support infrastructure.

4.1 Organization of Swedish schooling

The Swedish school system is characterized by a strong policy commitment to educating students within mainstream settings (Giota & Emanuelsson, 2018; Nilholm, 2021). National statistics indicate that approximately 98.5%

of students attend mainstream compulsory schools, while around 1.5% are enrolled in specialized compulsory schools for students with intellectual disabilities or specific sensory or language impairments (Swedish National Agency for Education, 2024).

Responsibility for organizing compulsory schooling is distributed across national, municipal, and school levels. National legislation regulates students' rights to support and establishes overarching educational goals, while municipalities and individual schools are responsible for organizing teaching and allocating resources (SFS 2010:800). Consequently, the implementation of support measures may vary across local contexts.

4.2 Structure of Support for Students with Special Educational Needs

The organization of support for students with special educational needs in Sweden is regulated in the Education Act (SFS 2010:800) and has traditionally been structured through three levels: universal instruction (*ledning och stimulans*), additional adjustments (*extra anpassningar*), and special support (*särskilt stöd*). This structure reflects the principle that support should, as far as possible, be provided within ordinary classroom instruction. Sweden has also seen increasing recognition and diagnosis of neurodevelopmental conditions such as ADHD and autism among school-aged children (Swedish Government Official Reports, 2025). At the same time, access to educational support is not formally contingent on receiving a medical diagnosis. Under the Education Act, support is intended to be based on students' needs in relation to their learning situation rather than diagnostic status (SFS 2010:800). Consequently, students with similar diagnoses may receive different forms or levels of support depending on how needs are assessed and addressed within local school contexts (Westling Allodi, 2016). According to the Education Act (SFS 2010:800; amended in SFS 2022:146), all students are entitled to *ledning och stimulans*, referring to accessible and well-structured teaching within the regular learning environment. When this is not sufficient for a student to reach the educational goals, schools are expected to introduce additional adjustments, typically short-term measures implemented within the classroom by the teacher, such as adapted materials, structured guidance, or modified tasks. If these measures prove insufficient, schools are required to investigate whether the student is in need of special support. Such support involves more extensive or longer-term interventions, often planned in collaboration with specialized staff and documented in an individual action plan (*åtgärdsprogram*).

Although this structure formally distinguishes between levels of support, research and national evaluations indicate that these distinctions are often interpreted flexibly in practice. Schools vary in how support measures are defined, documented, and implemented, and teachers frequently rely on professional judgment when deciding how and when support should be intensified (Göransson et al., 2015; Nilholm, 2021; Takala et al., 2020). Inspections have likewise identified variation across municipalities in how students' needs are identified and how support is organized (Swedish Schools Inspectorate, 2014, 2020). National statistics further indicate differences in the proportion of students receiving special support across municipalities (SNAE, 2022). Recent qualitative research has also documented recurring support gaps from the perspectives of Swedish children and parents, including delays, discontinuity, and difficulties obtaining adequate support (Lago & Elfstrand, 2026).

Taken together, these findings suggest that while the legal framework regulating support is nationally defined, the organization and accessibility of support are shaped by local conditions and practices. Thus, universal interventions in Sweden are often implemented in classrooms where support access is formally guaranteed but operationally variable.

At the time of this study, the Swedish curricula and support structure is also subject to ongoing policy development. Recent governmental inquiries have proposed changes to how support measures are defined and implemented, including replacing “additional adjustments” with more formalized forms of support and strengthening coordination and preventive efforts (Swedish Government Official Reports [SOU], 2025:44). While these proposals may contribute to earlier and more structured support, it remains unclear how they will influence the organization and accessibility of support in practice.

4.3 School-based prevention in Sweden

Indicators of student well-being and classroom functioning have contributed to growing interest in preventive approaches within Swedish schools. International and national monitoring has pointed to concerns regarding student mental health, psychosomatic complaints, stress, and concentration difficulties among school-aged children (UNICEF, 2021; Public Health Agency of Sweden, 2018, 2023; Hagquist, 2015). Similar patterns are reflected in Swedish school contexts, where students frequently report difficulty concentrating in noisy or disruptive classroom environments, and teachers often identify behavioral regulation and classroom conduct as recurring challenges in everyday instruction (Swedish Schools Inspectorate, 2021; Talme et al., 2018).

These developments have contributed to increased interest in school-based preventive interventions aimed at strengthening classroom environments and supporting students' social, emotional, and behavioral development. Over the

past two decades, several universal programs have been introduced in Swedish schools. For example, Comet for Teachers focuses on classroom management strategies such as establishing clear expectations and reinforcing positive behavior (Karlberg, 2011). Youth Aware of Mental Health (YAM) aims to promote mental health literacy and help-seeking among adolescents (Wasserman et al., 2018). Inclusive Behavioral Support in School (IBIS), a Swedish adaptation of the Norwegian PALS framework, focuses on establishing predictable routines and shared prosocial norms at the school level (Nylén et al., 2021; Ogden et al., 2018).

Taken together, these initiatives illustrate a growing interest in universal preventive approaches that aim to strengthen the everyday conditions under which teaching and learning occur. At the same time, research suggests that behaviorally oriented approaches have historically played a more limited role in Swedish schools compared with some other educational systems. This pattern has been linked to differences in professional traditions within special education, as well as ongoing discussions about how behaviorally informed frameworks relate to broader pedagogical and relational perspectives in the Swedish context (Bejnö et al., 2019; Bossedal, 2019).

Within this context, universal classroom interventions such as the PAX Good Behavior Game can be understood as part of broader efforts to strengthen classroom environments through preventive practices. As discussed in the theory chapter, the accessibility and sustainability of such approaches may partly depend on the support structures within which they are implemented.

The PAX Good Behavior Game has recently been introduced in Swedish schools. The Swedish adaptation, commonly referred to as “PAX in School” or simply PAX, was initially developed and evaluated through a pilot study conducted by Ghaderi and colleagues (Ghaderi et al., 2017). The pilot evaluation reported promising results, including improvements in classroom behavior, reductions in teacher stress, and high levels of satisfaction among both teachers and students.

4.4 Cultural Adaptation of the PAX GBG

The Swedish adaptation of the PAX GBG was developed in collaboration with Swedish teachers during the fall semester of 2016. Following translation of the English manual (referred to as the *handbook* in the Swedish version), several linguistic and contextual adjustments were made to align the program with Swedish classroom practices.

The Swedish version retains the ten evidence-based kernels of the original model, although several names were modified to better fit the Swedish context. For example, the term “spleem,” referring to behaviors the class works

together to avoid, is replaced by “Bliim,” a neutral, non-evaluative term corresponding to “spleem” that is designed to be easy to pronounce and to support a light, non-confrontational tone in classroom interactions. Similarly, “PAX Quiet” is referred to as “PAX Listen,” “Grandma’s Whacky Prizes” becomes “PAX Surprise,” “Beat the Timer” is shortened to “Timer,” and “OK/Not OK cards” are called “PAX/Bliim cards.” Table 2 presents the kernels included in the Swedish adaptation. A summary of the kernels in Swedish is found in Appendix A.

Table 2: Kernels in the Swedish Version of PAX GBG

Evidence-based kernel	Description
PAX Vision	A joint vision of the classroom using PAX and Bliim, created in collaboration with the students. A ”mini vision” is set before new or complicated activities to clarify expectations for that activity.
PAX Listen	A sound signal and a visual response. Aims to help the teacher get the students attention and lets the student practice self-regulation.
PAX Surprise	A fun activity used as a reinforcement for positive behaviors (PAX).
PAX Hands and feet	Sets expectations for handling hands and feet in the classroom.
PAX Voices	Clarifies and practices voice levels for different activities
PAX Sticks	Used to randomly select student for different activities
PAX Timer	Adds excitement to time-consuming chores
PAX and Bliim Cards	Reinforce students for PAX or remind them about Bliim.
PAX Hissningar (Tootle notes)	Trains students to notice, describe and praise others for PAX.
PAX Game	A game where students collaborate in teams to adhere to PAX and avoid Bliim. Teams with less than four Bliim take part in PAX surprise. The PAX-o-Meter allows teams to gain points to trade in for a larger class-wide reward.

The Swedish handbook also includes guidance on how the routines can be introduced in classrooms that include students with diverse support needs. In addition to the core kernels, the handbook describes strategies intended to facilitate participation for students who may experience difficulties with attention, impulse control, or classroom transitions. Examples include preparing students in advance for listening cues, practicing voice levels explicitly, as-

signing supportive roles during the game (such as timekeeper or Bliim counter), and in some cases providing individualized versions of the game to support participation.

4.5 Implementation Practices for PAX GBG in Sweden

In Sweden, PAX is implemented according to a structured national model coordinated by the nonprofit organization Vertigo, which holds a license from the PAXIS Institute to distribute the program. The implementation model aims to support both program fidelity and local adaptation during the introduction of the intervention. Participation in PAX training is voluntary, which is intended to support teacher motivation and local engagement. Schools are also encouraged to allocate time for implementation and to avoid introducing competing initiatives during the same period, allowing PAX practices to become integrated into everyday classroom routines.

Implementation typically unfolds over at least one semester. During this period, teachers receive training and ongoing coaching from trained PAX instructors, who are often special educators or school psychologists. Instructors complete a three-day instructor training before delivering a two-day training for teachers and recreational educators. During this training, participants are introduced to the PAX kernels, the theoretical principles underlying the model, and the Swedish PAX handbook (PAX Institute, 2016).

Teachers are encouraged to introduce the kernels gradually in their classrooms, typically beginning with the PAX Vision and concluding with the PAX Game. Throughout the implementation period, instructors visit participating classrooms to observe practice, provide feedback, and discuss issues related to fidelity and adaptation. Teachers who demonstrate sufficient fidelity in the use of the kernels may subsequently be certified as PAX practitioners.

5 Summary and rationale for thesis

To summarize, the PAX GBG is currently implemented in a growing number of municipalities across Sweden, where students with diverse SEN constitute a substantial proportion of mainstream classrooms. Both in Sweden and internationally, students with SEN are at increased risk for adverse educational and health-related outcomes, including lower academic achievement, school exclusion, mental health difficulties, and long-term social marginalization (Adams et al., 2016; Båtevik, 2019; Stark et al., 2021). Preventive interventions implemented in mainstream classrooms, therefore, carry particular significance, as they operate within populations characterized by diverse needs and varying levels of support.

Research on the GBG and PAX GBG has demonstrated positive effects on disruptive behavior, prosocial outcomes and to some extent academic achievement in general education contexts (e.g., Flower et al., 2014; Kellam et al., 2008; Smith et al., 2021). Some studies also suggest beneficial effects for students with elevated behavioral risk. However, evidence regarding students with more complex or persistent support needs remains limited and has often been derived from studies conducted under more controlled conditions or in settings that differ from heterogeneous mainstream classrooms (e.g., Bowman-Perrott et al., 2016). At the same time, prior research has raised concerns regarding whether interdependent group contingencies and behavioral visibility may create challenges for certain students, particularly those with more complex regulatory or social-communication needs (Nolan et al., 2014; Tingstrom et al., 2006). Taken together, these findings suggest that while PAX GBG may benefit many students, its effects may not be uniform across heterogeneous student populations.

Despite this, relatively little research has examined how the GBG, including the PAX GBG, functions in heterogeneous mainstream classrooms where students with diverse SEN are part of everyday classroom practice. There is limited knowledge about how the intervention has been studied in relation to students with SEN, how its core mechanisms operate in heterogeneous classroom contexts, and how it is perceived, adapted, and experienced in practice.

Addressing this gap is important for understanding how universal classroom interventions operate under typical school conditions, where variation in student needs, classroom composition, and available support is inherent.

Such knowledge can contribute to a more nuanced understanding of how preventive interventions function in practice and inform how they may be interpreted and applied in inclusive educational settings. Further research is therefore needed to examine how PAX GBG functions in heterogeneous mainstream classrooms that include students with diverse SEN.

6 Aim

The overall aim of this thesis is to advance understanding of how the PAX GBG functions in mainstream classrooms that include students with diverse SEN. Specifically, the thesis aims to contribute knowledge about how the Good Behavior Game (GBG), including the PAX GBG version, has been studied in relation to students with SEN, and how PAX GBG is perceived, adapted, and experienced in heterogeneous mainstream classroom contexts. By combining evidence from prior research with empirical accounts from teachers and students, the thesis seeks to provide a more context-sensitive understanding of how a universal classroom intervention operates in everyday school practice. The thesis addresses the following overall research question:

How does the PAX GBG function in mainstream classrooms that include students with diverse special educational needs?

To address this question, the thesis examines four related aspects of how the intervention has been studied and functions in practice:

1. How has research on the GBG, including the PAX GBG, studied students with SEN in mainstream classrooms, and what outcomes have been reported? (Study 1)
2. How do teachers perceive the use of PAX GBG in mainstream classrooms, including its benefits, challenges, and adaptations in relation to students with SEN? (Study 1, 2)
3. How do students experience participation in PAX GBG in mainstream classrooms? (Study 3)
4. How can findings across studies be integrated to advance understanding of how PAX GBG functions for students with SEN in mainstream classroom contexts? (Cross-study synthesis)

7 Method

This chapter describes the research design and methodological procedures of the thesis. Methodological choices are discussed in relation to the overall aim of examining how PAX GBG functions in mainstream classrooms that include students with diverse support needs, as well as in relation to the specific research questions of each study. Considerations related to feasibility, participant access, and ethical sensitivity- particularly when conducting research with children in early primary grades- are addressed as part of these justifications.

