

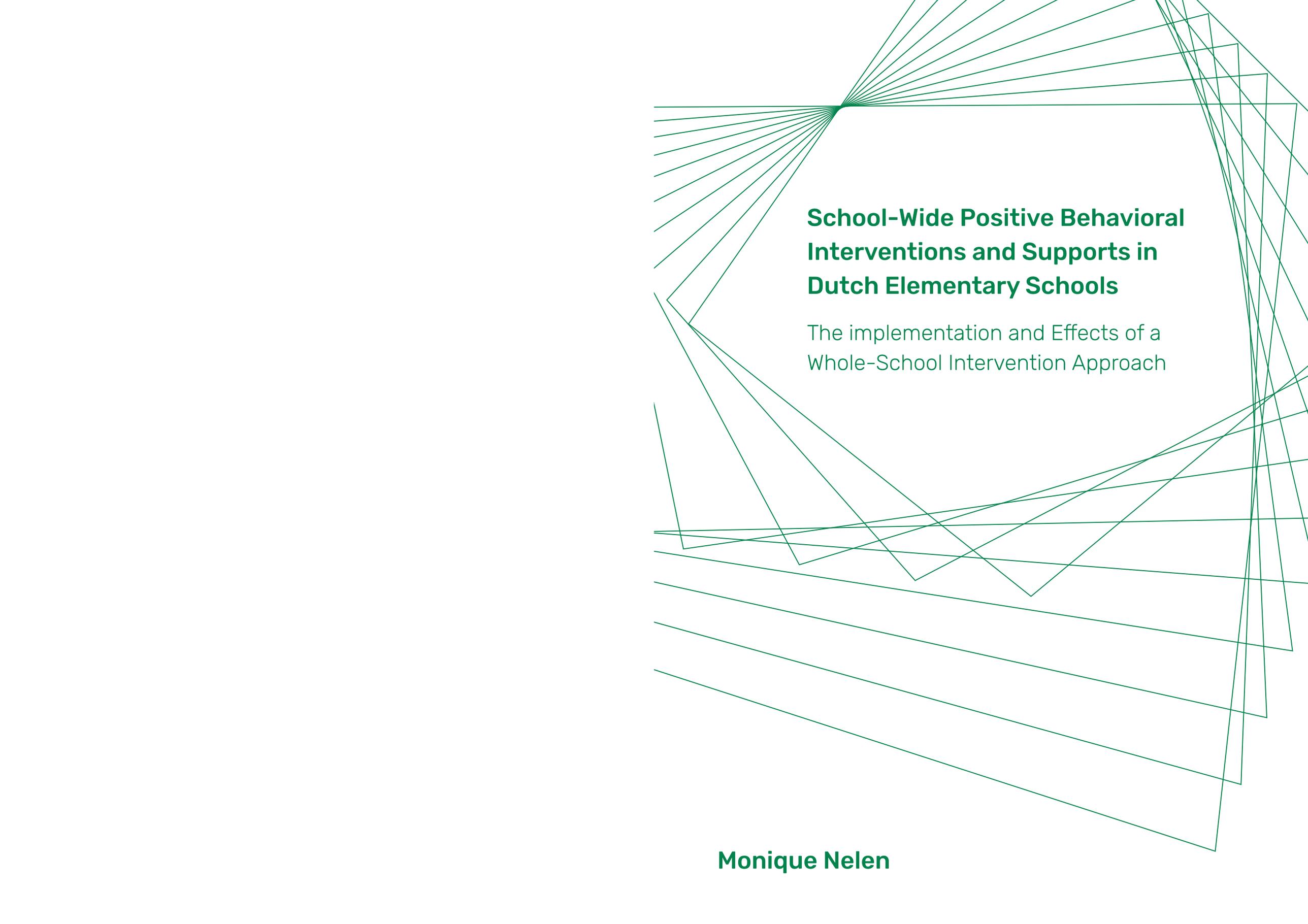
# **School-Wide Positive Behavioral Interventions and Supports in Dutch Elementary Schools**

The implementation and Effects of a Whole-School Intervention Approach

**Monique Nelen**



**Behavioural  
Science  
Institute**

The background of the slide is a complex, abstract pattern of thin, dark green lines. These lines radiate from a central point on the left side and extend across the right side, creating a series of overlapping, irregular shapes that resemble a stylized, geometric landscape or a network of connections. The lines vary in length and angle, creating a sense of movement and depth.

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## **Proefschrift**

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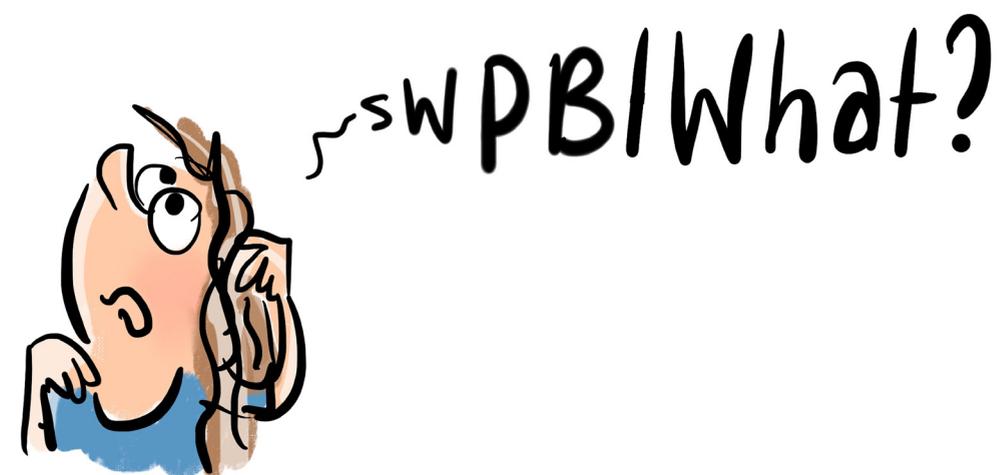
## Table of contents

<b>Chapter 1.</b>	General introduction	6
<b>Chapter 2.</b>	Cultural adaptation	24
<b>Chapter 3.</b>	Fidelity of implementation	42
<b>Chapter 4.</b>	Results of SWPBIS	64
<b>Chapter 5.</b>	General conclusion and discussion	86
	References	104
	Appendix A: Technical report on SWPBIS and academic achievements	118
	Summary in Dutch	128
	Acknowledgements	134
	About the author	140
	List of publications	142

Chapter 1.

**General**

**introduction**



## School-Wide Positive Behavioral Interventions and Supports in Dutch Elementary Schools: The implementation and Effects of a Whole-School Intervention Approach

School plays an important role in the life of children. It is the place where they learn to read and write, meet their peers, become more and more independent of their parents, and much more. It is also a place where they spend a lot of time: In the Netherlands, children from age 4-12 spend 7,280 hours<sup>1</sup> in 8 years at school. To support children's cognitive and social-emotional development, schools strive to create safe and effective learning environments. In fact, Dutch schools are bound by law to guarantee and monitor the safety of their students. As freedom of education is a constitutional right in the Netherlands, schools can decide how to meet this legal obligation. A national inspectorate monitors the quality of the education schools provide, based on the educational goals determined by the Dutch government (OCW, 2020).

<sup>1</sup> [www.rijksoverheid.nl/onderwerpen/schooltijden-en-onderwijstijd/overzicht-aantal-uren-onderwijstijd](http://www.rijksoverheid.nl/onderwerpen/schooltijden-en-onderwijstijd/overzicht-aantal-uren-onderwijstijd)

Safety is pivotal for learning. If students do not feel safe at school, learning is unlikely to take place. S. E. Goldstein, Young, and Boyd (2008) defined safe schools as environments where students are likely to remain free from victimization and harassment. School safety represents the degree of physical and emotional security provided by the school, as well as the presence of effective, consistent, and fair disciplinary practices, and is considered to be part of the more general concept of school climate (M. T. Wang & Degol, 2016). Other dimensions of school climate are: academic climate (e.g., teaching and learning), community (e.g., relations and connectedness), and institutional environment (e.g., structural organization, M. T. Wang & Degol, 2016). Next to a sense of school belonging and good interpersonal relationships, safety is one of the key determinants of the social-emotional well-being of students. By improving school safety, social-emotional skills, positive attitudes towards self and school, and positive social behavior are enhanced.

Safety is not only important for students, as unsafe classrooms can disturb interpersonal relations between students, and impede their cognitive functioning. Low levels of school safety can also have a severe impact on the well-being and, as a result, the functioning of teachers. Tensions in the classroom can cause emotional stress for teachers, and interfere with classroom management and effective instruction. Teachers can also be harassed themselves. For example, Brunsting, Sreckovic, and Lane (2014) found that unsafe situations in schools contribute to teacher burn-out. As a result from being harassed themselves or teachers being faced with misbehavior from one student towards another, teachers can suffer from emotional strain and burnout that effects their feelings of commitment and self-efficacy. This can lead to negative or clinical, cold or distant attitudes towards all students in general (Cornell & Mayer, 2010).

Logically, in line with the definition of safe schools presented above, unsafe schools are schools where harassment and other problem behaviors occur that cause feelings of victimization for both students and teachers. Research showed that the occurrence of problem behaviors not only has a negative impact on school safety, but it also contributes to poor school climate (Ögülmüş & Vuran, 2016), presents a barrier for learning (Chitiyo, Makweche-Chitiyo, Park, Ametepee, & Chitiyo, 2010), negatively impacts students' quality of life (Emerson et al., 2014), and adversely affects peers (Dishion & Tipsord, 2011). The occurrence of problem behaviors (such as verbal or physical aggression, truancy, bullying) and depression has been linked to high amounts of school conflict, disorder, and friction among students (M. T. Wang & Degol, 2016). Severe misbehaviors can have a long lasting impact on students, experiencing anxiety over bullying or fear for their personal safety (Cornell & Mayer, 2010). Students who perceive their school climate as peaceful, experiencing less aggressive resolutions to peer conflicts, are likely to engage less in risky behaviors themselves.

Many schools are struggling with behavioral issues, varying from students not following teachers' directions, attitude problems, to truancy or violence. What is considered problem behavior depends on the context it is occurring in. When behavior interferes with schools' daily practice, it is considered problematic. There is a distinction between minor and major problem behavior. Minor problem behavior are behaviors that can

be addressed by the teacher without support from outside class, for example name calling or not following teacher's directions. Examples of major problem behavior are physical violence, theft or vandalism. These behaviors usually require a broader approach where, for example, school psychologists or external specialists are deployed.

As the definition of problem behavior is normative, it is hard to estimate how often problem behavior occurs. Although no research has been done in the Netherlands to examine the actual percentage of students exhibiting problem behavior in Dutch schools, teachers often experienced incompetence in dealing with challenging behavior of students on a daily basis. In fact, it was found to be a major cause of teacher burnout (Goei & Kleijnen, 2009). Among all educational needs, teachers especially experienced students with problem behavior to be the most challenging (Smeets, Ledoux, & Van Loon-Dijkers, 2019). This is endorsed by McEvoy and Welker (2000), who stated that problem behavior is a priority area to be addressed in educational agendas.