7.1 Methodological positioning

This thesis adopts a pragmatic and context-sensitive approach to examining how PAX GBG functions in mainstream classrooms that include students with diverse SEN. Classroom practices, intervention components, and organizational structures are treated as real and consequential features of educational settings. At the same time, how these elements operate in practice is understood to depend on classroom composition, implementation conditions, and variation in students' needs and capacities.

PAX GBG is therefore not approached as a fixed entity expected to produce uniform effects across settings. Rather, it is examined as a structured set of practices with proposed mechanisms, such as clear expectations, structured opportunities for practicing regulatory skills, and interdependent group contingencies, that may function differently depending on contextual and individual conditions.

Within this framework, variation in participation and outcomes is not treated primarily as error variance to be controlled, but as analytically informative for understanding how the intervention operates in heterogeneous classroom contexts. Differences in implementation, student responsiveness, and the organization of support are therefore central to the analysis.

Methodologically, this orientation supports combining a scoping review with qualitative interview studies. The scoping review maps how the GBG/PAX GBG has been studied in relation to students with SEN and identifies patterns and gaps in the literature. Qualitative studies examine how teachers and students describe the intervention in everyday practice, including

perceived mechanisms, adaptations, and challenges. Together, these components allow analysis of both how the intervention has been represented in research and how it functions in lived classroom practice.

This approach is broadly consistent with a critical realist perspective, in that it assumes that interventions and classroom structures have real effects while recognizing that their mechanisms may be activated differently depending on contextual conditions (e.g., Danermark et al., 2002). The emphasis is therefore placed on explaining variation in functioning rather than estimating average effects.

7.2 Overview of Included Studies

This thesis comprises three interconnected studies conducted sequentially and designed to address complementary aspects of the overarching research aim. Study 1 maps and synthesizes existing research on the Good Behavior Game as it relates to students with SEN in mainstream education. Studies 2 and 3 examine how PAX GBG functions in practice through qualitative interviews with teachers and students in a Swedish municipal context where the intervention had been implemented as part of routine school practice. An overview of the studies is presented in Table 3.

Together, the studies combine evidence mapping with empirical examination of implementation and participation in everyday classroom contexts. This design allows examination of both how the intervention has been represented in the research literature and how it is enacted and experienced in mainstream classrooms characterized by heterogeneous and uneven support needs.

Table 3 Overview of the Included Studies

	Study 1	Study 2	Study 3
Aim	Identify and synthesize available evidence of the GBG for SEN in mainstream education	Explore teachers' perspectives of benefits, challenges and adaptations for SEN	Explore students' perspective of school wellbeing and PAX GBG kernels
Design	Scoping Review of effects and perspectives	Qualitative interviews of teacher perspectives	Qualitative interviews of student perspectives

	Study 1	Study 2	Study 3
Participants	Students with SEN in primary years	22 teachers in primary years	17 students in primary years
Intervention	GBG	PAX GBG	PAX GBG
Data collection	Search, selection, data charting	Individual interviews Focus group interviews	Individual interviews
Analysis	Synthesis of data Thematic meta-analysis	Thematic analysis	Content analysis, cross-case analysis

7.3 Overall Research Design and Methodology

7.3.1 Iterative and Practice-Oriented Design

The development of this thesis was iterative. Decisions regarding design, methodology, and data collection evolved in response to findings in the scoping review, consistent with iterative approaches to research design. In particular, the limited attention to participation challenges and participant perspectives identified in the Study 1 Scoping review shaped the decision to conduct qualitative studies.

Most research on PAX and related versions of the GBG has focused on observable behavioral outcomes and quantifiable classroom changes (Flower et al., 2014; Kellam et al., 2008; Smith et al., 2021). However, the program is implemented in everyday classroom environments where teachers adapt its components to heterogeneous groups of learners. Understanding how these adaptations occur, how participation is experienced, and how challenges are handled requires approaches that can capture meaning-making and contextual variation.

The methodological orientation of the thesis is therefore qualitatively informed and practice-oriented, reflecting research traditions that emphasize the relationship between inquiry and educational practice (e.g., Pring, 2015). Interview data were used in the empirical studies to examine how PAX was interpreted, adapted, and experienced in routine practice. This design aligns with

implementation research emphasizing the importance of examining how interventions are enacted in context in order to interpret reported effects and participation patterns (e.g., Durlak & DuPre, 2008).

7.3.2 Research Context and Researcher Position

The empirical studies were conducted within a single municipality in northern Sweden where PAX GBG had been implemented across early primary grades as part of routine school practice. The intervention was adopted at the municipal level and integrated into existing educational structures prior to the initiation of empirical studies.

Because PAX was already embedded in local practice, the research did not introduce controlled implementation procedures or standardized fidelity monitoring. Instead, the thesis examines how the intervention was enacted under ordinary conditions, in which variation in classroom composition, teacher adaptation, and support structures constituted part of the educational context.

During the study period, I was employed part-time as a school psychologist in the municipality, had completed PAX instructor training and functioned as a PAX instructor in several classes. I had also been involved in discussions concerning the adoption and implementation of PAX prior to the empirical studies. This dual position formed part of the implementation context and required ongoing methodological reflection regarding recruitment, data collection, and interpretation.

Because I had been involved in discussions surrounding implementation, particular care was taken to design research questions that did not presuppose positive or negative effects of the intervention. The focus was directed toward how PAX functioned in practice, including challenges, adaptations, and variations in participation. Recruitment procedures were structured to emphasize voluntary participation and to separate professional roles from research participation. Another researcher conducted individual interviews that were deemed more sensitive. During data collection and analysis, reflexive notes were maintained to document assumptions and analytic decisions, consistent with qualitative research practices emphasizing reflexivity (Braun & Clarke, 2021).

Consistent with Pring (2015), the researcher's position within the educational context contributed both contextual insight and methodological complexity and is understood as part of the research context that shaped access, data generation, and interpretation.

7.3.3 Sampling and Conceptualization of SEN

Participants in the empirical studies were recruited from mainstream classrooms where PAX GBG was in use. No selection was made based on specific diagnostic categories; rather, the participating classrooms reflected the range

of support needs present in ordinary practice. The aim was not statistical representativeness but to obtain information-rich accounts that illuminate how a universal classroom-based intervention interacts with heterogeneous learner needs.

A key methodological choice concerned how to conceptualize SEN. In Study 1, a broad and inclusive definition was used to capture the range of research examining the GBG in relation to students requiring additional support in mainstream classrooms. Limiting inclusion to specific diagnostic categories such as ADHD or ASD would have excluded a substantial portion of the existing literature and would not reflect how support needs are typically organized in school practice.

This inclusive approach was retained in qualitative studies. In the Swedish education system, support is primarily allocated based on identified needs rather than formal diagnoses, particularly in the early primary years (e.g., Nilholm, 2021). Many students who require adaptations in classroom routines do not have formal diagnostic labels. Conceptualizing SEN as a heterogeneous, needs-based category therefore aligned the research design with the ecological realities of mainstream schooling.

The sampling strategy reflected this orientation. Teachers and students were recruited from classrooms characterized by heterogeneous and uneven support needs, enabling examination of how PAX GBG functioned in settings where participation demands and regulatory expectations varied across learner.

7.3.4 Analytic Approaches

The thesis includes two qualitative studies and a qualitative component within the scoping review. Although all studies draw on qualitative data, different analytic approaches were selected in relation to the nature of the data and the specific research questions addressed. The choice of analytic approach has implications for how data are interpreted, what counts as a finding, and how patterns are identified across or within datasets.

In Study 1, a qualitative meta-synthesis approach inspired by Thomas and Harden (2008) was used to integrate findings across studies. This approach made it possible to identify and organize reported benefits and challenges of the GBG in relation to students with SEN, while preserving the interpretive character of the original studies.

In Study 2, reflexive thematic analysis (Braun & Clarke, 2006, 2019, 2021) was used to examine teachers' accounts of implementing PAX GBG in heterogeneous mainstream classrooms. This approach was selected to identify patterns of meaning across participants' descriptions of implementation, including perceived benefits, challenges, and adaptations. In line with this approach,

themes are understood as analytic constructions developed through the researcher's active engagement with the data, rather than as features that emerge independently of analysis.

In Study 3, qualitative content analysis (Elo & Kyngäs, 2008) was used to examine students' accounts of participation in PAX GBG. This approach was selected to allow a structured analysis of children's descriptions in relation to the PAX kernels, while remaining open to variation in how these were experienced. A deductive phase, guided by the intervention components (PAX kernels), was combined with an inductive phase to identify patterns within each category. To capture both individual variation and recurring patterns across students, the analysis further incorporated within-case and cross-case strategies (Miles & Huberman, 2014). Taken together, the use of different analytic approaches reflects the aim of the thesis to examine both how PAX GBG has been represented in research and how it functions in practice from both teacher and student perspectives. The selection of analytic approach in each study was therefore guided by the specific research aim rather than methodological preference.

7.3.5 Cross-Study Integration and Analysis

Although each study was designed and analyzed independently, the findings were interpreted in relation to the overarching aim of understanding how PAX GBG functions in heterogeneous mainstream classrooms that include students with SEN. The scoping review informed the focus of qualitative studies, and patterns identified in the literature were examined in relation to teachers' and students' accounts.

The cross-study synthesis presented in the results chapter does not involve re-analysis of primary data across datasets. Instead, it consists of an interpretive integration of findings from the three studies, identifying convergences, tensions, and complementary insights. This integrative step is guided by the thesis-level research questions rather than by a formal meta-analytic or meta-synthesis procedure.

7.4 Study 1

7.4.1 Design

Study 1 was conducted as a scoping review to map peer-reviewed research on different versions of the Good Behavior Game in relation to students with

SEN in mainstream education settings. Although a substantial body of research exists, variation in study design, definitions of SEN, and outcome measures limited the feasibility of conducting a formal meta-analysis. A scoping review was therefore selected to examine the extent, characteristics, and gaps of the existing evidence base.

The review followed the framework proposed by Arksey and O'Malley (2005), with methodological guidance from the Joanna Briggs Institute (Peters et al., 2020). The process included defining research questions, developing eligibility criteria, conducting systematic searches, screening studies, extracting data, and synthesizing findings.

7.4.2 Eligibility Criteria

Eligible studies were peer-reviewed quantitative, qualitative, or mixed-methods designs published in English between 1969 and March 2022. Both outcome-focused and perspective-oriented studies were included in order to capture not only reported effects of the GBG but also how the intervention has been experienced and interpreted in mainstream settings.

A broad definition of SEN was applied. Studies were eligible if they included primary school students identified through diagnostic categories (e.g., ADHD, ASD, intellectual disability), behavioral or academic assessments, or eligibility for support services. This inclusive approach was chosen to reflect the heterogeneity of support needs present in mainstream classrooms and to avoid restricting the review to specific diagnostic subgroups.

All versions and adaptations of the GBG were eligible for inclusion, provided they involved an interdependent group contingency consistent with the intervention's core logic. The review focused on the broader GBG framework rather than a single branded version to capture the full scope of relevant research.

Only studies conducted in mainstream preschool or primary education settings were included. This focus aligned with the aim of examining how the GBG functions in inclusive classroom environments in which students with SEN are educated alongside their peers.

For the quantitative studies, outcomes reported for students with SEN following implementation of the GBG were included. Qualitative studies were included if they reported the perspectives of SEN students or their teachers during or following GBG implementations.

7.4.3 Search and Study Selection

Systematic literature searches were conducted in Scopus, ProQuest, and Web of Science in February 2021, with an updated search in March 2022. The

term “Good Behavior Game” was applied to titles and abstracts, and reference lists of previous reviews were screened for additional studies.

Title and abstract screening were conducted independently by me and a co-author. Discrepancies were resolved through discussion. Full-text screening was conducted by me, with a subset reviewed independently by two co-authors to enhance reliability. Final inclusion decisions were based on predefined eligibility criteria.

Data extraction was carried out by me using a structured extraction form and was cross-checked by a co-author to ensure consistency and accuracy.

7.4.4 Analysis: Synthesis of data

Quantitative findings were summarized narratively and presented in tabular form in relation to the review questions. Due to heterogeneity in study designs, outcome measures, and participant characteristics, statistical meta-analysis was not feasible.

Qualitative findings, including qualitative components of mixed-methods studies, were synthesized using thematic synthesis as described by Thomas and Harden (2008). This approach was selected because it enables systematic integration of findings across studies while remaining grounded in the reported results of primary research.

The synthesis involved coding study findings related to students with SEN, organizing codes into descriptive themes, and developing broader analytic themes capturing reported benefits and challenges of the GBG. Quantitative and qualitative findings were considered together in the final summary to provide an overview of the evidence base.

7.5 Study 2

7.5.1 Design

Study 2 was designed as a qualitative interview study exploring teachers’ experiences of using PAX GBG in mainstream classrooms that include students with diverse support needs. The design was informed by findings from Study 1, which identified limited research addressing teachers’ perspectives, implementation challenges, and adaptations in heterogeneous mainstream settings. Whereas prior research on the Good Behavior Game has primarily emphasized measurable behavioral outcomes, less attention has been directed toward how teachers describe their everyday use of the intervention and how they adjust kernels and routines to support students with uneven regulatory

capacity. A qualitative approach was therefore selected to examine teachers' interpretations and professional reasoning in context (Braun & Clarke, 2021).