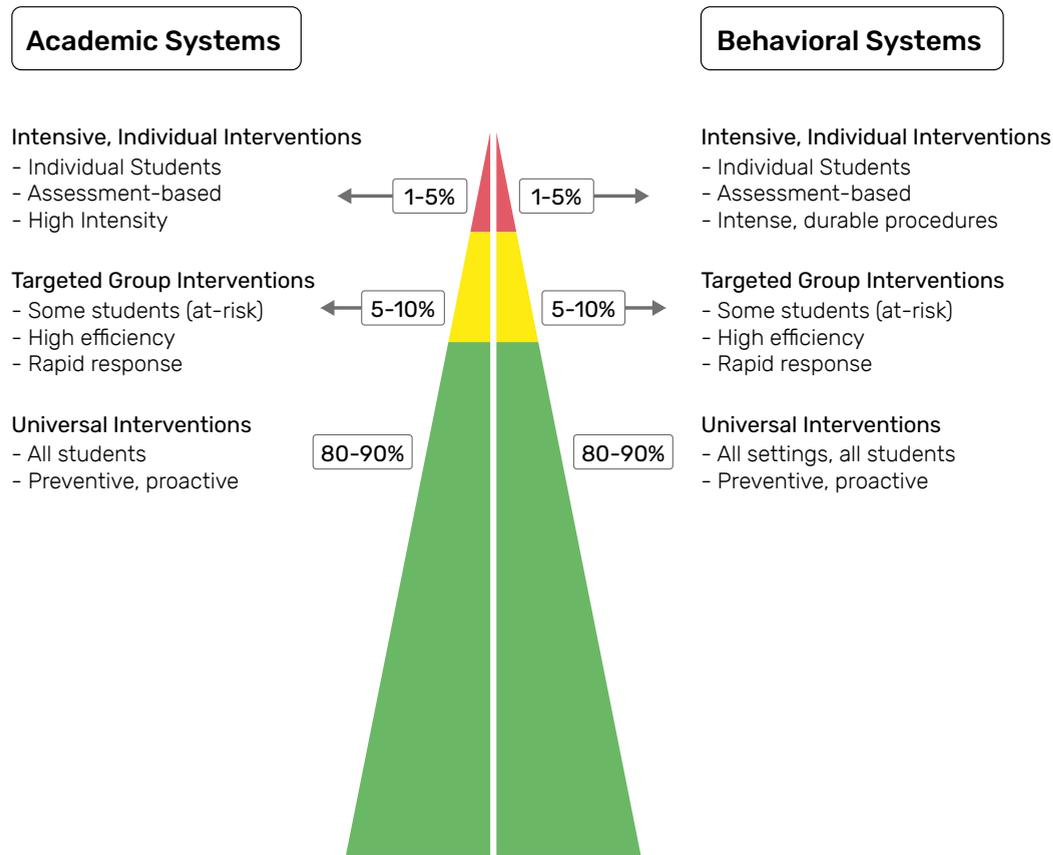
### Creating safe schools

To create safe schools, teacher effectiveness to handle disciplinary infractions and bullying behaviors, and school attitudes toward acceptable levels of aggression within the school are important (M. T. Wang & Degol, 2016). M. T. Wang and Degol (2016) further argued that norms and values shared by the school may shape both student and teacher attitudes and beliefs regarding acceptable versus unacceptable behaviors in schools. These norms determine what counts as a behavior incident and also impact teachers' efficacy at preventing behavior incidents. Schoolwide programs addressing safety, such as School-Wide Positive Behavioral Interventions and Support (SWPBIS) were found to have a positive impact on enhancing students perceptions of safety (Horner et al., 2009), and improving school climate (Bradshaw, Koth, Bevans, Lalongo, & Leaf, 2008). As teachers are part of a team, combining all individual teacher efforts into a schoolwide approach is likely to be more effective than teachers struggling on their own with their challenges to improve safety.

Although there were few studies in their meta-analysis that directly compared the effects of classroom-based programming with schoolwide programs, Durlak, Weissberg, Dymnicki, Taylor, and Schellinger (2011) did not find the additional benefit of schoolwide or multicomponent programs over single component (i.e., classroom only) programs, contrary to findings that have been reported in other reviews (Catalano et al., 2002; Greenberg et al., 2001, Tobler et al., 2000). They explained that the reduced program impact could have been due to the fact that multicomponent programs were more likely to encounter implementation problems than single component programs. Other scholars argued that school safety issues, such as bullying, require a comprehensive approach focusing on school climate (e.g., Anyon, Nicotera, & Veeh, 2016; Bosworth & Judkins, 2014). As safety is part of the broader concept of school climate, a comprehensive schoolwide approach for an increasing consistency across teachers seems more logical than a classroom or single teacher approach to address safety.

Figure 1. Multi-tiered system of support, retrieved from www.pbis.org

## Designing School-Wide Systems for Student Success



### Schoolwide prevention models

Over the last decades, schoolwide prevention models have emerged to address problem behavior and create safe learning environments (Greenwood, Kratochwill, & Clements, 2008). Schoolwide prevention models have a strong emphasis on the whole school and include all students and staff members across all school settings. Prevention models are designed to manage risk and link quick, targeted actions to reductions in negative outcomes. This is achieved by universal progress monitoring to identify those at risk, combined with early, differentiated tiers of intervention (uni-

versal, targeted, and indicated, Greenwood et al., 2008). Universal, or Tier 1 interventions, are expected to meet the needs of about 80% of the population of the school. Examples of Tier 1 interventions are defining and teaching behavioral expectations to all students. Targeted, or Tier 2 interventions, contain interventions for those students who need more support, and typically accommodates 15% of the students shown not to be benefiting from primary prevention alone. An example of a Tier 2 intervention is a standardized behavioral education plan that organizes a student to check in every morning with a designated person, who reminds him or her to focus on standardized goals related to the behavioral expectations, such as being respectful to the teacher. Indicated, or Tier 3 interventions, are reserved for approximately 5% of the students in a school who have not responded to primary and secondary interventions. Based on a thorough analysis of the behavior in question, individualized interventions are developed, such as an anger management training. See Figure 1 for the multi-tiered system of support.

Based on a synthesis of the research literature, Sørliie and Ogden (2007) described components of the most effective schoolwide programs to address problem behavior: (a) multi component; (b) interventions targeting students at different risk levels, sometimes also involving parents; (c) guided by an explicit theory; (d) research based; (e) developmentally and culturally appropriate; (f) a focus on the importance of skills training (e.g. student reading and social skills, teacher classroom management skills); (g) well planned and systematically implemented; and (h) with research based and predefined intervention components. Some of these components also emerged in other studies. In their meta-analysis of 221 schoolwide prevention programs, Wilson, Lipsey, and Derzon (2003) endorsed the importance of a schoolwide focus on social competence training (component f) as one of the most effective program components in preventing and reducing aggressive and disruptive behavior. They also concluded that behavioral approaches (based on behavioral theory and applied behavior analysis [ABA]) were found to be very effective (component c). ABA is a scientific approach to understanding behavior that refers to a set of principles that focus on how behaviors change, or are affected by the environment, as well as how learning of (new) behaviors take place (H. Goldstein, 2002). Functional Behavior Assessment (FBA), a thorough analysis of the function of (problem) behavior in a specific context, is rooted in ABA (Crone & Horner, 2003). Accordingly, Cook, Gottfredson, and Na (2010) stated that programs that teach self-control or social competency skills using cognitive-behavioral or behavioral instructional methods can reduce crime in schools (component f and c). Research shows that schools with schoolwide discipline management policies and practices (e.g., rules are fair and clearly stated, and consistently enforced, students participate in establishing mechanisms for reducing misbehavior) experienced less disorder (Cook et al., 2010). In addition to discipline management, norms and expectations for behavior in the school, and the quality of relationships among and between students and adults in the school also predict problem behavior (Gottfredson, 2017). Considering the criteria mentioned above by Sørliie and Ogden (2007), SWPBIS can be considered as an example of a schoolwide prevention model that meets the criteria of effective prevention programs and provides structures and routines for implementation.

## School-Wide Positive Behavioral Interventions and Support (SWPBIS): history and foundations

SWPBIS is a schoolwide approach that supports schools in creating a safe learning environments (Sugai & Horner, 2009). It is originally developed in the US in 1980's by researchers from the University of Oregon (Sugai & Simonsen, 2012), and more than 26,000 U.S. schools are currently working with SWPBIS. The theoretical and conceptual foundations of SWPBIS are firmly linked to behavioral theory and ABA (Sugai & Horner, 2009). To understand why certain (problem) behavior occurs, not only observable behavior, but also antecedents and consequences that are linked to the targeted behavior, are studied. Well-known techniques focusing on manipulating consequences for behavior are positive and negative reinforcement, and punishment. Environmental redesign is used to promote desired behaviors and minimize the development and support of problem behaviors. ABA is an applied science that tries to change behavior by first assessing the functional relationship between a specific (problem) behavior and the environment. When this function of behavior is determined, socially acceptable alternatives for the problem behavior are developed.

Originally, SWPBIS started as a behavioral approach called PBS (Positive Behavior Support), for resolving serious problem behaviors of individuals with severe developmental disabilities. PBS emerged as an alternative to the prevailing behavior management practices that emphasized the manipulation of consequences in order to establish a change in behavior. PBS was considered a "breakaway movement from the field of ABA based on moral revulsion at aversive treatments" (Singer & Wang, 2009, p18). PBS differed from ABA in the foundational belief that there are effective positive alternatives to aversive treatments, and in the commitment to use behavioral interventions to improve the quality of life of PBS recipients instead of only focusing on target behavior. The adjective "positive" refers to both behavior and support: Positive behavior, which can be seen as desirable, adaptive, prosocial behavior. And positive behavioral support as differentiated from nonpositive support, which might involve the use of aversive, humiliating, or stigmatizing interventions (Dunlap, Kincaid, Horner, Knoster, & Bradshaw, 2014). Later on, PBS grew into an approach that not only focused on individuals, but also included implementation of strategies aimed at groups of children in classrooms and schools, as well as children and adults in a variety of early education and service programs (Kincaid et al., 2015). Apart from the behavioral roots, PBS combines cognitive, biophysical, social, developmental, and environmental psychology. For this approach, six characteristics were described: (1) an emphasis on lifestyle change, (2) functional analysis, (3) antecedent and setting variables, (4) teaching of adaptive behavior, (5) minimizing the use of punishment procedures, and (6) using multi-component interventions. In the early 1990s, the main focus was still on the individual with severe problem behaviors in a specific context that could be used to modify behavior. In the beginning of this century PBS expanded rapidly. Apart from individuals with severe problem behaviors, other populations benefitted from applying PBS (e.g., young children or children with autism spectrum disorders). In addition, PBS

began to be applied with groups, and became a major influence in school restructuring in the US. As PBS also refers to a U.S. broadcast company, the name was changed into PBIS: Positive Behavioral Interventions and Supports. The federally funded US Office of Special Education Programs (OSEP) Technical Assistance Center on PBIS began a program of systematically disseminating the PBIS framework for entire schools and classrooms<sup>2</sup>. Schoolwide PBIS was embraced by thousands of educators and related professionals in the US (Kincaid et al., 2015).

### SWPBIS: key features

Sugai and Horner (2009) described SWPBIS as "a systems approach for establishing the social culture and individualized behavior supports needed for a school to be a safe and effective learning environment for all students" (p. 309). They specifically stated that SWPBIS is an approach, not a curriculum, intervention or program, as it is a large constellation of systems and practices that needs to be adjusted to the context it is implemented in, referred to as "contextual fit" (McIntosh, Filter, Bennett, Ryan, & Sugai, 2010). Each schools (a) defines contextually acceptable and measurable academic and social behavior outcomes; (b) collects information or data to guide decision making and, accordingly, to select effective behavioral interventions; and (c) uses evidence-based interventions to support students both academically and behaviorally. SWPBIS offers systems support designed to increase the accuracy and durability of practice implementation. Prevention is one of the defining characteristics of SWPBIS, emphasizing the establishment of a multi-tiered system of support. A school that has implemented SWPBIS at Tier 1 typically has established schoolwide behavioral expectations that are being taught, systematically acknowledges positive student behavior, has a schoolwide system for handling problem behavior (including procedures how to respond to problem behavior with consistent consequences), uses techniques such as positive reinforcement and active supervision, and develops preventive interventions based on behavioral data. A SWPBIS leadership team (a delegation of staff including the administrator) is responsible for the implementation process in school, and continuously measures outcomes and evaluates fidelity of implementation. For students whose behaviors are not responsive to Tier 1 interventions and who, therefore, need more intensive behavioral support (approximately 10-15% of all students), Tier 2 interventions are executed. Tier 2 interventions typically include similar implementation across students, and are continuously available and quickly accessible. Tier 3 interventions are developed for students with chronic or severe behavior needs whose behaviors are not responsive to Tier 1 and Tier 2 interventions and who need individualized support (approximately 1-5% of all students). Functional behavioral assessments (FBA) give directions for these individualized behavior support plans. Another defining characteristic of SWPBIS is the instructional focus: the direct teaching and training of social behaviors (Sugai & Horner, 2009). These behaviors are grounded in school values and norms and identified by stakeholders: educators, students, and preferably parents and community stakeholders.

## Contextual fit

SWPBIS is (a) a schoolwide approach that meets the criteria of effective prevention programs and provides structures and routines for implementation (Sørli & Ogdén, 2007), (b) has proven to be effective in terms of creating safe schools and reducing problem behavior (Horner, Sugai, & Anderson, 2010), and (c) can be adjusted to the context it is implemented in. McIntosh et al. (2010) define contextual fit as the development and alignment of SWPBIS strategies and interventions within the context of an individual school. This not only applies to implementing SWPBIS in diverse U.S. cultural contexts, but also to implementation in national cultures different than the US. According to Singer and Wang (2009) SWPBIS reflects values and beliefs embedded in the American mainstream culture. Therefore, adopting and implementing SWPBIS into the Dutch educational context needed to be carefully considered.

In the Netherlands, schools are leading in how to achieve the educational goals that are set by the Dutch government. Two core goals are imparting knowledge and skills, and promoting social-emotional development and citizenship. Citizenship refers to teaching students how to participate in society politically, socially, and economically (van Oers, Leeman, & Volman, 2009). Apart from qualification and socialization, education also has a social mission, that can be defined as the schools' response to societal issues, such as preventing segregation. In other words, education does not take place in a vacuum, but is part of society, and, as a result, bearer of cultural values, norms, and customs. Correspondingly, taking care of contextual fit of SWPBIS in the Netherlands should not just be about adjusting strategies and interventions, but also a careful consideration of Dutch educational culture. After all, SWPBIS is not a goal in itself to achieve, it is a schoolwide approach that provides schools with tools to reach the outcomes schools value within their context, for example creating a social culture where students feel safe.

## Fidelity of implementation

By developing schoolwide systems and procedures that promote positive changes in student behavior, educators are provided with tools to arrange school environments according to students' needs. Training and technical assistance of educators, including direct assessment and feedback on performance of newly acquired skills, are part of the implementation process, as this is related to implementation quality (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). From a systems perspective, SWPBIS gives priority to establishing local capacity and expertise, majority agreements and commitments, high levels of implementation readiness, high fidelity of implementation, continuous implementation and outcome evaluation. Data are systematically collected and used for decision making to determine if defined practices are implemented with fidelity and if those practices have a positive impact on student outcomes (Sugai & Horner, 2009). Practices and implementation strategies are adjusted to the cultural context of the school SWPBIS is implemented in.

A major challenge in implementing schoolwide approaches in general, and SWPBIS in particular, is that the processes, structures and routines of schools often are not sufficient to support the adoption and sustained use of evidence-based interventions (Chard et al., 2008). Schools are complex systems of classrooms that involve professionals, policies, programs, and practices that interact in complex ways (Simmons, Kame'enui, Stoolmiller, Coyne, & Harn, 2003). To increase the likelihood for successfully adopting and implementing SWPBIS, it is important to first assess the contextual fit of the intervention to the host environment (e.g., classroom or school), then to establish a formative, continuous feedback loop at school level to provide information on its effectiveness in a timely manner, and finally to ensure there is commitment of school leadership and staff members to using the schoolwide approach (Chard et al., 2008). According to Fixsen et al. (2005), implementation can be defined as "a set of activities designed to put into practice an activity or program of known dimensions" (p.5). It may take two to four years to fully complete implementation of schoolwide approaches such as SWPBIS. In the process of implementation, six functional stages, that are not linear but interact with each other in complex ways, can be distinguished: (1) exploration (identify the need, acquire information, access the fit, prepare the organization); (2) installation (organizing resources, structural support of staff); (3) initial implementation (changes in the overall practice environment); (4) full implementation (the new learning becomes integrated in practices, policies and procedures); (5) innovation (learn more about the approach itself and the conditions under which it can be used with effect); and (6) sustainability (long term survival and continued effectiveness) (Fixsen et al., 2005). In the US, school-based leadership teams receive further support in different stages of implementation from district and state-level leadership teams (Office of Special Education Programs Technical Assistance Center on PBIS, 2015).

The last stage of implementation is sustainability, the point at which an approach ceases to be a project or an initiative and becomes institutionalized (McIntosh, Horner, & Sugai, 2009). In many schools, cycles of repeated implementation of different programs are not uncommon. This not only brings along high costs in terms of money, effort, direct intervention time, and school in-service programming, but also increased resistance to new implementation efforts. The crux to sustainability is to identify why a school wants to implement SWPBIS (McIntosh et al., 2009). There are many threats and barriers to sustained implementation that need to be constantly considered: changes in the context of the school (such as a lack of contextual fit, new challenges that emerge or competing initiatives that occur), changes in capacity (such as a loss of funding and attrition of key personnel) and changes in consequences (such as diminished effectiveness due to poor fidelity of implementation or outcomes are no longer perceived as important). The SWPBIS leadership team plays an important role in identifying and addressing barriers. Regular measurement of fidelity of implementation can be helpful to identify barriers and adjust the approach to the current situation.

Fidelity of implementation refers to the extent to which components of an intervention, as conceptualized in a theoretical model or manual, are implemented as intended (Lane, Bocian, MacMillan, & Gresham, 2004; Schulte, Easton, & Parker, 2009). When

SWPBIS is implemented with fidelity, students, educators, and schools experience positive outcomes, including improved school climate (Bradshaw et al., 2008; Bradshaw, Koth, Thornton, & Leaf, 2009; Horner et al., 2010), enhanced perceptions of school safety (Horner et al., 2009), increased prosocial skills (Bradshaw, Waasdorp, & Leaf, 2012), reduced problem behavior (Bradshaw et al., 2012; Waasdorp, Bradshaw, & Leaf, 2012), and increased teacher self-efficacy (e.g., Kelm & McIntosh, 2012) and well-being (e.g., Ross, Romer, & Horner, 2012). Durlak and DuPre (2008) reported that interventions that monitored implementation obtained effect sizes two to three times larger than interventions that reported no monitoring. Many SWPBIS effect studies showed that fidelity of implementation is critical to achieve the desired outcomes (e.g., Bradshaw et al., 2009; Simonsen et al., 2012). In SWPBIS studies, assessing fidelity was operationalized by measuring to what extent core features and standard procedures of SWPBIS were present in schools. Regular measurements of fidelity of implementation is part of the SWPBIS framework. Several instruments are developed to measure Tier 1 fidelity of implementation: the Schoolwide Evaluation Tool (SET, Horner et al., 2004), the Benchmarks of Quality (BoQ, Kincaid, Childs, & George, 2005), or the latest one, the Tiered Fidelity Inventory (TFI, McIntosh et al., 2017). Most instruments are completed by the SWPBIS leadership team of a school, preferably with guidance by an external SWPBIS coach to ensure as much objectivity as possible.

Fidelity of implementation can be at odds with contextual fit. Adaptations that are made to make SWPBIS fit more closely to the school context, must be in line with the conceptual foundations to avoid weakening the potential efficacy (Ringwalt, Vincus, Ennett, Johnson, & Rohrbach, 2004). Castro, Barrera, and Martinez (2004) call this the tension between fidelity and fit.

## SWPBIS in the Netherlands

In 2009, a consortium of Universities of Applied Sciences and youth care organizations (i.e., Windesheim University of Applied Sciences, Fontys University of Applied Sciences, PI Research, Pica Pedia Support, and Yorneo) introduced SWPBIS to the Netherlands to support schools in dealing with student problem behavior. After studying key publications and visiting schools in Oregon and Norway, the consortium saw the benefits of implementing SWPBIS in Dutch schools. First, SWPBIS needed to be contextualized, not only by translating materials into Dutch, but also by taking into account Dutch culture and educational context by making core features, practices and implementation strategies compatible with cultural patterns, meanings and values of those being served. The five consortium partners collaborated in adapting SWPBIS for the Dutch context. They summarized core features in what is known as “the five pillars of SWPBIS” (M. J. M. Nelen et al., 2016): 1) Schoolwide approach based on shared values, 2) Prevention (including a multi-tiered system of support, and consistent response to problem behaviors), 3) Teaching expectations and acknowledging positive behavior, 4) Data-driven decision making, and 5) Partnership with parents and cooperation with stakeholders. Consortium partners received SWPBIS training from U.S. experts, and an array of implementation blueprints, materials and procedures was developed.

In 2009-2010, SWPBIS was pilot tested in elementary and secondary schools, supported by consortium members that were trained to be SWPBIS coaches. Later on, the consortium started to train Dutch coaches to support schools in implementing SWPBIS at an independent level. Several modalities in supporting schools emerged: schools were coached by either an internal or external SWPBIS coach, schools started without the guidance of a coach, and networks of SWPBIS schools arose (M. J. M. Nelen, van Oudheusden, & Goei, 2017). At a national level, SWPBIS experts participated in two teams exploring data-based decision making in SWPBIS, and adjusting and developing materials for schools. In 2015, a national SWPBIS leadership team was established. This team developed a procedure to assess SWPBIS implementation in Dutch schools, based on the TFI. In the beginning SWPBIS was mostly embraced by elementary schools and schools for special education, followed by secondary schools. Currently, also vocational education is more and more interested in working with SWPBIS (M. J. M. Nelen, Verveer, & Kamstra, 2020). No figures exist to date how many Dutch schools are working with SWPBIS. The national SWPBIS leadership team estimated that approximately 350 schools are implementing SWPBIS (approximately 4.5% of all Dutch schools).