7.5.2 Intervention

The Swedish cultural adaptation of PAX GBG, described in detail in the theory chapter, consists of the ten pedagogical tools (“kernels”) introduced gradually over one semester. Implementation in the municipality followed a plan developed by Vertigo, the non-profit foundation licensed by the PAXIS Institute to distribute PAX in Sweden. Contrary to the recommended voluntary approach, PAX training was mandatory for all teachers in early primary grades.

Psychologists and special educators in the municipal student health service first completed a three-day training to become PAX instructors. Teachers and recreational educators subsequently participated in a two-day group training covering all kernels, the theoretical background, and the intended mechanisms of the program. Teachers were introduced to the PAX handbook, which describes each kernel and includes suggested adaptations for students with SEN.

Teachers introduced the kernels stepwise in their classrooms, beginning with the PAX Vision Board. Instructors conducted at least four classroom visits during the semester, including structured observations, individual feedback, and group meetings where adaptations for students with SEN were discussed. Certification required demonstration of acceptable fidelity in use of all kernels.

Municipal implementation was partly funded by the Swedish National Agency for Education to support improvements in classroom environments and reduce inequalities in educational outcomes and student mental health.

7.5.3 Participants and Procedure

The study was conducted in a northern Swedish municipality where PAX GBG had been implemented across early primary grades as part of routine school practice. All teachers in Kindergarten through Grade 3, and selected Grade 4 classes, had completed mandatory PAX training.

For the individual interviews, 41 teachers and recreational educators who had undergone PAX training were invited via email in April 2021 to participate in Zoom interviews about their experiences of PAX and students with special educational needs. Participants were asked to schedule a meeting using a Doodle form. Eleven educators (ten teachers and one recreational educator) consented to participate. Three additional teachers expressed interest but declined due to high workloads related to the COVID-19 pandemic. The interviews were conducted via Zoom in May 2021 and lasted between 37 and 58 minutes.

Focus groups were recruited in fall 2022. To facilitate participation, I met with principals at all schools to inform them about the study and request support. Four schools allocated time during scheduled group-work sessions for participation. Teachers received email invitations specifying the date and time of the interview at their school. Nineteen teachers consented to participate; four were unable to attend due to illness, resulting in 15 participants across four focus groups (two to five participants per group). Focus group interviews were conducted during the fall semester of 2022 by me and a co-author.

Sampling aimed to capture variation in teaching experience and classroom composition rather than to select high-fidelity implementers. Fidelity of implementation was therefore not used as an inclusion criterion.

7.5.3.1 Interviews and Focus Groups: Rationale for Combined Formats

To capture teachers' experiences, the study employed a combination of semi-structured individual interviews and focus group interviews. This decision was based on both pragmatic and methodological considerations.

Pragmatically, data collection took place during the COVID-19 pandemic, when schools were under considerable pressure and recruitment proceeded more slowly than anticipated. Rather than continuing to recruit only individual participants, focus groups were added as a way to include more teachers within the available timeframe while minimizing disruption to school routines.

From a methodological perspective, combining formats was also expected to strengthen the study. Lambert and Loiselle (2008) suggest that integrating individual and focus group interviews may enhance data richness and trustworthiness by generating complementary forms of insight. Individual interviews were expected to provide a setting in which teachers could discuss challenges and uncertainties with greater privacy. Focus groups were expected to facilitate interactional processes through which participants could elaborate on, refine, and recall experiences collectively (Barbour, 2007).

Individual interviews had a broader exploratory focus, allowing identification of key themes and challenges. These themes were subsequently examined in greater depth during the focus groups, where participants were invited to discuss and reflect collaboratively. Interview guides for both formats are provided in Study 2, Supplement 2. All interviews were semi-structured and included open-ended questions. Interviews were audio-recorded and transcribed verbatim, except for one focus group in which a recording error occurred (see Analysis).

7.5.4 Researcher Position

My dual role as both practitioner and researcher within the municipality required careful consideration. To reduce potential role-related influence, the individual interviews were conducted by a co-author who had no prior involvement in the municipal implementation of PAX and was previously unknown to participants. The co-author was also relatively unfamiliar with the pedagogical kernels used in PAX, which further reduced the likelihood of shared assumptions influencing responses.

The focus groups were conducted by me and a third co-author. Although prior instructor–teacher relationships could not be excluded, participation was voluntary, and both positive and critical perspectives were explicitly invited. My dual role was understood as part of the implementation context, and it was considered throughout recruitment, data collection, and analysis.

7.5.5 Data Analysis

Data was analyzed using reflexive thematic analysis (Braun & Clarke, 2006, 2019, 2021). This approach emphasizes the researcher’s active role in knowledge production and conceptualizes themes as analytic constructions developed through engagement with the dataset, theoretical assumptions, and analytic skill (Braun & Clarke, 2019). Thematic analysis was selected because it enables the identification of patterns of meaning across participants’ accounts, rather than focusing primarily on the frequency or categorization of responses, as in more descriptive approaches such as qualitative content analysis.

Although combining individual and focus group data can present analytic challenges, the formats were considered complementary (Lambert & Loiselle, 2008). In this study, both datasets were valued equally and integrated into a single reflexive thematic analysis. Conducting separate analyses was considered but judged unlikely to provide additional analytic value, given the shared research questions and analytic focus.

All transcripts were read multiple times to achieve familiarity. Initial coding was conducted inductively. The first and third authors independently coded three individual interviews and one focus group transcript, followed by discussion of similarities and differences in coding. The first author then coded the remaining transcripts while remaining open to new codes. Codes were discussed and refined collaboratively.

In the third phase of analysis, codes were organized into potential themes, and an initial thematic map was developed. Themes and subthemes were subsequently reviewed and refined within the research group in relation to the research questions.

One focus group could not be transcribed due to a recording error. Following Rutakumwa et al. (2020), detailed notes taken independently by two researchers during and immediately after the session were compared, and only material documented by both was retained for analysis.

The analysis was conducted primarily at a semantic level, focusing on teachers' explicit descriptions of PAX use, classroom structure, behavioral regulation, and adaptations for students with SEN.

7.6 Study 3

7.6.1 Design

Study 3 was designed as a qualitative interview study, building on findings from study 1 and 2. The Study 1 scoping review revealed a lack of research on students' own perspectives of the GBG, and Study 2 highlighted individual and group challenges as central difficulties when implementing PAX with students with SEN. Against this background, Study 3 set out to explore how students themselves experience their school situation more broadly, as well as their own and peers' participation in PAX. Particular attention was given to students' views on any challenges of ensuring everyone's inclusion.

Study 3 was initially planned to focus specifically on students with autism, and ethical approval was obtained on this basis. However, recruitment proved difficult due to the limited number of students with a formal autism diagnosis in participating schools, as well as the researcher's professional constraints as a school psychologist. To ensure feasibility within the project timeframe, the scope was therefore broadened to include all students, regardless of diagnosis, thereby capturing a wider range of perspectives on PAX.

7.6.2 Intervention

The Swedish cultural adaptation of the PAX GBG is described in detail in the theory chapter and in Study 2. In brief, the intervention consists of ten pedagogical tools ("kernels") introduced gradually over one semester and intended to support self-regulation, prosocial behavior, and classroom functioning.

For the purposes of this study, it was important to establish that PAX was used as part of everyday classroom practice, rather than to conduct a formal assessment of implementation fidelity. Several weeks prior to the interviews, teachers were therefore asked about their use of the different kernels, using a fidelity checklist as a point of departure (see Study 3, Supplement 3). This

procedure made it possible to characterize the intervention context in which students' experiences were situated.

All participating teachers described regular use of most core kernels, including the PAX Vision, Mini-Vision, PAX Surprise, and the PAX Game. At the same time, variation in implementation was reported. None of the teachers reported using PAX "hissningar," and two indicated that they did not use PAX and Bliim cards on students' desks. These variations were not treated as deviations, but as part of the natural variation in how PAX is enacted in practice, which was also reflected in the students' accounts.

7.6.3 Participants and Procedure

Participants in Study 3 were 17 primary school students enrolled in pre-school class (grade F) or grade one at a municipal school in northern Sweden. At the time of the interviews, the children ranged in age from approximately 6 years 5 months to 8 years 2 months ($M \approx 7.4$ years). The students were drawn from four classes taught by four certified PAX teachers.

Recruitment followed a multi-step procedure designed to ensure voluntary participation and informed consent. Principals first approved participation at the school level, after which teachers assisted in distributing study information to caregivers. Caregivers who wished for their child to participate provided written informed consent. Children received age-appropriate information with visual support and provided verbal assent prior to participation. Caregiver and student information are found in Study 3, Supplement 4.

The inclusion criterion was that students attended classrooms in which PAX was used as part of regular instruction. This sampling strategy was chosen to capture students' experiences of PAX as embedded in everyday classroom practice, rather than under controlled or experimental conditions. As such, the aim was not to select high-fidelity implementers, but to reflect naturally occurring variation in how the intervention was used.

7.6.4 Data Collection

Data was collected through semi-structured individual interviews conducted with each student during school hours. Individual interviews were chosen to provide a setting in which young children could express their experiences without influence from peers, which was considered particularly important when discussing participation, difficulties, or social dynamics.

To support children's participation and facilitate communication, the interviews incorporated visual rating scales and concrete prompts. This design was informed by previous research highlighting the importance of adapting methods to children's communicative abilities and developmental level.

Two complementary instruments were used, both found in Appendix G. The first, *How I Feel About My School* (HIFAMS; Allen et al., 2018; Riad et al.,

2021), provided a structured way to explore students' general school well-being. Although originally developed as a quantitative instrument, it was used here also as a conversational support tool, allowing students to reflect on different aspects of their school experience.

The second instrument, *How I Feel About PAX*, was developed based on evaluation materials used in Swedish PAX implementation (Vertigo). It consisted of visually supported response options and focused on students' experiences of specific PAX kernels, their own and peers' participation, and factors that facilitated or hindered inclusion. As the instrument has not been formally validated, it was used descriptively to support and structure the interviews rather than as a standalone measure.

Follow-up questions were used throughout to elicit more detailed descriptions and to clarify students' responses. Interviews lasted between 18 and 29 minutes and were conducted in a quiet and familiar school setting. The interview process was guided by Lundy's (2007) framework, emphasizing children's right to express their views, to be heard, and to influence the interaction.

7.6.5 Analysis

Interview data were analyzed using qualitative content analysis as described by Elo and Kyngäs (2008). This approach was selected because it allows for a structured analysis of descriptive data while remaining sensitive to variation in how participants express their experiences. Given the young age of the participants and the relatively concrete nature of the interview material, content analysis was considered appropriate for organizing and interpreting students' accounts in relation to specific aspects of the intervention.

The analysis combined deductive and inductive elements. In the initial phase, a deductive approach was used to organize the data according to the PAX kernels implemented in the participating classrooms. This allowed the analysis to remain closely aligned with the intervention structure and to examine how different components were experienced by students.

In a second phase, the data were coded deductively using the PAX kernels as predefined categories. All relevant statements were assigned to these categories based on their content. Within each category, the data were then analyzed inductively to identify patterns and variation in how students described, understood, and experienced specific PAX routines.

To further examine variation across participants, a case-oriented approach was applied using within-case and cross-case strategies (Miles & Huberman, 2014). At this stage, HIFAMS scores were added as an additional source of information on students' reported well-being. For each student, qualitative data on classroom experiences and PAX participation were combined with their HIFAMS score to form individual case profiles.

These case profiles were first analyzed within cases to summarize each student's experiences of PAX in relation to their broader school context and reported well-being. The cases were then compared across students to identify recurring patterns. This analysis resulted in the identification of groups of students with similar profiles in terms of participation, experiences of PAX, and well-being.

Together, this analytic strategy made it possible to capture both variation in how specific PAX routines were experienced and broader patterns in how students engaged with PAX in relation to their overall school experience.

7.7 Ethical approval and considerations

This research was conducted in accordance with established ethical principles for human subjects' research, including the Swedish Research Council's *Good Research Practice* (Vetenskapsrådet, 2017) and the European Code of Conduct for Research Integrity (ALLEA, 2017). Ethical approval for Study 3 was granted by the Swedish Ethical Review Authority (diary number 2024-08017-02). Study 2 did not require formal ethical review under Swedish regulations but was conducted in accordance with national and European guidelines.

As previously mentioned in the beginning of this chapter, a central ethical consideration throughout the thesis concerned my dual role as researcher and practitioner in the municipality where Studies 2 and 3 were conducted. During the thesis period, I worked part-time as a school psychologist and had responsibilities as a PAX instructor. This position provided contextual insight but also introduced potential risks related to role conflict, perceived pressure to participate, and influence on data generation and interpretation. These risks were addressed across study design, recruitment, data collection, analysis, and reporting.

7.7.1 Voluntariness, Recruitment, and Consent

Measures were taken to minimize the risk that teachers or students would feel obliged to participate or to present PAX in a favorable light.

In Study 2, recruitment and all individual interviews were conducted by a co-author who had no professional role in the municipality. This arrangement reduced the likelihood of role-related influence and supported participants' autonomy in deciding whether and how to contribute. Focus groups were conducted jointly by me and a co-author; the group format was assessed as less

sensitive, and participants were explicitly invited to share both positive and critical perspectives.

In Study 3, ethical approval stipulated that I could not recruit or interview children with whom I had, or might later have, a professional relationship. This restriction influenced school selection and contributed to the inclusion of students from the general student population rather than limiting participation to those with specific diagnoses.

Particular attention was given to ethical considerations related to research with children in early primary grades. Written parental consent was obtained prior to participation. In addition, children received age-appropriate, illustrated information about the study and were invited to provide verbal assent before interviews began. The purpose of the study, what participation involved, and the voluntary nature of involvement were explained in simple language. Children were reminded that they could decline to answer any question or stop the interview at any time without explanation or consequences.