## Research context

The studies in this dissertation are situated in the context of Dutch elementary education. The Netherlands have approximately 17 million inhabitants and a surface area of 41,543 km<sup>2</sup>. In 2019, there are 6,431 elementary schools (age of students between 4-12 years), 638 secondary schools (students' age between 12-16/18 years, depending on type of education), and 549 schools for special education (both elementary and secondary schools)<sup>3</sup>. Since 2015, new legislation urged schools to be more inclusive, but still approximately 2-5% of all students attend schools for special education. Many schools for primary education are relatively small (50% of schools have less than 200 students). As a result of freedom of education, all schools can decide how to educate their students and they all receive an allocated budget from the Dutch government. Many schools differ in religious affiliation (Catholic, Protestant and so on), or in educational philosophy (Montessori, Dalton, or Jenaplan)<sup>4</sup>. The Dutch government determines the educational goals, and a national inspectorate monitors the quality of education in the schools by assessing the educational process, school climate, educational outcomes, school quality of education policy, and financial management (OCW, 2020). Dutch schools have the second highest amount of (teacher) autonomy in the world (after Japan) in choosing tests and curriculum (OECD, 2011). Parents are free to select a school of their choice, and costs are minimal.

The data that are part of the studies presented in this dissertation stem from collaborative work between consortium partners and their regional school and coaching partners. Schools were recruited through invitations posted at Dutch SWPBIS websites, flyers distributed at the national Dutch SWPBIS conference, and through invitations sent by several SWPBIS expertise centers (mostly indirectly via SWPBIS coaches). Schools themselves also contacted the researchers asking if they could participate in the project. Most schools received support from an external SWPBIS coach, mainly at

<sup>3</sup> [www.onderwijsincijfers.nl](http://www.onderwijsincijfers.nl)

<sup>4</sup> [www.statline.cbs.nl](http://www.statline.cbs.nl)

the beginning of the implementation process. Schools received no funding for participating in the studies. Schools were located in all Dutch provinces, except for Zeeland, both in rural and urban areas. Most schools, except nine, were already implementing SWPBIS at the start of study 2. The average period of implementing SWPBIS at study onset was 29 months ( $SD$  16.68). In total, the studies include data from 117 schools, 1,207 teachers, 22,336 students, and 96 SWPBIS professionals (including coaches).

## Research questions

Most research on SWPBIS is US-oriented, and at the start of this research project, research in the Netherlands was mainly focused on describing practices in schools (Blonk, Das, Haasen, Hoetmer, & Wichers-Bots, 2014; NieuwMeesterschap, 2013; van Kuijk & van Rens, 2013). SWPBIS has a solid theoretical foundation, next step in building effective interventions for the Dutch context is gathering evidence on SWPBIS effects (van Yperen, Veerman, & Bijl, 2017). The main objectives of this dissertation were threefold: (1) examining the cultural adaptation of SWPBIS to the Dutch educational context; (2) describing fidelity of implementation of SWPBIS in Dutch schools; and (3) exploring the relation between fidelity of implementation and student outcomes at school level. In this dissertation, the school is the unit of analysis.

The general research questions were:

1. *How was SWPBIS modified to fit the Dutch educational context?*
2. *To what extent is SWPBIS implemented with fidelity in Dutch schools?*
3. *What is the relation between fidelity of implementation and student outcomes (i.e., social safety, behavior incidents, additional behavioral support) in Dutch elementary schools?*

To answer these questions, three studies were conducted. First, as contextual fit plays an important role in successfully implementing SWPBIS, Dutch SWPBIS experts were questioned to examine which core features and procedures were known to them. With the introduction of SWPBIS in the Netherlands several adaptations were made by a consortium of cooperating partners to make SWPBIS fit into the Dutch educational context. The importance of fidelity, and the possible tension between fidelity and contextual fit, emphasized the need to explore how the core features and procedures were further adapted to the Dutch context. Given the autonomy of SWPBIS coaches and schools, and the diversity of consortium partners, it was not clear if Dutch SWPBIS experts held shared views about the core features, how they elaborated on the meaning and practical implications of core features, and how they reflected on the procedures. By drawing upon the perceptions of Dutch SWPBIS experts on the characteristics of SWPBIS as implemented in Dutch schools, we aimed to gain insight into the core features of SWPBIS in the Dutch context, how these experts defined and agreed upon these features, and the adaptation of procedures used to implement SWPBIS in Dutch schools.

The leading questions for the first study were: *What are perceptions of Dutch experts on core features and procedures of SWPBIS in the Netherlands?*

1. *Which core features are identified by Dutch experts and how do they define these features?*
2. *How do Dutch experts reflect on procedures with regard to the Dutch school context?*

Second, by questioning Dutch SWPBIS experts, we got an impression of core features and procedures of SWPBIS in the Netherlands. However, what SWPBIS actually looked like in Dutch schools remained unclear. Fidelity measurements could give a more adequate overview of the prevalence of core features and procedures in Dutch schools. For that purpose, two fidelity measures (the TFI and SET) were translated, pilot tested, and conducted in 117 Dutch schools.

Our main research questions for the second study were:

1. *To what extent are core features and standard procedures of SWPBIS Tier 1 present in Dutch schools according to TFI and SET scores?*
2. *What are psychometric properties of the TFI and SET as they were modified to fit Dutch culture?*

Third, to explore the effects of SWPBIS on student outcomes and examine the relation between fidelity of implementation and student outcomes at school level, we collected data for three consecutive years in Dutch elementary schools. The main objectives of SWPBIS are behavior related. The rationale is that by creating schoolwide systems that establish the social culture and a multi-tiered system of behavior support needed for a safe learning environment, social safety increases and problem behavior decreases. Therefore, the third study focused on fidelity of implementation and behavior outcomes at school level.

Our research questions were:

1. *To what extent do fidelity of Tier 1 SWPBIS implementation, and student outcomes (i.e., students' perceptions of social safety, the prevalence of behavior incidents, and the percentage of students receiving additional support for behavior) in Dutch elementary schools change over time?*
2. *What is the relation between SWPBIS Tier 1 fidelity of implementation and student outcomes in participating schools?*
3. *Is an increase of SWPBIS Tier 1 fidelity of implementation related to improvement in student outcomes in participating schools?*

## Outline of the dissertation

Chapter 2 presents a qualitative study that focuses on the contextual fit of SWPBIS in the Netherlands. Sixteen Dutch SWPBIS experts were questioned on their opinions on core features and procedures of SWPBIS in Dutch schools. Chapter 3 focuses on measuring fidelity in Dutch schools. In a descriptive study, data from 117 Dutch schools implementing SWPBIS were analyzed to measure prevalence of SWPBIS characteristics, and psychometric properties of fidelity measures TFI and SET as they were modified to the Dutch educational context. Chapter 4 reports on a longitudinal study into the relation between fidelity of SWPBIS implementation and student outcomes. Finally, Chapter 5 contains a general conclusion of this dissertation addressing its contribution to science and implications for practice. This chapter also provides a critical discussion of this dissertation and directions for future research.

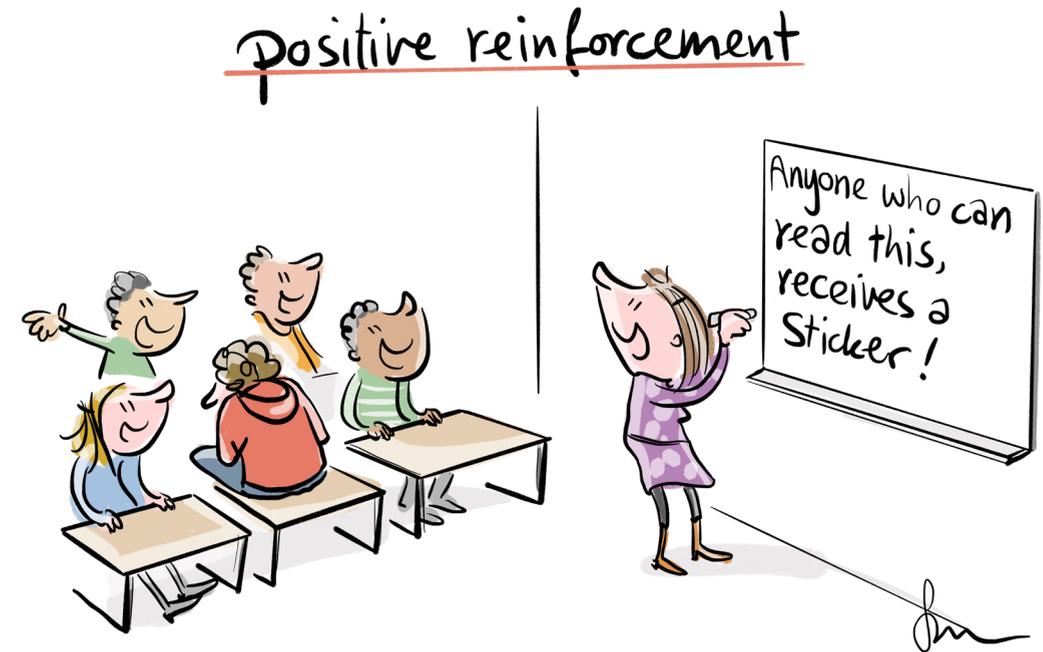
Chapter 2.

**Cultural  
adaptation**

## Abstract

The transfer and adoption of schoolwide approaches, like School-Wide Positive Behavior Interventions and Supports (SWPBIS), from one country to another, is an under-examined process. SWPBIS was mainly developed in the United States. Although research shows that implementation of SWPBIS contributes to a positive school climate and a decrease in problem behavior, little is known about the generalizability of the effects in other countries. Of special interest is the role of underlying cultural values and concepts as reflected in SWPBIS. This can influence the acceptance of teachers and principals when implementing SWPBIS in another country. SWPBIS procedures need to be adjusted to the educational context where it is implemented. As a consequence, fidelity of implementation can be at stake when adjustments not only affect SWPBIS procedures (e.g., the way expected behavior is taught), but also core features (e.g., teaching of behavior). In this study, we explored cultural adaptation efforts in the Netherlands. We have drawn on perceptions of Dutch SWPBIS experts. In two sessions, 12 and then 10 experts were questioned. Results suggested that core features of SWPBIS seemed to be quite consistent across cultures, but adaptations in procedures were necessary.

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## Introduction

The transfer and adoption of schoolwide approaches, like School-Wide Positive Behavior Interventions and Supports (SWPBIS), from one country to another is an under-examined process. SWPBIS is an approach developed in the US, to guide schools in creating schoolwide systems that establish the social culture and individualized behavior supports needed for a safe and effective learning environment (Sugai & Horner, 2009). This approach provides schools with accurate systematic implementation and use of evidence-based practices related to behavior management in a multi-tiered system of behavior support (Sugai & Horner, 2009). There is sound and growing empirical evidence for the effectiveness of SWPBIS in diverse settings and contexts

across the US (Benedict, Horner, & Squires, 2007; Carr & Pratt, 2007; Kutash, Duchnowski, & Lynn, 2006; Vaughn, Clarke, & Dunlap, 1997). Although effects of implementing SWPBIS have also been reported for other countries, such as Canada (McIntosh, Bennett, & Price, 2011), Australia (Yeung Alexander, Craven, Mooney, Tracey, & Barker, 2016), and Norway (Sørli & Ogden, 2015), there is little or no documented work about the introduction and process of implementation of this US approach in countries with different cultural standards of behavior and social norms. Singer and Wang (2009) state that “many of the PBS features reflect values and beliefs embedded in the American mainstream culture that differ from beliefs found in some other cultures” (p. 39). Most research in this area deals with adapting SWPBIS strategies to different subcultural environments within the US (Bal, Schrader, Afacan, & Mawene, 2016; M. Wang, McCart, & Turnbull, 2007). With the growing interest in and subsequent spread of SWPBIS worldwide (*APBS Newsletter*, 2013, 2014, 2016), the need for research about what it takes to successfully implement an US approach in a foreign country with a different national culture is increasing. On the one hand, SWPBIS is not a treatment with a specific protocol. On the other hand, it has distinctive core features that need to be implemented with fidelity. Implementing with fidelity refers to the extent to which core features, prominent or essential components of SWPBIS, as conceptualized in a theoretical model or manual, are implemented as intended (Lane et al., 2004; Schulte et al., 2009). The research of Simonsen et al. (2012) shows that implementation fidelity is critical to achieve desired outcomes. A distinctive feature of SWPBIS is the so-called “contextual fit” (McIntosh et al., 2010): Strategies and interventions are developed and modified in alignment within the context of the individual school. However, adaptations made to make SWPBIS fit more closely to the (national) school context, must be in line with the conceptual foundations of the practice to avoid weakening the potential efficacy of the original practice (Ringwalt et al., 2004). When adapting strategies and interventions to make them fit to the context, fidelity of implementation can be at stake and, as a result, a tension between fidelity and fit might occur (Castro et al., 2004). This not only applies to implementing SWPBIS in diverse US cultural contexts, but also to implementation in national cultures different than the US.

In 2009, SWPBIS was introduced in the Netherlands. This study aimed to gain more insight into the contextual and cultural challenges of adapting SWPBIS to a setting that does not necessarily align with values rooted in the US context.

### Core Features of SWPBIS

McIntosh, Mercer, Hume, Frank, and Turri (2013) stated that core features of SWPBIS need to be implemented with fidelity. However, we could not find an unambiguous description of the core features in the literature. This is partly because several authors have used slightly different concepts like “guiding principles”, “characteristics”, “key features”, or “(core) features and procedures.” In this article, we define a core feature as a prominent, essential component of SWPBIS. With the introduction of SWPBIS in the Netherlands, core features were summarized in what is known as “the (Dutch) five key features of SWPBIS” (M. J. M. Nelen et al., 2016): 1) Schoolwide approach based on shared values, 2) Prevention (including a multi-tiered system of support, and con-

sistent response to problem behaviors), 3) Teaching expectations and acknowledging positive behavior, 4) Data-driven decision making, and 5) Partnership with parents and cooperation with stakeholders. These features were identified based on extensive study of key publications, such as the Handbook of Positive Behavior Support (Sailor, Dunlap, Sugai, & Horner, 2009) and the guiding principles mentioned in the PBIS implementation blueprints (Office of Special Education Programs, 2004). In addition, Horner, Blitz, and Ross (2014) make a distinction between the *core features* of an intervention, which are considered to be constant across settings, and the *procedures*, which vary according to context, that are used to put those core features in place. Teaching social behavior is for example a core feature, while selecting specific behaviors to be taught, and the way of teaching are considered procedures.

### Implementing SWPBIS

Successful and sustainable implementation of SWPBIS depends on the way members of a school community align the framework to the school organization and culture (Fallon, O’Keeffe, & Sugai, 2012). This is called contextual fit or “environmental redesign” (McIntosh et al., 2010). Albin, Lucyshyn, Horner, and Flannery (1996) defined contextual fit as the congruency between the core features of a practice and the identified needs and environments of a school. Horner et al. (2014) specified contextual fit as “the match between strategies, procedures, or elements of an intervention and the values, needs, skills, and resources available in a setting” (p.1). Moreover, in order to foster the cultural fit, it is important to take notice of cultural characteristics of a country and the way it organizes education (e.g., legislation, funding and resources, educational structure, school size, and support systems inside and outside schools). In addition, it is also important to take into account both the perceptions of those who implement, typically teachers, and those who receive the intervention, typically students and families. With regards to the latter, Sugai, O’Keeffe, and Fallon (2012) recommended considering cultural and contextual learning histories of students and their families when designing and implementing SWPBIS practices in the area of assessment, interventions, and evaluation. This was endorsed by Vincent, Randall, Cartledge, Tobin, and Swain-Bradway (2011), who argued that teachers’ knowledge of cultural dimensions (e.g., collectivistic versus individualistic orientation, expressiveness, communication styles, interactions between generations, the role and status of authority and language) is necessary, because culturally responsive practices function as mediators, affecting the manner and extent to which implementation of core features of SWPBIS lead to desired outcomes.

Perceptions of the educational professionals are, like those of students and their families, grounded in national culture. According to Kincaid, Childs, Blase, and Wallace (2007), a lack of teacher support (including philosophical differences about core elements of the approach) is the most important barrier for successful and high quality implementation of SWPBIS. After all, implementation of a schoolwide approach often depends on individual classroom teachers, whose regular interactions with students should be consistent with the core features of the approach (Han & Weiss, 2005). Personal beliefs, values, and motivation are influenced by the dominant culture in which a person is raised (Jones, Ross, Lynam, Perez, & Leitch, 2011). Therefore, personal

beliefs, values, and motivation are strongly linked with the acceptance of an approach (also referred to as “buy-in”) and, consequently, with implementation fidelity and effectiveness (McIntosh, Mercer, et al., 2013). Swain-Bradway, Pinkney, and Flannery (2015) report that staff buy-in is an important condition for successful and sustainable implementation of SWPBIS. To maximize staff buy-in, it is necessary to take into account differences in customs, traditions, and underlying values. Therefore, it is highly relevant to understand the “national culture” in which teachers participate. Hofstede (1986) stated that the underlying values of teachers are acquired in childhood and grounded in national cultures and, as a result, are hard to change. He suggested, based on comparison of national groups on cultural differences regarding teaching and learning, there are some differences between U.S. and Dutch teachers. For example, according to Hofstede’s dimensions of national culture (1986), in the Netherlands, teachers often avoid openly praising students. Mutual solidarity is often more important than competition between students. Whereas, according to Hofstede (1986), for teachers in the US, praise seems to be more common, and they focus more on fostering competition and excellence in students. These differences in national culture may influence the acceptance of SWPBIS practices in Dutch schools. For instance, many Dutch teachers are not familiar with the theory and practice of applied behavior analysis (ABA). In general, they hold negative preconceptions about systematic use of praise and tokens (van Kuijk & van Rens, 2013). Although praise and token reinforcement are common in SWPBIS, they are not the only means of reinforcing student behavior. Positive relationships, compliments, and gestures such as thumbs up can also function to reinforce student behavior. Targeted professional development in behavioral theory, principles, and procedures are therefore needed to create systems that include a continuum of positive reinforcement procedures that are socially acceptable in a Dutch context.

A lack of cultural fit can lead to limited commitment and engagement by those involved. Discovering and understanding how educational professionals, such as teachers, and other stakeholders in different countries would respond to SWPBIS is therefore crucial to increase the cultural relevance and the efficacy of the intervention.

## SWPBIS in the Netherlands

To understand the cultural fit to the Dutch context, the educational system and the introduction of SWPBIS in the Netherlands are described. The Netherlands have approximately 17 million inhabitants and a surface area of 41,543 km<sup>2</sup>. There are 6,431 schools for primary education and 638 schools for secondary education. Many schools for primary education are relatively small (50% of schools have less than 200 students). Freedom of education is a Dutch constitutional right. All schools can decide how to educate their students and they all receive an allocated budget from the Dutch government. Many schools differ in religious affiliation (Catholic, Protestant and so on), or in educational philosophy (Montessori, Dalton, or Jenaplan). The Dutch government establishes the educational goals, and a national inspectorate monitors the quality of education in the schools. Dutch schools have the second highest amount of (teacher) autonomy in the world in choosing tests and curriculum (OECD, 2011). Parents are free to choose a school, and costs are minimal.

SWPBIS was introduced in the Netherlands in 2009 by a consortium of universities of applied sciences and youth care organizations that collaborated in adapting SWPBIS for the Dutch context. Consortium members developed the five key features of SWPBIS, as mentioned earlier, based on studying PBIS literature, translating core features and procedures into Dutch, and discussing which terminology to be used to make concepts accessible for practitioners. Development was mainly driven by the urge to provide a clear overview of the content for the field of education. The focus of the consortium was to pilot SWPBIS in Dutch schools. For that purpose, consortium members developed SWPBIS implementation guides, training, and other materials for Dutch educational professionals in order to support schools implementing SWPBIS. Later on, when the five features were evaluated (M. J. M. Nelen et al., 2016), consortium members found that some of them were conceptual (Feature 1, *Schoolwide approach*), while others were more procedural (Feature 3, *Teaching and acknowledging behavior*). There seemed to be an overlap between some features, especially between Features 2 (*Prevention*) and 3 (*Teaching and acknowledging behavior*). For clarification purposes, the five features were only revised in details, mainly because these features were already widely adopted in many practices. However, the actual development of the Dutch key features was not part of this study. The main goal was to evaluate them to see if, and how these features were used in schools.

## Purpose of this study

The importance of the fidelity of implementation of SWPBIS, and the possible tension between fidelity, contextual, and (national) cultural fit, emphasize the need to explore how the core features and procedures are further adapted to the Dutch context. Despite general adaptations for the Dutch context, and given the autonomy of SWPBIS coaches and schools, and the diversity of consortium partners, it was not clear if Dutch SWPBIS experts held shared views about the core features, how they elaborated on the meaning and practical implications of core features, and how they reflected on the procedures. By drawing upon the perceptions of Dutch SWPBIS experts on the characteristics of SWPBIS as implemented in Dutch schools, we aimed to gain insight into the core features of SWPBIS in the Dutch context, how these experts define and agree on these features, and the adaptation of procedures used to implement SWPBIS in Dutch schools.

Scientifically, the adaptation of SWPBIS to a non-US culture is relatively unexplored. Therefore, this explorative and descriptive study has the potential to reveal how adaptations actually manifest themselves in the specific cultural context of the Netherlands. The results of this study can also contribute to enhancing the implementation steps of SWPBIS in the Netherlands.

The leading questions for the first study were: *What are perceptions of Dutch experts on core features and procedures of SWPBIS in the Netherlands?*

1. *Which core features are identified by Dutch experts and how do they define these features?*
2. *How do Dutch experts reflect on procedures with regard to the Dutch school context?*

## Method

### Research Design

The study used an explorative and qualitative design that evaluated perceptions of Dutch SWPBIS experts on core features of SWPBIS through a two-step systematic assessment consisting of an online survey and an online discussion meeting.