7.7.2 Safeguarding and Power Asymmetry

Research with children in school settings involves inherent power asymmetries between adults and pupils. To mitigate this imbalance, interviews were conducted in a conversational format using visual aids and structured prompts designed to support expression without requiring advanced verbal skills. Questions focused on students' experiences of school and classroom routines rather than on sensitive personal matters.

The interview process followed Lundy's (2007) framework for children's participation, emphasizing space (opportunity to speak), voice (support to express views), audience (being genuinely listened to), and influence (having responses taken seriously in the research process).

If a child had shown signs of discomfort or disclosed information indicating a potential risk, established school safeguarding procedures would have been followed in consultation with appropriate school personnel. No such incidents occurred during data collection. In one instance, a child showed signs of reluctance to participate, for example by disengaging from the interview. The child expressed a need to discuss certain difficulties. With the child's consent, this was communicated to appropriate school personnel to ensure that the student received support. The child was already in contact with the school counselor. The child's data is not included in the analysis.

7.7.3 Role Boundaries During Data Collection

Clear boundaries were maintained between practitioner and researcher roles. I clarified that participation was unrelated to any school support decisions and that responses would not be shared with teachers or parents in identifiable form. Interviews were conducted in familiar school environments but outside regular classroom activities to reduce perceived evaluation pressure.

None of the students chose to have a teacher or other well-known adult present during interviews. This likely reduced social desirability effects and supported children's sense of autonomy in expressing their views.

7.7.4 Reflexivity and Data Interpretation

Given my familiarity with PAX and the participating schools, reflexive strategies were employed throughout analysis. These included maintaining analytic memos, engaging in regular discussions with co-authors not involved in municipal PAX implementation, and explicitly examining how prior knowledge might shape interpretation (e.g., Braun & Clarke, 2021). Interpretations were grounded in participants' accounts, and alternative readings were considered during analytic discussions.

7.7.5 Confidentiality and Reporting

All identifying details were removed during transcription and reporting. Particular care was taken to avoid descriptions that might indirectly reveal individual teachers, students, or schools, given my insider knowledge of the local context. Findings were presented in a balanced manner, reflecting both supportive and challenging experiences of PAX.

7.7.6 Feedback to the Municipality

After completion of each study, aggregated and anonymized findings were shared with school staff and the municipal student health team. Feedback was provided at a group level only, and no individual statements or identifiable information were communicated. This procedure enabled findings to inform local practice while safeguarding participant confidentiality.

8 Results

This chapter presents the empirical findings of the thesis across the three included studies. The results are organized in three sections corresponding to the individual studies, followed by a cross-study synthesis that integrates patterns across the findings.

The first section presents the results of the scoping review examining research on the GBG and the PAX GBG in relation to students with SEN in mainstream education. This section describes the characteristics of the included studies, how SEN populations have been defined and operationalized in the literature, and the reported outcomes associated with the intervention.

The second section presents findings from the interview study exploring teachers' experiences of implementing PAX GBG in heterogeneous classrooms. Through thematic analysis, the results describe how teachers perceive the role of PAX in classroom practice, how they adapt routines for students with SEN, and what benefits and challenges they encounter during implementation.

The third section presents findings from the student interview study examining how children experience participation in PAX routines and classroom interactions. This section describes how students understand and use different PAX kernels and how they perceive the intervention in relation to their broader school experiences.

The chapter concludes with a cross-study analysis that synthesizes patterns across the three studies, focusing on how PAX mechanisms appear to function in heterogeneous classrooms, the role of teacher adaptations, and how participation may vary among students with different regulatory and learning needs.

8.1 Study 1- Scoping Review

This section summarizes the main findings of Study 1, which is included in this thesis and published as *Jornevald et al. (2023)*. To avoid duplication, complete references for the 30 studies identified and included through the scoping review are presented in the appended paper and its supplementary materials.

8.1.1 Characteristics of Studies on the GBG for Students with SEN

Through a systematic search and selection procedure, the scoping review identified 30 studies examining the GBG in relation to students with SEN in mainstream education. The included studies were conducted across seven countries. Most were carried out in the United States ($n = 14$), followed by England ($n = 5$), Canada ($n = 4$), the Netherlands ($n = 3$), Ireland ($n = 2$), and single studies from Belgium and Estonia. As illustrated in Figure 2, research activity has been concentrated in North America and Western Europe.

Most studies used quantitative intervention designs. Fourteen were randomized controlled trials (RCTs), and twelve employed single-subject experimental designs (SSEDs), often focusing on individual or small-group effects. Two studies used mixed-method approaches and two were qualitative case studies. Overall, the evidence base has primarily been built through intervention research emphasizing behavioral outcomes, while qualitative perspectives on classroom experiences remain limited.

Research activity has increased over time. Approximately 70% of the included studies were published during the past decade, reflecting growing interest in evaluating the GBG for diverse learners. Detailed characteristics of the included studies are presented in Study 1, Supplement 1.

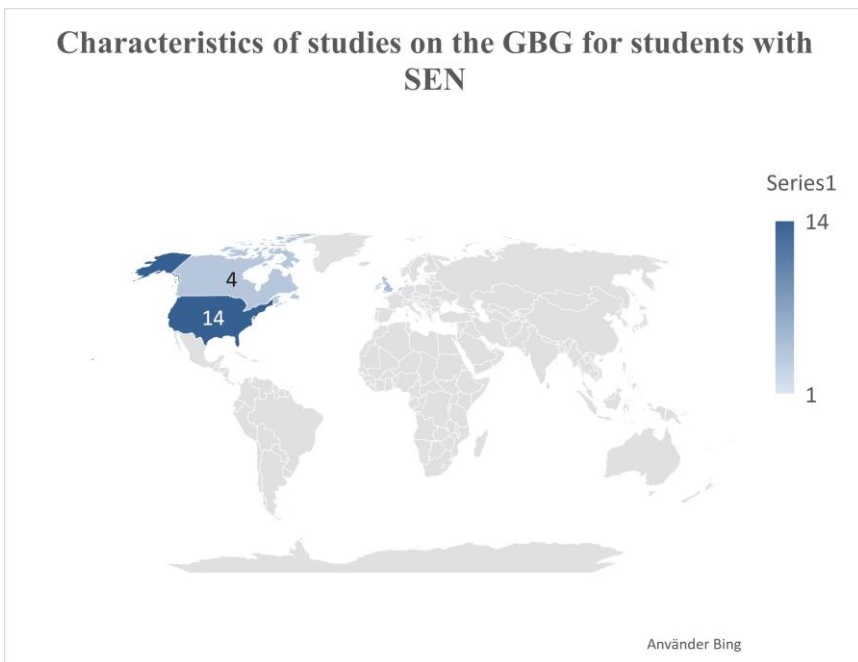


Figure 2 Map of Studies on the GBG for Students with SEN

8.1.2 SEN Participants in the Scoping Review

Across the included studies, the term SEN was used as an umbrella concept encompassing a wide range of student characteristics identified through academic, behavioral, emotional, or broader risk-based indicators. Participants ranged from students with mild learning delays to those with more severe emotional-behavioral problems or formally identified needs. Three broad categories of SEN were represented.

8.1.2.1 Academic and learning-related difficulties

Some studies focused on students performing below expected levels in reading, writing, mathematics, or language development. These students were typically identified using standardized academic achievement or language assessments.

8.1.2.2 Behavioral and emotional difficulties.

The largest group of studies targeted students with attention, behavioral, or emotional regulation difficulties. Participants were identified through diagnoses, teacher ratings, or standardized behavioral screening instruments such as the Teachers Observation of Classroom Adaptations (TOCA), the Strength and Difficulties Questionnaire (SDQ) or the Child Behavior Checklist (CBCL).

8.1.2.3 Cumulative or eligibility-based SEN

A third group of studies defined need through broader risk or eligibility criteria, including cumulative adversity, elevated behavioral risk, or formal access to school-based support services.

Together, these approaches illustrate that SEN populations in GBG research were heterogeneous and operationalized through varying identification procedures.

8.1.3 Severity and Proportion of SEN Participants

The severity and proportion of SEN participants varied substantially across studies. In some studies, only a small minority of students per class (approximately 2–10%) were identified as having pronounced or clinically defined difficulties, such as diagnosed ADHD or severe disruptive behavior. Other studies included medium-sized subgroups (10–30%) exceeding standardized cut-offs for behavioral or emotional problems. In several large-scale prevention

trials, broader screening procedures classified between 30% and 60% of participants as at-risk, indicating that mild to moderate challenges related to attention, regulation, and social behavior are relatively common within general classroom populations. Studies that included students formally eligible for SEN services typically represented smaller groups with more persistent or complex needs.

8.1.4 Impact of the GBG for Students with SEN

Due to heterogeneity in participant definitions, study designs, and outcome measures, a meta-analysis was not feasible. Results are therefore summarized narratively and presented in a detailed table describing SEN participants, assessment methods, and outcomes (See Study 1, Supplement 1). A summary of outcomes is shown in Table 4.

Across the included studies, most reported positive effects of the GBG for at least some SEN participants (25/27; 93%). In more than half of the studies (14/27; 52%), benefits were observed for all SEN participants, while 11 studies (41%) reported mixed or partially positive results. Only two studies reported no improvement. Taken together, the findings suggest that the GBG is associated with positive outcomes for students with mild to moderate learning, behavioral, or emotional difficulties in inclusive classrooms, particularly in terms of reduced disruptive behavior and improved engagement, while effects appear less consistent for students with more severe or complex needs.

8.1.4.1 Emotional- behavioral outcomes

Emotional and behavioral functioning was the most frequently examined outcome domain, assessed in 26 of the 27 studies. More than half reported significant positive effects for SEN participants, including improved concentration, reduced disruptive and aggressive behavior, and improved emotional regulation.

However, several studies also identified subgroups of low or non-responders. These included students with very high levels of disruptive behavior or broader profiles characterized by severe socio-behavioral difficulties. In one large trial, students with the highest behavioral risk showed limited improvement, although later analyses suggested more positive effects when implementation fidelity was taken into account. Together, these findings suggest that the GBG can support students with mild to moderate behavioral challenges but may be less effective for those with more severe or complex needs.

Outcome domain	Overall findings	Variation in effects
Overall across studies	Most studies reported positive effects for at least one outcome or subgroup (25/27 studies)	Many studies also reported variation across outcomes or subgroups
Emotional-behavioral outcomes	Positive effects were reported in the majority of studies (15/26)	Weaker or absent effects for some students with high levels of behavioral difficulties
Peer / prosocial outcomes	Positive effects were reported in several studies	Mixed findings across studies and subgroups
Academic outcomes	Positive effects were reported in all identified studies	Limited number of studies

Table 4 Summary of Outcomes for Students with SEN in GBG studies

8.1.4.2 Peer and prosocial outcomes

Seven RCTs examined peer relationships or prosocial behavior. Three reported significant improvements, including increased peer acceptance and social skills. Other studies reported mixed or subgroup-specific effects, for example improvements limited to certain groups or to early stages of implementation. Overall, these findings indicate that improvements in peer relations are possible but may depend on contextual factors such as baseline risk, classroom climate, and duration of implementation.

8.1.4.3 Academic outcomes

Only three studies, all RCTs, examined academic outcomes such as reading, writing, or mathematics performance. These studies reported mixed but generally promising findings, including gains in writing, reading, and mathematics for some students performing below expected levels at baseline. Overall, the limited evidence suggests that academic benefits may occur indirectly through improved behavioral regulation and classroom engagement.

8.1.5 Social Validity: Teachers and Students

Six studies evaluated teachers' perceptions of the acceptability, feasibility, and effectiveness of the GBG using standardized rating instruments. Two studies also assessed students' perceptions. Across studies, ratings ranged from low to high, indicating variability in how the intervention was perceived across contexts. Overall, most teachers described the GBG as a feasible and moderately to highly acceptable classroom management strategy.

8.1.6 Teacher Perspectives in Qualitative Studies

Four studies explored teachers' perspectives using qualitative or mixed-method approaches. Teachers described several perceived benefits, including improved classroom climate, reduced disruptive behavior, increased cooperation, and enhanced self-esteem among students with lower academic confidence.

At the same time, teachers reported challenges when implementing the intervention with students who had more complex needs. Some described difficulties engaging students with developmental or behavioral difficulties in the game structure, and several reported adapting routines by providing additional prompts or individualized support.

Taken together, these qualitative findings suggest that teachers generally viewed the GBG as a useful classroom strategy that could support positive behavior and social participation among students with SEN, while also emphasizing the need for flexibility when working with students who required additional support.

8.2 Study 2- Teachers' Perspectives on the PAX GBG

8.2.1 Teachers' Descriptions of SEN

Teachers in study 2 consistently described managing classrooms that included students with a wide range of needs and varying degrees of difficulty, including those with neuropsychiatric conditions. These students were often perceived as struggling with the very skills and behaviors that the PAX GBG kernels aim to strengthen. Teachers mentioned, for example, children with self-regulatory challenges, such as impulsivity, hyperactivity, or difficulties sustaining attention, who found it hard to wait their turn, follow instructions, remain seated, or stay focused on tasks. Others were described as struggling with social participation, finding group work demanding or hesitating to en-

gage in classroom activities. Reported diagnoses included attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), obsessive-compulsive disorder (OCD), Tourette's syndrome, generalized anxiety disorder (GAD), and selective mutism.