### Participants

The criteria for participation were that individuals had at least 3 years experience in coaching and training SWPBIS and worked as either an internal or external SWPBIS coach in schools. Preferably, experts also carried out research in the domain of SWPBIS, or delivered SWPBIS coach training. All experts received formal SWPBIS training and were actively engaged in coaching schools; some also published in professional Dutch journals. Two experts were part of the initial consortium introducing SWPBIS in the Netherlands. Six experts of session one also participated in session two. Additional information of the experts' characteristics can be found in Table 1.

### Measures

**Session One: online survey.** To discern which particular core features were identified by the experts, how they defined these features, and to gather a deeper understanding if any consistency appeared among experts, an online survey was developed by two members of the research team. Based on feedback of the other members, the survey

**Table 1. Participants**

	Session 1	Session 2
Gender	10 female, 1 male, 1 unknown	9 female, 1 male
Highest level of education	8 Masters, 4 Bachelors <i>(all with additional courses)</i>	8 Masters, 2 Bachelors <i>(all with additional courses)</i>
PBIS experience	<i>M = 4.27 years</i>	<i>M = 4.30 years</i>
PBIS roles	10 external PBIS coaches <i>(one also being researcher/coach trainer, two also being coach trainers, one also being a principal)</i> 2 internal PBIS coaches	8 external PBIS coaches <i>(one also being researcher/coach trainer, three also being coach trainers)</i> 2 internal PBIS coaches

was improved by adding questions about Feature 2 and 3, because of the overlap and complexity of these features. To guarantee the validity of experts' perceptions, the first question invited them to reflect on what they considered core features of SWPBIS in the Netherlands without presenting any information about the core features. In addition, experts were asked to elaborate their understanding of the five identified features via question 2 – 10. Finally, experts could add features and characteristics, which they felt the researchers did not include in the survey, in the final question (see Table 2 for survey questions).

**Table 2. Survey questions related to the Dutch key features of SWPBIS**

Questions
I What are, in your opinion, core features of SWPBIS in the Netherlands?
II Please explain what you consider characteristic/essential about addressing behavior challenges schoolwide based on shared values? (Feature 1)
III Please explain what you consider characteristic/essential about responding at a systematic level to problem behavior? (Feature 2)
IV Please explain what you consider characteristic/essential about preventing problem behavior? (Feature 2)
V Please explain what you consider characteristic/essential about responding at a systematic level to desired behavior? (Feature 3)
VI Please explain what you consider characteristic/essential about teaching expectations? (Feature 3)
VII Please explain what you consider characteristic/essential about acknowledging positive behavior? (Feature 3)
VIII Please explain what you consider characteristic/essential about data-driven decision making? (Feature 4)
IX Please explain what you consider characteristic/essential about collaboration with parents? (Feature 5)
X Please explain what you consider characteristic/essential about cooperating with stakeholders? (Feature 5)
XI Did you miss any characteristics or core features about SWPBIS in the Dutch context in this survey which you would like to add?

**Session Two: online discussion.** The aim of the second session was to examine how core features were translated into procedures, if experts agreed on procedures, and which arguments were used to choose particular procedures. Therefore, seven propositions were developed based on the answers of the survey, to be discussed in an online meeting with experts (see Table 3). Each proposition was formulated to provoke discussion in order to identify (dis)agreements among participants.

## Procedure

Data were obtained in two sessions conducted by the research team consisting of all authors. Dutch SWPBIS experts were recruited from several professional SWPBIS-networks in the Netherlands and via the annual national SWPBIS conference. The first author sent out an invitation email to 64 experts to participate in an online survey in Formdesk ([www.formdesk.com](http://www.formdesk.com)) through a link embedded in the email. Within the 4 weeks given, twelve experts responded. Answers were anonymous, no identifying information could be retrieved. Respondents consented to participating for the purpose of research by clicking 'submit' at the end of the survey. In the second session, experts were asked to voice their opinions on SWPBIS procedures in an online discussion. For this purpose, we scheduled an online meeting and invited the original 64 experts to

**Table 3. Online discussion: Propositions and expert voting (n = 10)**

Proposition	Agreement
1 The use of tokens is an indispensable element of the positive approach of SWPBIS	70%
2 Within a SWPBIS context, the reaction procedure (to respond to problem behavior) should be carried out according to strict guidelines	80%
3 Inside the classroom teachers decide how to conduct SWPBIS practices	20%
4 It does not matter how expectations are taught to students, as long as this is done	40%
5 Considering SWPBIS, one cannot identify (school) values without parents involved in this procedure	20%
6 In implementing SWPBIS in a school, cooperation with stakeholders (family support systems or youth care) is obligatory	90%
7 Every school can decide for themselves which data is suitable for data-driven decision making	40%

participate by sending out another invitation email. Ultimately, 10 experts were able to participate in session two. Six of them indicated they already took part in the survey of session one.

**Development of the propositions.** The development and selection of the propositions took place in three steps. First, data from session one was analyzed. One member of the research team categorized all survey text fragments (e.g., "teaching behavior" or "use of tokens"). Hence, these categories were randomly divided among other members of the research team and then analyzed (L. Cohen, Manion, & Morrison, 2000). The division took place by allocating the first category to a first member, the second to the second and so on. Then, categories and allocation of text fragments were compared. Differences were discussed in the research team until consensus was reached (investigator triangulation, Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005). This resulted in seven themes about SWPBIS procedures, related to the five key features: use of tokens, guidelines for reaction procedures for problem behavior, autonomy of teachers when implementing SWPBIS, methods for teaching expectations, level of parental involvement, the need of stakeholder cooperation during implementation, and data-driven decision making. Second, the research team discussed in what way the themes were also subject of discussion in the national networks, two authors also being involved in two different national network groups. Propositions emerged from the themes to reflect more specific perceptions about the procedures associated with SWPBIS. Third, the research team made sure that for all five features there was at least one proposition, taking into account the discussions at the national level. This resulted in seven propositions (see Table 3).

**Online discussion.** For the online discussion, a chat room (Adobe Connect) was used. All participants received information via email about time and date, login number and procedure, and the formulated propositions one week prior to discussion. To prevent bias, the participants were numbered and participated anonymously in the discussion. The video and audio functions were disabled for participants, so they could only type their answers. All propositions were discussed separately. The discussion started with a poll in which participants could vote whether they agreed or disagreed with the proposition. Then pro-voters and no-voters were invited to share and discuss their arguments. The online discussion was sometimes confusing. Not all responses were clear. Some participants wrote longer responses than others. Sometimes, responses referred to an earlier response in the discussion. Therefore, the discussion was moderated by members of the research team. Researchers made clarifying questions when necessary (mostly in speaking, sometimes by writing) such as, "As I read all the comments above, one can say that six of you agree with the statement of participant number one that all PBIS schools should always use tokens. Is that a correct assumption?" After discussing a proposition, a member of the research team summarized, in writing, what all participants agreed on, such as, "So everyone agrees on the fact that the use of tokens is an important tool to reinforce 'new' behavior." The duration of the online discussion was approximately 2 hours. Proposition seven was not discussed due to a lack of time. All remarks were saved in Word, and sent to participants for an extra member check (Brantlinger et al., 2005).

**Analysis.** Data were inductively analyzed by the research team. The (main) unit of analysis was all written answers on the survey from session one and all written utterances from the discussion of the experts in session two. For Session 2, each proposition was divided randomly among the research team. First, each member of the research team read and reread the discussion transcripts in order to identify signal words such as “tokens” or “parent participation.” Second, for each signal word identified in the text, utterances were selected and grouped, and displayed in a table (Miles, Huberman, & Saldana, 2014; Patton, 2015). Third, another member of the research team coded the same text fragments and also summarized them in a table (e.g., “boundaries of a schoolwide approach” or “added value of cooperating with parents”). The second researcher was responsible for comparing both tables. When the formulation of the codes was different, this was discussed in the research team and a final code was chosen based on consensus. Mostly, the codes chosen were almost the same (e.g., ‘when to use tokens’ or ‘reason to use tokens’). When a specific text fragment was coded differently, this also was discussed by the research team until full agreement was reached. As such, the codebook was developed by discussion of the codes by the research team. While using this procedure, there was a 100% agreement among codes in the allocation of the text fragments to the codes. In four meetings, the research team ultimately identified 31 specific codes, derived from the research questions as sensitizing concepts (Strauss & Corbin, 1998).

## Results

**Survey: Identifying core features.** The first question invited the 12 experts to reflect on core features. Most experts’ answers referred in one way or another to core features as identified in the Dutch five key features of SWPBIS (see Table 4). They made 71 remarks in total. In question 2-10 of the survey, experts were asked to define their understanding of the presented aspects of the five features (see Table 5). With regard to Feature 1 (*Schoolwide approach based on shared values*), most experts emphasized the importance of identifying shared school values in relation to behavioral expectations. These values should be visualized, established in cooperation with all team members, and shared and discussed with students and parents. In the expert’s views, values and expectations needed to be connected with the school vision and mission statement.

Considering Feature 3 (*Teaching expectations and acknowledging positive behavior*), experts provided many examples of positive reinforcement emphasizing this as an important characteristic of this feature. Examples included, “A token is a reminder for a teacher to pay attention to positive student behavior” and “There are many ways to provide positive feedback: praise, non-verbal signals, a positive note home etc.” Out of the 12 experts, eight wrote about the importance of a positive teacher attitude and argued that a characteristic of this feature is that all teachers act in the same way. Others (n = 4) expressed their concerns about the fact that teaching expectations and acknowledging positive behavior should be done in an authentic way (suitable for each individual teacher), for example in stating, “It is also important to look for less American

*style reinforcers.*” It seemed that at least some of the experts perceived some characteristics of SWPBIS as a more US approach that was, according to them, not always suitable for the Dutch context.

With regard to Feature 4 (*Data-driven decision making*), it is important to note that Office Discipline Referrals (ODR’s) are not being used in Dutch schools. Instead, behavior incident forms were developed to track data on student behavior. Examples of Feature 4 provided by Dutch experts were registration of behavior incidents, data about academic and social development of students, data about the process of implementation and the level of fidelity (e.g., “*Twice a year, our teachers fill in the Strengths and Difficulties Questionnaire as an inventory of problems*” and “*We collect data at several levels, such as opinions of staff and data of student behavior*”).

**Table 4. Results survey: Question one**

Dutch features	# of remarks*	Examples of quotes
1 Schoolwide approach	10 (n = 9**)	“SWPBIS is a schoolwide approach for all participants in school community, teaching and non-teaching staff, students, parents” and “SWPBIS is based on shared values”
2 Prevention	14 (n = 11)	“Schools are creating a multi-tiered system of support”, “The main focus of SWPBIS is on prevention”, and “Each school must create a consistent system for responding to problem behavior”
3 Teaching and acknowledging behavior	19 (n = 10)	“One defines and teaches schoolwide expectations, which are related to school values” and “SWPBIS is all about a positive approach with a focus on what is going well”, and “You should acknowledge positive behavior systematically”
4 Data-driven decision making	11 (n = 8)	“Typical for SWPBIS is a systematic collection and use of data”, and “Action planning based on data is important”, and “Systematic implementation of SWPBIS”
5 Cooperation	8 (n = 6)	“It’s important to cooperate with parents” and “Somehow, stakeholders should be involved”

\* Total number of remarks for question one = 71

\*\* n = number of experts making the remarks.