8.2.2 Thematic Analysis of Teachers' Perspectives

Four overarching themes were created through reflexive thematic analysis:

8.2.2.1 Theme 1: PAX Supports the Teacher

Teachers described PAX as a powerful support for their professional role, giving them greater clarity, structure, and confidence in classroom management. The kernels were experienced as practical, evidence-based tools that replaced "nagging" with consistent routines and a more positive tone. Teachers felt that visual and verbal strategies such as PAX Vision and PAX Voices made expectations concrete and easier for all students—especially those with SEN—to understand. Many noted that the shift from correcting misbehavior to reinforcing desired actions improved relationships and created calmer, more focused lessons. Overall, PAX was viewed as enhancing teachers' sense of control and competence, while reducing stress and frustration in daily work.

8.2.2.2 Theme 2: Adapting PAX- Navigating Group Dynamics and SEN Challenges

While teachers valued fidelity to the PAX model, most emphasized the need to combine it with flexibility and professional judgment. Successful implementation required pacing the introduction of kernels, adjusting expectations to the group's developmental level, and involving support staff to meet individual needs. Teachers described PAX as most effective when integrated collaboratively across classrooms and when students were actively engaged in shaping visions and reinforcers. However, classes with diverse or complex needs demanded additional effort and creativity. The theme captures how teachers continually balance adherence to program principles with adaptation to context, striving to include all students, ranging from minor adjustments to individualized support

8.2.2.3 Theme 3: Benefits of PAX for Students with SEN

Teachers consistently reported that PAX contributed to a calmer and safer classroom climate that benefited the whole group and particularly students with SEN. They observed increases in self-regulation, peer cooperation, and academic focus, as well as improved confidence and participation among quieter or less secure students. For many, the structured routines and positive feedback loop of the PAX Game helped students internalize behavioral expectations and take pride in their own progress. Teachers highlighted that these

gains fostered a stronger sense of belonging and inclusion- “a feeling of *we*”- for children who had previously been marginalized or struggled to keep up.

8.2.2.4 Theme 4: Giving Up the Game- Hinders to Implementation

Despite these benefits, some teachers encountered barriers that led them to modify or abandon certain kernels. Difficulties arose when *Blim* or the PAX Game created a negative focus, provoking competition or peer criticism instead of cooperation. In groups with high levels of behavioral or learning difficulties, the structure sometimes proved overwhelming, and expectations could feel unattainable for particular students. Teachers described how fear of failure could trigger resistance or sabotage among those with severe challenges.

8.3 Study 3- Students’ Perspectives on PAX GBG

Students described several PAX kernels and connected them to their everyday classroom experiences, although they differed in how clearly they could explain specific routines and how central these were in their accounts. The PAX Vision was unevenly understood, with several students demonstrating only partial or vague recall. In contrast, the Mini-Vision was consistently recognized, clearly articulated, and closely connected to students’ everyday classroom routines.

Other kernels were generally perceived as supportive but differed in how prominently they featured in students’ accounts. The PAX Game and PAX-o-Meter were typically described as motivating and as contributing to a calmer classroom environment. Several students also described how PAX routines helped them remember expectations and understand what to do in different situations. At the same time, students frequently referred to challenges related to peers’, or sometimes their own, participation, including frustration when classmates struggled to follow the rules or when group outcomes were perceived as unfair.

Kernels such as Hands and Feet, Voices, Sticks, and Listen were mainly described as structuring classroom behavior and supporting organization. In addition, some students described these routines as helping them manage their own behavior and maintain focus during lessons. However, students also pointed to limitations, including difficulties adhering to expectations, rules sometimes being experienced as restrictive, and signals occasionally interrupting ongoing activities. Some students described that following the routines could be effortful, even when they understood the expectations.

Across interviews, four patterns emerged in how students’ perceptions of PAX aligned with their broader experiences of school:

1. Consistently positive views of both PAX and school (n = 5)
2. Generally positive views, but with disruptions related to peers (n = 6)

3. Mixed or moderate views of both PAX and school (n = 4)
4. Predominantly negative views of both PAX and school (n = 1)

Taken together, these patterns suggest that students' experiences of PAX were closely intertwined with their broader perceptions of classroom functioning, particularly in relation to peer dynamics and the extent to which shared routines were successfully maintained. At the same time, the findings indicate that while PAX was often experienced as supportive, students differed in how easily they were able to engage with and sustain the expected behaviors.

8.4 Cross-Study Analysis: Patterns of Functioning and Adaptation in PAX GBG for SEN

This section integrates findings across the three studies to examine how PAX GBG functions in heterogeneous mainstream classrooms that include students with SEN.

8.4.1 SEN in the PAX/GBG Classroom

Across the studies included in this thesis, SEN-related difficulties appeared as a common feature of mainstream classrooms implementing GBG/PAX GBG. The scoping review (Study 1) showed that SEN-related subgroups varied widely across published research, in some cases comprising more than half of the sample. Studies 2 and 3 provided a similar picture in Swedish mainstream classrooms. Teachers described managing overlapping challenges related to attention and impulse control, social-communication difficulties, emotional dysregulation, and learning needs. In several classrooms, these students constituted a substantial proportion of the group.

Students likewise described peers who struggled to follow routines or to participate fully in PAX kernels, and some recognized similar difficulties in themselves. Together, the findings across studies indicate that PAX is implemented in classrooms where variation in regulatory and learning capacity is a routine condition rather than an exception.

Study 1 further identified substantial variation in how SEN was defined, operationalized, and measured across GBG studies. Subgroups ranged from students identified through baseline risk scores to those with formal neurodevelopmental diagnoses. Outcome domains and measurement tools also differed considerably, resulting in clinical and methodological heterogeneity across the evidence base.

8.4.2 PAX Mechanisms in Practice

The scoping review identified primarily emotional–behavioral and peer-related outcomes as central domains of effect in the GBG literature. Across quantitative and qualitative studies, most SEN subgroups were reported to benefit in terms of reduced disruptive behavior, improved concentration, or strengthened prosocial interaction.

In Studies 2 and 3, teachers and students described classroom processes that corresponded to core PAX components. Clear expectations, structured rehearsal of behaviors, consistent response signals, and team-based reinforcement were described as visible parts of everyday practice. Teachers reported that shared routines and explicit behavioral cues contributed to clearer classroom expectations. Students frequently described calmness and predictability as noticeable features of lessons.

Behavior-practice kernels were experienced as opportunities to rehearse regulatory skills such as waiting, listening, and shifting attention. Reinforcement elements- including the PAX Game, short-term surprises, and long-term collective rewards such as the PAX-o -Meter were described as motivating within stable routines. Several classrooms were described as developing increased cooperation and a shared sense of working toward common goals.

Taken together, findings across studies indicate that the mechanisms described in the PAX theory of change were observable in practice and were associated with positive classroom and behavioral patterns for many students with SEN.

8.4.3 Adaptations in Implementation

Across studies, adaptations for students with SEN were frequently described. In Study 2, teachers reported combining adherence to core PAX components with adjustments intended to make routines accessible for diverse learners. Teachers emphasized the importance of implementing the kernels with fidelity to see results. However, adaptations were common and ranged from minor class-wide modifications to more individualized supports. Teachers described adjusting pacing, providing additional modelling, pre-teaching expectations, increasing adult proximity, and modifying reinforcement frequency and delivery. These adaptations addressed academic, social, and behavioral demands and were informed by teachers' knowledge of individual students and situational classroom dynamics.

Although PAX training includes guidance on adjustments, teachers reported assuming primary responsibility for determining when and how to adapt routines. Adaptation was therefore described as a regular feature of implementation in heterogeneous classrooms.

8.4.4 Variation in Participation and Responsiveness

Across the studies in this thesis, variation in responsiveness emerged. While many students with mild to moderate attentional, behavioral, or learning-related difficulties were described as benefiting from PAX routines, a smaller group of students with more severe or complex needs were reported as participating less consistently or benefiting less fully.

Teachers described instances in which certain kernels, such as sustained attention during the Game, rapid transitions, or interdependent contingencies, were experienced as demanding for students with pronounced regulatory or social-communication difficulties. Some students understood expectations but reported difficulty following them consistently.

The scoping review similarly identified subgroups characterized as low or non-responders, particularly among students with more severe or combined risk factors. Across studies, challenges were not described as opposition to expectations, but rather as difficulty sustaining regulation within shared routines.

Classroom context also appeared relevant. Teachers described greater difficulty establishing stable routines in classrooms characterized by high baseline levels of dysregulation. In some groups, students were reported to reinforce disruptive behavior patterns. These descriptions correspond with prior literature on peer processes in classroom interventions.

8.4.5 Interdependent Group Contingency in Mainstream Classrooms

The interdependent group contingency central to the PAX Game was described by both teachers and students as supportive, but also at times demanding. Participants reported that the Game could strengthen teamwork and collective responsibility. At the same time, both groups described situations in which behavioral differences became visible when teams received repeated Bliim.

Many students could identify classmates who “typically” received Bliim, and some students who struggled appeared aware of their own repeated difficulties. Students described occasional irritation, disappointment, or sadness in such situations. These reactions were generally described as short-lived and were not reported to escalate into sustained exclusion or systematic peer pressure.

The scoping review did not specifically examine peer dynamics related to interdependent contingencies, and prior GBG/PAX studies have generally reported increases in prosocial behavior rather than adverse peer effects. However, the qualitative findings in Studies 2 and 3 illustrate how interdependent

contingencies can render regulatory differences publicly salient within everyday classroom interactions, particularly in classrooms characterized by uneven regulatory capacities.

Students also emphasized the importance of cumulative reinforcement structures, such as the PAX-o-meter and long-term class rewards. These were described as meaningful and as allowing collective progress over time, potentially balancing short-term setbacks during individual Game sessions.

8.4.6 Student Perspectives on Regulation and Participation

Study 3 adds a student-centered dimension to the cross-study findings. Most students demonstrated familiarity with core PAX routines and described them as integrated into ordinary classroom practice rather than as separate activities. Students frequently expressed a preference for calm and predictable lessons. At the same time, several described self-regulation as effortful. Some students reported understanding expectations and wanting to follow them yet struggling to sustain attention or inhibit impulses during the Game.

Students' descriptions indicate awareness of both their own and peers' regulatory differences. Participation in PAX was often evaluated in relation to broader school experience; students who described school positively tended to describe PAX positively, whereas those with more ambivalent school experiences offered more mixed accounts.

Across studies, the student perspective highlights that regulatory variability is visible within shared classroom routines and that participation may be experienced differently depending on individual capacity and classroom context. Taken together, the cross-study findings indicate that PAX GBG functions as a structured set of classroom practices that can support participation and behavioral regulation for many students with SEN, while its accessibility varies depending on individual capacities, classroom conditions, and the extent to which teachers adapt routines.

9 General Discussion

The overall aim of this thesis was to advance understanding of how the PAX GBG functions in heterogeneous mainstream classrooms that include students with SEN. The thesis addressed this aim through three complementary studies. Study 1 examined how the GBG, including the PAX GBG version, has been studied in relation to students with SEN in mainstream classrooms, including how SEN populations have been defined and what outcomes have been reported. Study 2 explored teachers' perspectives on implementing PAX GBG in heterogeneous classrooms, focusing on perceived benefits, challenges, and adaptations in relation to students with SEN. Study 3 provided a complementary student perspective, examining how children experience participation in classroom routines shaped by PAX kernels.

Taken together, the studies suggest mechanisms that may support students with SEN, identify conditions under which these mechanisms do not fully take hold, and document the adaptations teachers use to promote more inclusive participation.

The discussion is structured around the logic model of the PAX GBG program theory outlined in the theory chapter. Figure 3 presents this logic model and illustrates how the findings from this thesis relate to its different components. The figure positions SEN-related variability as a defining feature of mainstream classrooms in which PAX is implemented. It also illustrates the types of adaptations teachers describe using to support students with SEN, as well as conditions that appear to influence how consistently PAX kernels are enacted in practice. In addition, the figure tentatively indicates additional inputs that may be required to support implementation in classrooms with more complex or heterogeneous student needs.

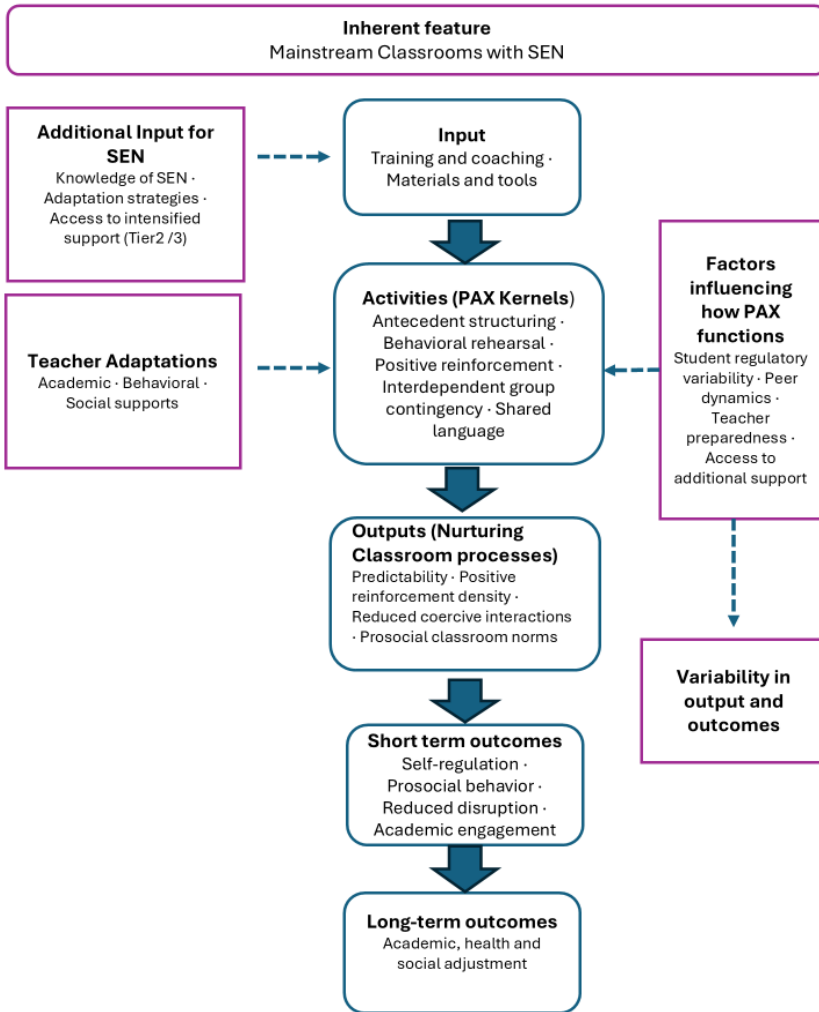


Figure 3: PAX GBG logic model illustrating study findings in relation to SEN and implementation conditions

9.1 SEN in the PAX GBG classroom

Across the studies in this thesis, SEN-related variability was evident within the regular classroom contexts in which GBG and PAX was implemented. In the scoping review (Study 1), SEN-related subgroups varied widely and, in some cases, comprised a substantial and heterogeneous proportion of the sample. Similar patterns were described by teachers and students in Study 2 and 3. This aligns with broader evidence showing that behavioral, developmental,

and learning differences are common in mainstream classrooms (EASNIE, 2026; Ogden & Hagen, 2018; Weare & Nind, 2011).

Taken together, these findings suggest that SEN should not be understood as a subgroup within otherwise typical classrooms, but as part of the variation that characterizes the context in which universal interventions are implemented. From this perspective, variability in regulatory and learning-related capacities is not a deviation from the expected setting of implementation, but a fundamental condition of it. This shifts the analytical focus from whether interventions can accommodate SEN to how they function under conditions of inherent heterogeneity.

For the PAX GBG, this implies that SEN constitutes a defining feature for implementation rather than an exception to it. This interpretation is consistent with prevention science perspectives in which universal interventions operate in populations with varying levels of need (Greenberg et al., 2003; Lane et al., 2015). The findings of this thesis extend this line of work by suggesting that such variability should be understood as an inherent condition of implementation in mainstream classrooms. As illustrated in Figure 3, SEN-related variability is positioned as a starting point for implementation, shaping both the conditions under which PAX kernels are enacted and the kinds of adaptations and supports that become necessary in practice. In this way, the figure highlights how differences in student regulatory and learning capacities are not peripheral, but central to how PAX is implemented and how its effects unfold across classroom contexts.

9.2 PAX GBG Mechanisms in Heterogeneous Classrooms

As outlined in the PAX GBG program theory, the intervention is intended to strengthen classroom conditions through a coordinated set of evidence-based kernels that provide clear antecedent cues, structured opportunities for practicing regulatory skills, and predictable consequences emphasizing positive reinforcement and prosocial processes (Embry & Biglan, 2008; Johansson et al., 2020). These mechanisms are expected to support the development of self-regulation within a structured and predictable classroom environment.

Findings from Study 1 indicate that the GBG and PAX GBG are generally associated with positive outcomes, including reduced disruptive behavior and improvements in prosocial behavior and academic engagement for students with SEN. This is consistent with findings from previous systematic reviews in general education populations (Flower et al, 2014; Smith et al., 2021) as well as studies involving students with SEN in more specialized settings (Bowman-Perrot et al., 2016).

Across Studies 2 and 3, teachers and students described classroom processes that correspond to these proposed mechanisms. Clear expectations, predictable routines, and consistent cues were perceived to make classroom demands easier to understand, particularly for students with SEN. Behavior-practice kernels were described as supporting the development of regulatory skills such as waiting, listening, and shifting attention. Student accounts also suggested that these demands were experienced in concrete everyday terms, such as remembering expectations, waiting for one's turn, and managing frustration when routines became difficult, indicating an emerging awareness of self-regulation in classroom situations (Roebbers, 2017). Reinforcement elements, including the PAX Game, short-term rewards, and team-based incentives, were often experienced as motivating within stable classroom routines. Several classrooms were described as developing increased cooperation and a shared sense of "we," consistent with research on prosocial classroom processes (Johansson et al., 2020).

Taken together, these findings suggest that the mechanisms proposed in the PAX GBG program theory are observable in everyday classroom practice and can support participation and behavioral regulation for many students with SEN. Importantly, these patterns were identified in heterogeneous mainstream classrooms, indicating that the core mechanisms of PAX can be meaningfully enacted in contexts characterized by diverse and varying support needs, as illustrated in the logic model (Figure 3). From a broader perspective, these findings are consistent with the rationale for universal preventive approaches in school settings.

9.3 Adapting PAX GBG for Students with SEN

A central finding in this thesis is the role of adaptations when implementing PAX GBG in classrooms that include students with SEN. Teachers in Study 2 described combining adherence to core PAX components with substantial adjustments to make the intervention workable for diverse learners. The emphasis on fidelity is consistent with previous research showing that consistent use of kernels is central to PAX effectiveness (Flower et al., 2014; Ashworth et al., 2020), as well as with broader implementation literature identifying fidelity as a key determinant of outcomes in universal interventions (e.g., Durlak & DuPre, 2008).

At the same time, adaptations were common and ranged from minor classroom-wide adjustments to more targeted and individualized supports. While previous research has highlighted the importance of adapting the GBG and PAX for students with SEN (e.g., Ashworth et al., 2020; Flower et al., 2014), the findings in this thesis suggest a more integrated relationship between ad-

aptation and fidelity. In several cases, adaptations were described not as deviations from the model, but as necessary for enabling its continued use. As illustrated in the logic model (Figure 3), this suggests that, in heterogeneous mainstream classrooms, adaptations may function as a condition for maintaining core PAX practices, rather than as a departure from them.

Adaptations were not superficial; they addressed academic, social, and behavioral challenges and demanded knowledge of each child's strengths and needs, the demands of the situation, and of PAX's working mechanisms and program theory. These adaptations resemble practices commonly associated with tiered models of support (e.g. Lane et al., 2020), in which universal routines may be supplemented with more targeted forms of scaffolding for students who need additional support. For example, teachers described providing additional prompts, pre-teaching expectations, or increasing adult proximity to specific students to support their participation in PAX routines. While PAX training offers guidance on adaptations, teachers still shouldered primary responsibility for designing and implementing them. This underscores findings from Wray et al. (2022) showing that teacher self-efficacy for inclusive practice is crucial for the successful delivery of universal interventions. However, it also suggests a need for more explicit and systematically developed guidance on how PAX kernels can be adapted for students with SEN. In contrast to the kernels themselves, which are clearly specified and operationalized, adaptations in this context relied more heavily on individual teacher judgment and local problem-solving. Teachers also varied in how they described their ability to make such adaptations, with some drawing on prior experience and others expressing a need for more structured guidance and support.

9.4 When PAX GBG Mechanisms Become Strained

Another finding across studies is the presence of students with more severe or complex needs who did not participate in, or benefit fully from, the GBG/PAX GBG. Teachers in Study 2 described instances where certain expectations embedded in the PAX kernels, such as sustaining attention during the Game, managing rapid transitions, or participating in interdependent group contingencies, were experienced as too demanding for students with pronounced regulatory, social-communication, or learning difficulties.

As illustrated in Figure 3, such challenges can be understood in relation to classroom factors influencing how PAX functions, including student regulatory variability and access to additional support. While teachers typically attributed these challenges to the nature and severity of student needs, a contributing factor may be the limited availability of concrete, evidence-informed strategies for adapting specific kernels for students requiring more intensive support. This interpretation is consistent with findings from Study 1, where

several qualitative accounts indicated that teachers sought more guidance on how to tailor PAX or the GBG for students with SEN.

A second set of findings concerns classroom norms and peer dynamics. Establishing a prosocial relational frame is central to PAX (Johansson et al., 2020), yet some teachers described sustained difficulty shifting group norms in classrooms where many students faced behavioral or emotional challenges. In these contexts, students sometimes reinforced disruptive behaviors rather than prosocial involvement. Such patterns are consistent with peer-contagion processes described in prior research (Dishion et al., 2011), where group interaction can maintain or amplify problem behaviors, particularly in classrooms with a history of dysregulated dynamics. These findings do not suggest that PAX produces peer-contagion effects, but they illustrate how classroom factors may create conditions in which PAX kernels are harder to use as intended, and where the intended relational frame may not fully develop.

A related concern in the literature is the relationship between the interdependent group contingency used in the PAX Game and the possibility of negative peer pressure. Earlier commentaries on the GBG have raised this as a theoretical risk (Skinner et al., 1996; Tingstrom et al., 2006), but empirical studies have generally not demonstrated such effects. Instead, prior research on both the GBG and the PAX GBG typically reports increases in prosocial behavior, such as cooperation, helping, and positive peer interactions in general student populations (e.g., Kellam et al., 2011), and the Study 1 scoping review noted similar findings for many students with SEN. Consistent with this, Groves and Austin (2019) found no evidence of negative peer pressure in a special-education setting.

Findings from this thesis present a somewhat more nuanced picture. In both Study 2 and Study 3, teachers and students described moments when the interdependent contingency appeared to make behavioral differences more visible within the group. Students who struggled with regulatory demands were usually aware of this themselves, and their peers were also aware when repeated Bliim affected the team's performance. Mild irritation toward classmates who disrupted the Game was described by several students- patterns that resemble observations in earlier qualitative work with typically developing students (Hubinette et al.). In most cases, such irritation appeared short-lived and did not escalate into social exclusion, but it shows that group-based contingencies may make behavioral differences more noticeable within the class, and that this visibility may be experienced differently by different students.

While occasional frustration may be part of learning to regulate behavior, repeated difficulty meeting group expectations could reinforce negative self-perceptions, especially for students already struggling with self-esteem or social belonging. Recognizing and addressing such patterns is important from both pedagogical and ethical standpoints.

Taken together, the findings from this thesis suggest that maintaining fidelity to the PAX GBG is not simply a matter of teacher skill or motivation. Effective implementation depended on how well classroom factors were managed and how students with SEN, particularly those with attentional, regulatory, or social-communication difficulties, were supported in participating in core routines. This indicates that supporting SEN-related needs is not separate from fidelity but closely intertwined with it.

This interpretation aligns with prevention-science perspectives emphasizing the interplay among intervention components, learner characteristics, and classroom context (Greenberg et al., 2003; Durlak et al., 2011), and points to the importance of structured systems of support in which universal interventions are complemented by more targeted supports. Importantly, the structure and shared language of PAX may still facilitate this process by providing a common behavioral framework within which additional supports can be planned and monitored (Ialongo et al., 1999).

9.5 System-Level Considerations

The findings of this thesis also point to the importance of broader system conditions for how PAX GBG functions in practice. Supporting students with SEN was closely intertwined with maintaining fidelity, as teachers frequently adapted PAX kernels to sustain participation under varying classroom conditions.

At the same time, teachers' opportunities to make such adaptations appeared shaped by the support structures available beyond the classroom. In several accounts, teachers described taking primary responsibility for modifying expectations, providing additional scaffolding, or adjusting routines when students struggled to participate. While such practices may reflect professional flexibility, they also suggest that responsibility for intensifying support often rested with individual teachers rather than within a formalized support system.

From a prevention science perspective, this can be understood through multi-tiered systems of support (MTSS), in which universal interventions (Tier 1) are complemented by targeted and individualized supports (Tier 2 and Tier 3) when needed (Carta et al., 2016; Fuchs & Fuchs, 2006; Lane et al., 2020; Sugai & Horner, 2002). In such systems, difficulties participating in universal routines trigger access to additional layers of support.

In the Swedish educational context, however, access to structured Tier 2 and Tier 3 supports appears to vary across schools (Swedish Schools Inspectorate, 2021). As a result, teachers may be expected to manage substantial variation in student need within ordinary classrooms without clearly defined pathways for more intensive support.

The present findings do not allow firm conclusions about system-level effects. However, they suggest that the functioning and accessibility of PAX GBG in heterogeneous classrooms depend not only on classroom implementation, but also on whether additional supports are available when Tier 1 routines are insufficient.

This interpretation is consistent with research on school-wide positive behavior support, where universal practices are typically implemented alongside Tier 2 and Tier 3 supports. For example, the Norwegian PALS model combines universal prevention with interventions such as Check-In/Check-Out and individualized behavior support planning (Sørli & Ogden, 2015). Similarly, Breeman et al. (2016) suggest that the GBG may benefit from supplementary supports such as tailored social skills training. Within the PAX framework, PAX Heroes has been described as a more targeted support component, although empirical evaluation remains limited and it has not been implemented and studied in a Swedish context (PAXIS Institute, n.d.).

Taken together, these findings indicate that the accessibility of PAX GBG for students with more complex needs cannot be understood solely at the classroom level but must also be considered in relation to the wider support system surrounding the intervention.