**Table 5. Results survey: Questions 2-10**

Dutch features	# of remarks*	Examples of quotes
1	25 (of 27)	"Values and behavioral expectations are connected with school vision and mission statement"
2	54 (of 70)	"A school should reflect on suitable consequences, which are aimed at learning instead of punishing"
3	80 (of 86)	"It is important that teachers establish a positive focus" and "Expectations should be systematically taught and actively practiced, in which students play an active role"
4	32 (of 37)	"An user-friendly data system is very important for a school" and "Data managers must have basic knowledge on collecting and analyzing data"
5	56 (of 66)	"A school should take parents seriously, and work on building positive relations with parents"

\* Total number of remarks for questions 2-10 = 299

Finally, many remarks (n = 54) were provided about the collaboration with parents or stakeholders. A majority (n = 24) appeared to be examples about how to inform parents (e.g., "Some schools have parent's panels to discuss school related issues" and "Schools do not only organize SWPBIS information evenings, but also coffee meetings to discuss relevant themes"), or about the importance of building positive relationships with parents "Schools strive to make parents feel important partners."

#### Online discussion: Experts' opinions about the Dutch adaptations regarding procedures.

Experts shared the same views about most of the propositions. With regard to Proposition 3, *Inside the classroom, teachers decide how to conduct SWPBIS practices*, eight out of ten experts emphasized the importance of a schoolwide approach: Teacher autonomy in class is limited by the boundaries of schoolwide agreements to create a predictable school environment. However, 15 comments (of 63) were also made about the Dutch freedom of education that provides a certain amount of autonomy for teachers. One expert emphasized, "We have to be aware of the Dutch culture, teachers are not robots and they are allowed to add a personal touch, even working with SWPBIS." With regard to Proposition 2, *Within a SWPBIS context, the reaction procedure [to respond to problem behavior] should be carried out according to strict guidelines*, eight out of ten experts agreed, which may indicate this is an important SWPBIS issue. When responding to problem behavior, it was considered essential to give students a choice to strengthen their self-regulation. Other important aspects mentioned were to minimize attention for (minor) problem behavior, make expectations clear, and provide clear consequences that will actually

be followed. However, seven experts emphasized the importance of a uniform way (corresponding to guidelines) of responding to problem behavior. Whereas five experts argued that it is not about a specific procedure, but up to teachers' and schools' autonomy. The same discussion appeared related to Proposition 1, *The use of tokens is an indispensable element of the positive approach of SWPBIS*, and 4, *It does not matter how expectations are taught to students, as long as this is done*. Discussing these propositions took more time than the other propositions. This was possibly due to the controversy about the subject. All experts agreed on the importance of using tokens in learning new behavior, indicating it stimulates students to behave according to the behavioral expectations and reminds teachers to focus on positive behavior instead of challenging behavior. Four experts emphasized the importance of building positive relationships with students and supporting a positive school climate by using positive social reinforcements (a compliment, thumbs up etc.). Statements included, "A positive attitude and strong relationships with students are the most powerful tools for a teacher." With regard to teaching expectations, all experts agreed on the importance of actually teaching expectations and not just mentioning them as being relevant. However, six out of ten experts thought it is not necessary to teach expectations according to formulated steps, for example stating, "There are different ways to teach expectations." The discussion seemed to divide the group of experts, with one group wanting to follow strict procedures, and the other to leave more room for teachers' personal practices. Finally, it was remarkable that when discussing Feature 5, *Partnership with parents and collaboration with stakeholders*, most experts emphasized the importance of this topic, but they also expressed the opinion that parents were mainly to be informed, and school personnel decided what should happen (e.g., "Parents should be involved, but it is schools that are in charge", which is a rather limited concept of partnership). Concerning collaborating with stakeholders, four experts also mentioned several pitfalls, like trying to involve too many stakeholders. In sum, it seemed that all experts agreed upon the five core features, however regarding procedures some experts emphasized following strict procedures more than other experts.

## Discussion

The implementation of SWPBIS, whose core features and procedures reflect the values and beliefs that are embedded in the US culture, might cause tension in schools in other countries. Since SWPBIS is a framework for the implementation of evidence-based practices, rather than a prescribed intervention or curriculum, it allows for the flexibility to align SWPBIS practices with the values, needs, skills, and resources in schools in different cultural settings. However, fidelity of implementation can be at stake when contextual fit efforts drift too far away from prominent and essential parts of SWPBIS. In this study we explored the cultural adaptation of SWPBIS in the Netherlands drawing upon the perceptions of Dutch SWPBIS experts. Research questions were, "Which core features are identified by Dutch experts and how do they define these features?" and: "How do Dutch experts reflect on procedures with regard to the Dutch school context?" We distinguished core features of an intervention that are constant across settings,

and procedures that can vary across contexts when putting those core elements in place. All experts defined the five key features of SWPBIS, which were formulated at the introduction of SWPBIS in the Netherlands. At first glance, consultation of experts seemed to show that cultural adaptation was merely about adjusting certain procedures. For example, Feature 5, *Partnership with parents and cooperation with stakeholders*, was mentioned less by experts. Possibly, this can be explained by the fact that in this stage of implementation, the focus is mainly on school related issues. When SWPBIS elements in schools are established, a more external focus might arise. Procedures that were adjusted to the Dutch cultural and educational context (lesson plans, ways of responding to problem behavior, collecting data, and procedures to involve students, parents, and professional partners outside education) were recognized and agreed on by most experts.

One of the most striking issues discussed by Dutch experts was the use of token economy systems. All experts agreed on the fact that acknowledging student behavior was an important core feature. Token economy systems were accepted as a powerful tool, but must be adjusted to the context. Experts emphasized the importance of culturally relevant social reinforcers, like compliments or thumbs up. They seemed to share Hofstede's (1986) opinion that openly praising students is often considered "over the top." It is likely that the resistance to using token economy systems is based on a limited notion of positive reinforcement, where applied behavior analysis is equated with praise and tokens. However, SWPBIS and its technology are grounded in applied behavior analysis (Sugai & Horner, 2009). This does not mean that all schools need to use procedures like token economies, but establishing school systems that include a continuum of positive reinforcement procedures is a fundamental element of SWPBIS. Targeted professional development in behavioral theory, principles, and procedures, with emphasis on how principles such as reinforcement can be used in a variety of ways fitting the specific context is necessary for those involved in implementing SWPBIS.

Given the fact that acceptance of a schoolwide approach is linked to the personal beliefs, values and motivation of teachers, which are all grounded in one's own historical and cultural background, the extent to which SWPBIS reflects important aspects of U.S. culture needs to be taken into account when adapting SWPBIS to another (national) environment. Although research of Hofstede and colleagues (e.g., Degens, Endrass, Hofstede, Beulens, & Andre, 2017; Minkov & Hofstede, 2014; Schwartz & Sagie, 2000; P. B. Smith et al., 2002) indicates that there are differences between Dutch and US culture, others argue against this concept of national culture (McSweeney, 2002). Some professionals might consider SWPBIS to be just another US intervention (van Kuijk & van Rens, 2013). These preconceptions may hinder staff buy-in, and, therefore, need to be considered. This could argue for adding a step to the process of SWPBIS implementation in which the values and core features are overtly defined and discussed when SWPBIS is being considered for adoption outside the US. Another aspect of Dutch culture, which may undermine staff buy-in and the accompanying cultural adaptation, is the autonomy of Dutch educational professionals (OECD, 2011). Some of the experts participating in this study, emphasized the importance of taking this autonomy into account when adapting SWPBIS to Dutch schools. Although we did not

study teachers' actual practices, the question can be raised whether teacher autonomy might hinder staff buy-in of SWPBIS as a schoolwide approach.

This study also showed a diversity of opinions on how to use and develop SWPBIS procedures. Different implementation strategies seemed to emerge in the consultation of experts. Roughly there seemed to be two leading tendencies, also described by Castro et al. (2004) as a tension between fidelity and fit: following strict procedures and techniques according to a manual, or using techniques and implementation strategies in a more flexible way, modifying them to accommodate the needs of specific schools for example using SWPBIS as a tool for school development. One limitation of this study is that only a small group of experts was questioned. Therefore, careful consideration of outcomes is necessary. However, this small group represented a variety of professional backgrounds including both internal and external coaches, coach trainers and one researcher, and experts trained by different training institutes. Even in this small sample of Dutch SWPBIS experts, this diversity was present. Further research is necessary to investigate how SWPBIS is practiced in Dutch schools and whether differences would be found between schools supported by experts following strict procedures and those who follow the procedures less strictly. Another limitation of this study is that implementation fidelity data have not yet been collected in schools to assess their effects on experts' opinions. Nevertheless, some findings seem to endorse the argument for careful adaptation of SWPBIS in other (sub)cultures (e.g., M. Wang et al., 2007). Fidelity measures, such as SWPBIS Tiered Fidelity Inventory (TFI, McIntosh et al., 2017) and Schoolwide Evaluation Tool (SET, Horner et al., 2004), reflect core features and standard procedures, and might provide insight in the characteristics of SWPBIS in the Netherlands in schools' daily practices. Nevertheless, this study clearly shows that when implementing SWPBIS in countries outside the US, it is important to pay attention to existing cultural pre- or misconceptions about SWPBIS core features and procedures. Different interpretations of implementation strategies (strict or more flexible views) need to be taken into account.

# Chapter 3.

# **Fidelity of implementation**

## Abstract

Schoolwide positive behavioral interventions and supports (SWPBIS) is a schoolwide approach to create a safe and positive school climate. SWPBIS is a framework in which core features and procedures need to be adjusted to its specific school context, referred to as contextual fit. Implementing with fidelity is related to positive outcomes such as a decrease of behavioral problems. Therefore, when adapting SWPBIS to the context, fidelity of implementation needs to be assured. At the introduction of SWPBIS in the Netherlands in 2009, several procedures were adapted to the Dutch educational context, and different modalities of supporting schools in implementing SWPBIS emerged. In this study, the Tiered Fidelity Inventory (TFI) and Schoolwide Evaluation Tool (SET) were used to assess fidelity of Tier 1 implementation in 117 Dutch schools. The average period of SWPBIS implementation was 2 years and 5 months. Results showed that all core features and procedures were present. Mean total scores were 60% for the TFI and 70% for the SET. Most participating schools appeared to have leadership teams, expectations were taught, and acknowledgement provided. Teams had been trained, and discipline data collected. Compared to other features, annual evaluation, data-based decision making and stakeholder involvement were less well implemented.