9.6 Normative Considerations

Beyond questions of how PAX GBG functions in practice, the findings of this thesis also raise normative questions concerning participation and inclusion within universal behavioral frameworks. These reflections arise because the empirical material did not only concern how students engaged with the routines, but also how participation was experienced, supported, and at times made difficult in everyday classroom practice. PAX is not designed solely as a top-down behavior management system. The intervention incorporates participatory elements, including the co-construction of a shared classroom vision, a shared language around desired and undesired behavior, and collective routines intended to promote cooperation and belonging. In this sense, the program explicitly aims to support inclusion by clarifying expectations and involving students in a common behavioral framework.

At the same time, the findings suggest that participation within this framework was not equally straightforward for all students. Teachers described situations in which some students struggled with the regulatory and social demands embedded in the routines, and students themselves sometimes described how such difficulties became visible during the Game. Moments of mild irritation toward peers who affected the team's performance were occasionally reported. These observations illustrate how shared classroom routines

may involve different levels of effort and different social consequences for different students.

From a prevention science perspective, universal interventions are typically designed to establish shared behavioral expectations that benefit the majority of students, while recognizing that responsiveness may vary across individuals and contexts (Greenberg et al., 2003; Durlak et al., 2011). Research on autistic students' experiences of mainstream schooling suggests that participation in normative classroom environments may involve increased cognitive or emotional effort (Humphrey & Lewis, 2008), including attempts to adapt to expectations that do not always align with students' preferred ways of engaging, a process sometimes described as camouflaging (Hull et al., 2017).

This points to a broader tension relevant to inclusive education. Shared routines and common expectations may enhance participation for many students by increasing predictability and reducing ambiguity in classroom life. However, they also implicitly privilege certain forms of engagement. For some students, particularly those with neurodevelopmental differences, participation may therefore require additional adaptation, support, or personal effort in order to remain manageable and meaningful.

These observations do not suggest that PAX is incompatible with inclusive education. Rather, they highlight that inclusion within universal interventions cannot be understood solely as access to the same routines. It also requires attention to how those routines are experienced, whose ways of participating they fit most easily, and how flexibility can be maintained when students differ in their capacities and needs. In this sense, the inclusive potential of PAX may lie not only in its shared structure, but also in how that structure is interpreted and adapted so that more students can participate without repeated failure or unnecessary social strain.

9.7 Limitations

Several limitations should be acknowledged when interpreting the findings of this thesis. Regarding Study 1, Scoping reviews are designed to map the breadth and characteristics of a research field rather than to provide a formal synthesis of effect sizes or intervention efficacy (e.g., Peters et al., 2020). Consequently, the review does not include meta-analytic estimates, and conclusions regarding outcomes should be interpreted with caution. The included studies varied substantially in how special educational needs were defined and operationalized. SEN was identified using a wide range of criteria, including standardized assessments, teacher ratings, diagnostic categories, and broader risk indices. This heterogeneity limits comparability across studies and makes it difficult to draw conclusions about specific subgroups of students. In addition, the methodological quality of included studies was not systematically

appraised using formal risk-of-bias tools. While this is consistent with scoping review methodology, it means that the strength of the evidence may vary across studies and that findings should be interpreted in light of potential differences in study quality. The review was based on published studies identified through selected databases, which may have resulted in the exclusion of relevant unpublished or non-English-language research. This introduces a potential risk of publication bias, particularly if studies reporting null or negative findings are underrepresented. Finally, although the review provides an overview of reported outcomes, it is limited in its ability to capture how the GBG and PAX GBG are implemented and experienced in everyday classroom contexts. This limitation informed the inclusion of qualitative studies in the thesis, which provide complementary insight into mechanisms, adaptations, and contextual conditions of implementation.

Study 2 and 3 were conducted within one municipality. This strengthens ecological validity, as the data reflect real-world implementation in naturally occurring classroom contexts rather than controlled research settings. At the same time, the organizational structures, professional cultures, and support systems present in this municipality may differ from those in other regions or countries. The findings should therefore be interpreted as analytically transferable rather than statistically generalizable, offering insight into mechanisms and implementation conditions that may also be relevant in comparable educational contexts.

The empirical material in Studies 2 and 3 relied primarily on interviews with teachers and students. This approach provided rich insight into participants' experiences, interpretations, and meaning-making processes, which are central to understanding how PAX GBG operates in everyday classroom practice. However, interview data cannot capture behavioral dynamics with the same precision as systematic observations or quantitative behavioral measures. As a result, the analyses primarily reflect perceived patterns of implementation and participation rather than directly observed interactional processes within classrooms.

Implementation fidelity was not measured using standardized instruments. While teachers described their use of PAX kernels and routines in detail, the absence of systematic fidelity data limits the ability to examine the relationship between implementation quality and reported experiences or outcomes. Variation in how consistently kernels were implemented may therefore have contributed to some of the patterns described in the studies.

The thesis employed a broad conceptualization of special educational needs. This approach reflects the heterogeneous nature of mainstream classrooms and aligns with how SEN-related challenges are often experienced in everyday educational practice. At the same time, the use of a broad category introduces substantial heterogeneity and limits the possibility of drawing conclusions about specific diagnostic or functional subgroups. Future research

may benefit from combining ecological classroom studies with more targeted analyses of particular learner profiles.

Finally, the author's professional position within the local educational context provided important advantages, including contextual knowledge, established relationships, and access to participants. However, this insider position may also have influenced aspects of the research process, including data collection and interpretation. Reflexive strategies were used throughout the research process to mitigate potential bias, but the possibility of such influence cannot be fully excluded.

Taken together, these limitations contextualize the findings and support cautious interpretation. At the same time, they highlight areas where future research, particularly studies combining observational methods, fidelity measures, and mixed-methods designs, could further strengthen understanding of how universal preventive interventions function in heterogeneous classroom environments.

9.8 Implications for Theory

The findings of this thesis were broadly consistent with the preventive logic underlying the PAX Good Behavior Game. Mechanisms described in previous research- clear antecedents, behavioral rehearsal, reinforcement, and interdependent group contingencies- were recognizable in teachers' and students' accounts and corresponded closely to the program theory of PAX GBG presented in the theory chapter.

At the same time, the findings suggest that when PAX is implemented in mainstream classrooms that include students with diverse needs, the processes described in the program theory may not develop uniformly. Instead, their expression appears to vary depending on contextual conditions. Variation in students' regulatory capacities, classroom peer dynamics, teachers' preparedness to support diverse learners, and the availability of additional supports influenced how consistently the pathway from PAX kernels to classroom processes and student outcomes unfolded in practice. In this sense, the findings point to a need to further specify the conditions under which the program theory operates, rather than to revise its core assumptions.

Figure 3 provides a conceptual illustration of how the empirical findings of this thesis can be understood in relation to the existing PAX GBG program theory. The figure retains the central pathway of the intervention. At the same time, it makes visible classroom factors and teacher adaptations that appeared to influence how this pathway developed in the studied classrooms.

The purpose of this illustration is not to propose a revised model of the intervention. Rather, it is to clarify how the mechanisms described in the PAX GBG program theory may operate in mainstream classrooms where variation in students' regulatory capacities is a routine condition of implementation.

9.9 Implications for Research

The findings of this thesis point to several areas where further research may strengthen understanding of how universal classroom interventions function in heterogeneous educational settings.

First, the scoping review revealed substantial variation in how special educational needs are defined and operationalized across studies of the Good Behavior Game and the PAX GBG. In the included studies, SEN were identified using a wide range of criteria, including diagnostic categories, teacher ratings, and cumulative risk indices. This variation complicates comparisons across studies and limits conclusions about how specific groups of students respond to the intervention. Greater conceptual clarity and more consistent operationalization of SEN would therefore improve comparability and support more precise interpretation of findings across contexts.

Second, the qualitative findings from Studies 2 and 3 suggest that variation in outcomes may be closely linked to how PAX is implemented and adapted in practice. Teachers described adjusting pacing, providing additional prompts, and modifying reinforcement structures, while students highlighted differences in how routines were experienced across classrooms. These adaptations were typically developed locally and varied across settings.

Previous research has examined adaptations of the GBG and PAX in both mainstream and special education contexts, often focusing on modifications of game procedures or implementation formats (e.g., Groves & Austin, 2020; Breeman et al., 2016). The findings of this thesis extend this line of work by suggesting that, in mainstream classrooms, adaptations may take the form of ongoing adjustments within everyday practice rather than formal modifications of the intervention itself.

Future research would benefit from designs that combine outcome measures with detailed data on implementation processes, including adaptations and classroom context. Such approaches may help clarify how different forms of adaptation influence participation and outcomes, and under what conditions they support or constrain the intended mechanisms of the intervention.

In addition, the findings suggest a need to examine how such adaptations relate to more structured forms of support within layered systems. In several cases, teachers appeared to provide additional scaffolding to individual students, in ways that resemble Tier 2 supports but were implemented informally within the classroom. Future studies could investigate how universal interventions such as PAX function when combined with more systematic targeted supports, such as Check-In/Check-Out, social skills training, or function-

based support plans, and whether such integration improves accessibility and participation for students with more complex needs.

Finally, the findings highlight the value of including student perspectives when examining classroom interventions. The student accounts in this thesis provided insight into how routines, expectations, and peer dynamics are experienced by young learners, including how they perceive their own and others' participation. Future studies could build on this by using participatory or developmentally adapted methods to further explore how children understand and engage with classroom interventions, particularly those who experience participation as more demanding.

9.10 Implications for Practice

The findings of this thesis suggest several considerations for schools implementing the PAX GBG in mainstream classrooms. Across the included studies, there are indications that universal interventions such as PAX can support many students, including those with special educational needs. In the scoping review, most studies reported positive outcomes for at least some groups of students with SEN. This pattern was also reflected in teachers' and students' descriptions in the empirical studies, where clearer routines, predictable expectations, and repeated opportunities to rehearse self-regulation and cooperation were associated with calmer classroom environments and more manageable participation. These observations are consistent with previous research suggesting that structured behavioral routines can support both classroom functioning and student engagement (Embry & Biglan, 2008; Kellam et al., 2008; Durlak et al., 2011).

At the same time, the findings indicate that implementation in mainstream classrooms needs to take into account substantial variation in students' regulatory capacities and learning profiles. Teachers in the present studies frequently described adjusting pacing, providing additional rehearsal, clarifying expectations, and increasing reinforcement in order to support participation in PAX routines. However, teachers varied in how they described their ability to make such adjustments. Some drew on prior experience and confidence in working with diverse learners, while others expressed a need for more structured guidance, training, and ongoing support. In this context, adaptation should not primarily be viewed as a deviation from implementation fidelity, but as a necessary component of competent delivery in heterogeneous classrooms.

The findings also suggest that PAX may provide a useful foundation for classroom support by making expectations explicit and observable. Shared signals, structured routines, and repeated opportunities to practice regulatory

behaviors can help externalize skills that might otherwise remain implicit in classroom life. For many students, this structure appeared to reduce ambiguity and clarify what was expected in different classroom situations. In this sense, PAX may function as a shared behavioral framework within which additional supports can be introduced when participation becomes difficult.

9.10.1 Attention to the interdependent group contingency

Particular attention should be given to the interdependent group contingency used in the PAX Game. Previous studies have shown that such contingencies can promote cooperation, peer support, and positive classroom climate when implemented carefully (Groves & Austin, 2019; Tingstrom et al., 2006). The findings of the present thesis broadly align with this literature, but they also suggest that this component requires careful monitoring in classrooms where some students repeatedly struggle to meet shared expectations.

In practice, repeated visible difficulty during the Game may indicate that expectations, pacing, reinforcement density, or team composition need to be reconsidered. When the same students repeatedly receive Bliims or become associated with team loss, behavioral differences may become more visible within the group. A practical implication is therefore that teachers need to monitor whether the Game remains attainable and socially safe for all students and to adjust implementation when necessary.

9.10.2 School-level support structures

The findings also highlight the importance of school-level support structures when implementing universal interventions in heterogeneous classrooms. Although many teachers demonstrated considerable skill in adapting PAX routines to their students, responsibility for such adjustments sometimes rested heavily on individual practitioners. As indicated above, teachers differed in their preparedness to make these adaptations, suggesting that successful implementation cannot rely solely on individual competence.

Access to additional support therefore depended on teacher expertise, workload, and available school resources. This issue may be particularly relevant in the Swedish educational context, where access to systematic targeted and individualized behavioral supports appears to vary across schools. When structured pathways for additional support are limited, teachers may carry primary responsibility for intensifying support within the classroom. Under such conditions, the accessibility of universal routines for students with more complex needs may depend largely on teacher-driven adaptations rather than coordinated school structures.

For schools implementing PAX, this suggests that successful implementation may depend not only on training in the kernels themselves, but also on access to additional inputs that support adaptation in heterogeneous classrooms.

Based on the findings of this thesis, this may include knowledge of SEN and how different regulatory and learning profiles influence participation in PAX routines, as well as practical strategies for adapting pacing, prompts, and reinforcement structures.

In addition, teachers may benefit from access to collegial and specialist support, such as opportunities to discuss adaptations with special educators or school psychologists, and from clearer pathways for introducing more targeted interventions when universal routines are not sufficient. Strengthening such structures may help distribute responsibility for adaptation beyond the individual teacher and make universal preventive interventions more accessible across diverse classroom populations.

9.11 Contributions

This thesis makes several contributions to the knowledge base on the PAX GBG and its use in mainstream classrooms that include students with SEN.

1. Study 1 provides the first systematic synthesis of research on the GBG and PAX GBG in relation to students with SEN. It clarifies reported positive outcomes, identifies groups of low- and non-responders, and highlights conceptual and methodological limitations in the existing evidence base.
2. Study 2 offers an in-depth account of how teachers perceive benefits, challenges, and adaptations when implementing PAX in classrooms with diverse learners. It illustrates how teachers work to balance fidelity with adjustment and under what conditions additional support may be needed. More broadly, the study contributes to a limited body of research capturing practitioner perspectives in intervention research, both in the GBG/PAX literature and in school-based prevention research more generally.
3. Study 3 adds children's own perspectives on PAX kernels, an aspect largely missing from earlier research. These accounts provide insight into how young students experience classroom expectations, regulatory demands, peer dynamics, and group-based contingencies in everyday school life.
4. Across the three studies, the thesis extends previous research by shifting attention from average intervention effects to how the PAX GBG functions under conditions of ordinary classroom heterogeneity. It highlights the importance of participation, adaptation, and broader support capacity when considering accessibility for diverse learners.

9.12 Conclusions

In the introduction to this thesis, I quoted a parent expressing the hope that his child would move through school “as unharmed as possible.” That aspiration points to a central educational question: how can ordinary classroom practices support participation, learning, and well-being for students with diverse needs?

This thesis examined that question through the PAX Good Behavior Game (PAX GBG), a universal classroom intervention designed to strengthen classroom functioning and student self-regulation. Across the three studies, the findings suggest that heterogeneous classrooms should be understood as the ordinary context in which such interventions operate. Variation in attention, self-regulation, learning-related needs, and social functioning was not exceptional, but a routine feature of the classrooms examined.

Within this context, the core mechanisms of the PAX GBG, such as clear expectations, structured routines, behavioral rehearsal, shared language, and positive reinforcement, were generally recognizable in everyday practice and were often described as supportive for many students, including students with special educational needs. In many classrooms, these practices appeared to strengthen predictability, improve classroom climate, support cooperation, and create better conditions for participation and learning. For a substantial proportion of students, universal classroom routines seemed sufficient to provide meaningful support in everyday school life.

At the same time, access to these benefits was not uniform. Some students appeared to require more scaffolding, more individualized adaptations, or support beyond what universal routines alone could provide. Participation was shaped by teacher judgment, responsiveness to group dynamics, and sensitivity to individual needs. Teachers described making adaptations across academic, behavioral, and social domains, reflecting efforts to align classroom practices with students’ varying profiles of need. When such supports were limited, some students appeared to experience shared routines or group-based contingencies as more demanding.

The findings therefore suggest that the effects of universal classroom interventions are contingent not only on the intervention itself, but also on schools’ capacity to combine strong Tier 1 practices with additional layers of support when needed; capacity that may vary across educational contexts and implementation conditions. In line with the logic of tiered support models, PAX GBG appears to function most effectively when positioned as a foundational component within a broader system of support, rather than as a substitute for targeted or individualized interventions.

Taken together, the findings contribute to explaining variation in how PAX GBG is experienced and enacted in heterogeneous classrooms, highlighting the conditions under which its intended mechanisms are more or less accessible to students with differing needs.

10 Sammanfattning på Svenska

Denna avhandling undersöker hur den universalpreventiva klassrumsmodellen PAX Good Behavior Game (PAX GBG) fungerar i svenska klassrum där elever med olika typer av stödbehov, på engelska special educational needs (SEN), ingår i elevgruppen. Bakgrunden är att många barn och unga rapporterar stress, psykisk ohälsa och svårigheter i skolan, och att risken för sådana svårigheter ofta är högre bland elever med SEN. Samtidigt förväntas lärare skapa studiero, goda relationer och tillgänglig undervisning för en allt mer heterogen elevgrupp. Klassrummet blir därmed en viktig arena för förebyggande arbete som syftar till att stärka elevers lärande, sociala utveckling och psykiska hälsa.

PAX GBG är en klassrumsmodell som utvecklats för att främja positiva lärmiljöer genom tydliga rutiner, gemensamma förväntningar och förstärkning av prosociala beteenden. Modellen består av konkreta strategier, eller verktyg, som lärare integrerar i undervisningen för att underlätta övergångar, öka uppmärksamhet, stärka samarbete och minska störande beteenden. En central del är att klassen tillsammans formulerar en vision för hur man vill ha det i klassrummet: vilka beteenden man vill se mer av, PAX, och mindre av, Bliim. Den mest kända delen är PAX-spelet, som har sitt ursprung i Good Behavior Game. I spelet delas eleverna in i lag som tillsammans arbetar för att följa överenskomna regler under kortare arbetspass.

Tidigare forskning har visat att GBG och PAX GBG kan minska störande beteenden, förbättra arbetsro, stärka socialt samspel och i vissa studier kopplas till långsiktigt positiva utfall. Samtidigt väcker universella modeller viktiga frågor när elevgruppen rymmer stor variation i behov. I avhandlingen används SEN som en samlingsbenämning för elever som behöver extra stöd i skolan, exempelvis på grund av svårigheter inom lärande, beteende, uppmärksamhet, social kommunikation eller emotionell reglering. Universella modeller kan skapa struktur och trygghet för många elever, men möter inte alltid individuella behov fullt ut. Särskilt gruppmomenten i Good Behavior Game har diskuterats, eftersom de både kan stärka gemenskap och göra skillnader i elevers regleringsförmåga synliga.

Sverige är en relevant kontext för denna forskning eftersom svensk skola bygger på en inkluderande ambition om en skola för alla, där elever i behov av stöd i hög grad undervisas i samma klassrum som övriga elever. Det innebär att lärare dagligen möter stor variation i elevers behov inom samma

undervisningsgrupp. Den svenska versionen av modellen, PAX i skolan, har också fått spridning i flera kommuner.

Mot denna bakgrund undersöker avhandlingen hur PAX GBG fungerar i praktiken i svenska klassrum där elever med olika behov ingår. Särskilt fokus riktas mot lärares erfarenheter, elevers perspektiv och vilka villkor som behöver vara uppfyllda för att modellen ska bli tillgänglig även för elever som behöver mer stöd än genomsnittet.

Avhandlingen består av tre delstudier. Den första studien sammanfattar tidigare forskning om GBG och PAX GBG i relation till elever med SEN. Den andra studien undersöker svenska lärares erfarenheter av att använda PAX i klassrum med stor variation i elevers behov. Den tredje studien riktar fokus mot yngre elevers egna upplevelser av PAX i skolan.

10.1 Studie 1: Forskningsöversikt om PAX och elever med SEN

Den första studien var en scoping review, det vill säga en systematisk kartläggning av befintlig forskning. Syftet var att undersöka vad som redan är känt om GBG och PAX GBG för elever med SEN. Studien visade att forskningsfältet fortfarande är begränsat, men att det finns återkommande indikationer på positiva effekter för flera elevgrupper, bland annat förbättrad självreglering, minskade beteendeproblem, bättre arbetsro och stärkt socialt samspel.

Samtidigt var forskningsläget heterogent. Studierna skilde sig åt i hur SEN definierades, vilka elevgrupper som inkluderades, vilka utfall som mättes och hur interventionerna genomfördes. Det gjorde det svårt att dra entydiga slutsatser om för vilka elever modellen fungerar bäst och under vilka villkor. Översikten visade också att lärares och elevers perspektiv var sparsamt belysta. Studien identifierade därför ett behov av mer praktiska forskning om hur PAX GBG fungerar i ordinarie klassrum.

10.2 Studie 2: Svenska lärares perspektiv på PAX för elever med SEN

Den andra studien byggde på intervjuer med svenska lärare som arbetat med PAX. Lärarna beskrev att modellen kunde bidra till tydligare struktur, lugnare klassrumsmiljöer och ett mer positivt socialt klimat. Detta uppfattades som särskilt värdefullt för elever med svårigheter inom impuls kontroll, koncentration eller socialt samspel.

Samtidigt framkom att modellen ofta behövde anpassas för elever med mer omfattande behov. Lärarna beskrev anpassningar av akademiska krav, instruktioner, tempo, gruppkonstellationer, beteendeförväntningar och vuxenstöd. Anpassningarna byggde ofta på lärarnas kunskap om enskilda elever och klassens sociala dynamik. För vissa elever krävdes även organisatoriska resurser, såsom ytterligare personal, alternativa lokaler eller möjlighet att arbeta i mindre sammanhang.

Studien visade också att PAX kunde vara svårare att genomföra i grupper med hög oro, många samtidigta stödbehov eller svagt etablerade rutiner. PAX framstod därför inte som en färdig lösning i sig, utan som ett verktyg vars värde beror på lärarens anpassningar, elevgruppens behov och de resurser som finns runt undervisningen.

10.3 Studie 3: Elevers perspektiv på PAX i skolan

Den tredje studien undersökte yngre elevers egna erfarenheter av PAX. Många barn beskrev PAX som en tydlig och välkänd del av skoldagen. De lyfte fram att modellen kunde bidra till lugnare lektioner, bättre arbetsro och mer samarbete i klassen.

Samtidigt visade intervjuerna att självreglering kunde upplevas som ansträngande. Vissa elever beskrev att det kunde vara svårt att vara tyst, vänta på sin tur, reglera sin röst, sitta stilla eller hålla fokus under spelet. Eleverna kunde också resonera kring att vissa klasskamrater hade svårare än andra att följa rutiner eller undvika Bliim. På så sätt blev skillnader i regleringsförmåga synliga inom de gemensamma klassrumsrutinerna.

Elevernas erfarenheter av gruppmomenten var både positiva och mer blandade. För många skapade laget en känsla av gemenskap och gemensamt ansvar. Samtidigt kunde återkommande Bliim leda till irritation, besvikelse eller nedstämdhet. Studien visade därmed att barns upplevelser av PAX inte är enhetliga, utan påverkas av deras egna förutsättningar, relationer i gruppen, klassrumsklimatet och hur läraren genomför arbetet.

10.4 Övergripande resultat och slutsatser

Sammantaget visar avhandlingen att PAX GBG har potential att bidra till mer strukturerade, positiva och förutsägbara klassrumsmiljöer. Lärare och elever beskrev ofta att modellen bidrog till arbetsro, tydlighet, bättre samarbete och ökade möjligheter till deltagande. De centrala mekanismerna i modellen – tydliga förväntningar, övning av beteenden, gemensamma signaler, förstärkning och gruppansvar – kunde identifieras i vardaglig klassrumspraktik.

Samtidigt visar avhandlingen att PAX implementeras i klassrum där variation i elevers regleringsförmåga, lärande och sociala förutsättningar är en normal del av undervisningen. Samma struktur fungerar därför inte likadant för alla elever. För många kunde PAX skapa trygghet, motivation och tydliga ramar. För andra kunde vissa moment bli krävande, särskilt när de förutsatte uthållig uppmärksamhet, snabb omställning, impulskontroll eller fungerande samspel i grupp.

Ett genomgående resultat är att anpassning var en central del av implementeringen. Lärare behövde kontinuerligt justera verktyg, instruktioner, krav, tempo, gruppindelningar och stödformer för att modellen skulle bli tillgänglig för fler elever. PAX GBG framstår därför inte som en standardiserad metod som fungerar oberoende av sammanhang, utan som en strukturerad uppsättning klassrumspraktiker vars funktion formas av lärarens professionella omdöme, elevgruppens sammansättning och skolans organisatoriska förutsättningar.

Avhandlingen bidrar därmed med en mer kontextkänslig förståelse av hur universella preventiva insatser fungerar i heterogena klassrum och under vilka villkor de kan stödja deltagande för en bred elevgrupp. Resultaten ligger i linje med etablerade flernivåmodeller för stöd, där universella insatser utgör en gemensam grund men kompletteras med mer riktade åtgärder utifrån behov. PAX GBG kan därmed förstås som en viktig bas i skolans förebyggande arbete, men inte som en ersättning för särskilt stöd, individuella anpassningar eller mer intensiva insatser.

Generative AI Statement

A generative AI tool (ChatGPT, OpenAI, 2026) were used selectively for language revision, editorial feedback, and translation support. They were not used to generate data, conduct analyses, or determine interpretations. All final content was reviewed and approved by the author.

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Appendix A- PAX Kernels in Swedish

Verktyg (kernel)	Beskrivning
PAX Vision	En gemensam klassrumsvision baserad på PAX och Bliim, som skapas tillsammans med eleverna. En "mini-vision" används inför nya eller mer komplexa aktiviteter för att tydliggöra förväntningar i den specifika situationen.
PAX Lyssna	En ljudsignal i kombination med en visuell respons. Syftar till att hjälpa läraren att få elevernas uppmärksamhet och att ge eleverna möjlighet att träna självreglering.
PAX Övrraskning	En kort, rolig aktivitet som används som förstärkning för positiva beteenden (PAX).
PAX Händer och fötter	Tydliggör förväntningar på hur händer och fötter används i klassrummet.
PAX Röster	Klargör och tränar olika röstnivåer beroende på aktivitet.
PAX Sticks	Används för att slumpmässigt välja elever i olika aktiviteter.
PAX Timer	Används för att tidsätta aktiviteter och skapa struktur samt öka engagemang i uppgifter som tar tid.
PAX- och Bliim-kort	Används för att förstärka PAX-beteenden eller påminna om Bliim.
PAX Hissningar	Tränar elever i att uppmärksamma, beskriva och ge positiv feedback på andras PAX-beteenden.
PAX-spelet	Ett lagbaserat spel där elever samarbetar för att följa PAX och undvika Bliim. Lag som får färre än fyra Bliim deltar i en PAX Surprise. Med hjälp av PAX-o-Metern kan lag samla poäng som kan bytas mot en gemensam belöning för hela klassen.