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## Punishing is not always a solution



## Introduction

Schoolwide positive behavioral interventions and supports (SWPBIS) is a schoolwide approach to create a positive school climate. It has been developed in the US and implemented in many other countries such as Australia, Canada, Norway, and the Netherlands (APBS Newsletter, 2013, 2014, 2016). SWPBIS is based on behavioral and biomedical sciences and can be applied to address problem behavior in schools. It is not a program or treatment with a specific protocol and standardized interventions. Rather, it is a framework with distinctive core features and standard procedures (e.g., a multi-tiered system of support, the teaching of behavior, the ongoing collection of data for decision making, and the use of evidence-based practices) that need to be

aligned with the specific school context it is implemented in. Horner et al. (2014) stated that core features are considered to be constant across settings. Procedures are used to put core features in place and can vary according to context. When adapting SWPBIS strategies and interventions to make them fit the context, called “contextual fit” (McIntosh et al., 2010), fidelity of implementation (implementing an intervention as intended) can be at stake, especially when the adaptations are not in line with the theoretical basis of the framework. Fidelity measures, like the SWPBIS Tiered Fidelity Inventory (TFI) and the Schoolwide Evaluation Tool (SET), reflect core features and standard procedures of the framework and are used to determine the extent to which a school is using SWPBIS (McIntosh et al., 2017).

In 2009, SWPBIS was introduced in the Netherlands. During the introduction, core features were translated into Dutch, and specific procedures were developed to align SWPBIS to the educational context. The present study aimed to examine the extent to which SWPBIS Tier 1 core features and procedures were present in 117 Dutch schools and if SWPBIS was implemented with fidelity with cultural adaptations.

## SWPBIS

SWPBIS supports schools in creating schoolwide systems that establish the social climate and individualized behavior supports needed for a safe and effective learning environment for all students (Sugai & Horner, 2009). It is aimed at reducing problem behavior, improving school climate, and providing teachers with tools to improve practice. Research-validated practices and systems change are used to reach valued outcomes, which are defined and operationalized by the school in which it is implemented (OSEP, 2004). Research has shown that SWPBIS directly contributes to reduction of referrals and suspensions, and indirectly to an improved classroom learning climate, a decrease in segregation of students, and improvement of academic outcomes (Algozinne, Wang, & Violette, 2011; Bradshaw, Mitchell, & Leaf, 2010; McIntosh, Reinke, Kelm, & Sadler, 2013; Sørli & Ogden, 2015).

Theoretical and conceptual characteristics of SWPBIS are described by Sugai and Horner (2009) as: (a) the behavioral foundation of SWPBIS; (b) emphasis on prevention in a multi-tiered system of behavior support; (c) teaching of behavior; (d) the use of evidence- or research-based practices; (e) the implementation of systems that support effective practices related to school safety; and (f) the on-going collection and use of behavioral data to develop (preventive) strategies. A school that has implemented SWPBIS at Tier 1 typically has established schoolwide behavioral expectations which are being taught, systematically acknowledges positive student behavior, has a schoolwide system for handling problem behavior (including procedures how to respond to problem behavior with consistent consequences), uses techniques such as positive reinforcement and active supervision, and develops preventive interventions based on behavioral data. A multi-tiered system of support is in place with universal interventions for all students (Tier 1), targeted interventions for students who need more support (Tier 2), and individual interventions for students with chronic or severe

behavior needs who need individualized support (Tier 3). A SWPBIS leadership team (a delegation of staff including the administrator) is responsible for the implementation process in school, establishing local capacity and expertise, majority agreements and commitments, measuring fidelity of implementation, and outcome evaluation.

## Contextual Fit

Contextual fit, or environmental redesign as McIntosh et al. (2010) called it, is crucial for successful implementation. Sugai et al. (2012) recommended considering cultural contexts and learning histories of students and families, faculty, and community members to further enhance implementation. They defined culture as “a reflection of a collection of common verbal and overt behaviors that are learned and maintained by a set of similar social and environmental contingencies (i.e., learning history), and are occasioned (or not) by actions and objects (i.e., stimuli) that define a given setting or context” (p. 204). Taking into account different contexts applies not only for schools in diverse cultural settings within the US, but also in other countries. Indeed, implementing SWPBIS in another country brings additional issues that need to be addressed. Singer and Wang (2009) claimed that “many of the PBS features reflect values and beliefs embedded in the American mainstream culture that differ from beliefs found in some other cultures” (p. 39). Therefore, not only do local contexts need to be taken into account, but also important aspects of national culture, legislation and structures, and underlying values and perceptions of educational professionals need to be considered, as they all influence the successful introduction and acceptance of an approach in one specific country. This recommendation is endorsed by Bernal, Jimenez-Chafey, and Rodriguez (2009), who stated that language, culture, and context need to be taken into account when modifying an evidence-based program to make it compatible with cultural patterns, meanings and values of those being served. M. Wang and Lam (2017) argued that “EBP’s [evidence-based practices] often reflect the dominant culture’s (as the norm) influence in defining what EBP is and determining what constitutes effective interventions” (p. 54). Implementing practices with fidelity in education is challenging, and therefore those practices need to be culturally adapted to be effective and sustainable. After specifying core components and causal mechanisms of a program, implementation fidelity needs to be defined in a rigorous, adaptive, and flexible way, leaving room for cultural adaptation (M. Wang & Lam, 2017).

When SWPBIS was introduced in the Netherlands, core features were formulated in a recognizable and culturally acceptable language, and procedures were adjusted to the Dutch educational context. Earlier research (M. J. M. Nelen, Willemsse, van Oudheusden, & Goei, 2019) in which Dutch SWPBIS experts were questioned about core features and procedures of SWPBIS in the Netherlands, showed that experts agreed on the importance of all core features and that cultural adaptation was merely about adjusting procedures. All adaptations seemed to be in line with the theoretical basis of SWPBIS. However, to investigate fidelity of implementation, more empirical evidence, elaborating what SWPBIS actually looks like in Dutch schools according to frequently used instruments, is needed.

## SWPBIS implementation in the Netherlands

Implementing in any setting requires an understanding of the cultural context in which that setting is embedded. In the Netherlands there are 6,268 elementary schools (age 4-12 years), 638 secondary schools (age 12-16/18 years, depending on type of education), and 549 schools for special education (both elementary and secondary schools). Many elementary schools are relatively small (50% of elementary schools have less than 200 students). Since 2015, new legislation urged schools to be more inclusive, but still approximately 2-5% of all students attend schools for special education. Special education is organized in four clusters based on the students' impairments. Most of the special schools (87%) serve students with learning disabilities or challenging behavioral and emotional disturbances. A typical special school has smaller classes and more staff (both teaching and non-teaching staff) to support students. Freedom of education is a Dutch constitutional right. This means that all schools are funded by the Dutch government that prescribes national educational goals. A national inspectorate monitors the quality of education in the schools.

In 2009, SWPBIS was introduced in the Netherlands by a consortium of universities of applied sciences and youth care agencies. The consortium presented several adaptations in procedures to make SWPBIS fit the Dutch context. For the ongoing use of behavioral data to develop preventive strategies, the consortium introduced a behavior incident form. In Dutch schools, problem behavior is mostly classroom managed, and Office Discipline Referrals [ODRs] do not exist. Installing SWPBIS student teams or boards was encouraged, due to a strong emphasis on student involvement in Dutch schools. A different way of collaborating with stakeholders was developed, based on local legislation and different organizational structures. For example, because parents often provide supervision at lunchtime in Dutch elementary schools, many schools have developed SWPBIS training materials for these parents. Elements of behavioral theory, more specifically the use of token economy systems, are regularly met with resistance of teachers (M. J. M. Nelen, Willemse, et al., 2019). Openly praising students is in the Netherlands often considered "over the top." Part of the resistance was probably also due to a limited notion of the concept of positive reinforcement, where Applied Behavior Analysis (ABA) is often equated with praise and tokens. Finally, to establish staff buy-in, cultural adaptive coaching of implementation of SWPBIS was developed, taking into account the high amount of autonomy of Dutch educational professionals and the flat hierarchy in Dutch schools (OECD, 2011).

Initially, the consortium trained SWPBIS coaches to support Dutch schools in implementing SWPBIS. The consortium itself had no interference with the implementation processes in schools. After that, different modalities of supporting the implementation of SWPBIS emerged: schools were coached by officially trained coaches or coaches that acquired SWPBIS knowledge just by reading, both internal and external coaches, networks of SWPBIS schools arose, and schools started implementation on their own, without guidance of a coach. Generally, two tendencies in implementation strategies could be distinguished: following manualized SWPBIS procedures and techniques or

using implementation strategies and techniques in a more flexible way (M. J. M. Nelen, Willemse, et al., 2019). Castro et al. (2004) referred to these tendencies as the tension between fidelity and contextual fit. Today, SWPBIS has been implemented in approximately 350 schools (approximately 4.5% of all Dutch schools). Most SWPBIS schools in the Netherlands are elementary schools, although SWPBIS is also embraced by special education. Implementation of SWPBIS in secondary and vocational education is now increasing rapidly. Due to the broad variety in implementation strategies and the autonomy of Dutch schools and coaches, which could lead to a less rigorous application of the approach nationwide, it is not clear what SWPBIS looks like in daily practice. Fidelity measures can give insight in which core features are present in Dutch schools.

## Fidelity of Implementation

Fidelity of implementation refers to the extent to which components of an intervention, as conceptualized in a theoretical model or manual, are implemented as intended (Lane et al., 2004; Schulte et al., 2009). Many studies (Bradshaw et al., 2010; Flannery, Fenning, Kato, & McIntosh, 2014; Horner et al., 2009; Simonsen et al., 2012; Sørli & Ogden, 2015) reported that fidelity of implementation is associated with positive outcomes of SWPBIS such as a decrease of behavioral problems and an increase of social safety. In these studies, assessing fidelity of school systems was operationalized by measuring to what extent core features and standard procedures of SWPBIS were present in schools. When a school reaches a certain degree of implementation, it is considered as implementing with fidelity. Regular measurements of fidelity of implementation is part of the SWPBIS framework.

To measure Tier 1 fidelity of implementation, several instruments have been developed. Most of them are self-assessment instruments, meaning the SWPBIS leadership team of a school completes a questionnaire (with or without guidance of an external SWPBIS coach), which results in a score indicating the level of realized features. Examples of these measures are the Benchmarks of Quality (BoQ, Kincaid et al., 2005), Team Implementation Checklist (TIC, Sugai, Horner, & Lewis-Palmer, 2001) and the PBIS Self-Assessment Survey (SAS, Sugai, Horner, & Todd, 2000). The most recent fidelity measure developed is the SWPBIS Tiered Fidelity Inventory (TFI, Algozinne et al., 2014), which is based on all former instruments and designed to be a more brief and comprehensive measure of fidelity. The TFI is completed by an external evaluator (e.g., the PBIS coach) facilitating the PBIS leadership team. Apart from self-report measures, the Schoolwide Evaluation Tool (SET, Horner et al., 2004) is a fidelity measure that is completed by an independent SWPBIS expert. The SET is mostly used in research studies because it is considered to be a more objective measure being completed by an external assessor; however, completion is more time consuming compared to the other instruments. Almost all fidelity measures have been subject to extensive research to validate them in the U.S. context ( $N = 105$  schools for the BoQ, R. Cohen, Kincaid, & Childs, 2007;  $N = 150$  schools for the SET, Horner et al., 2004;  $N = 789$  schools for the TFI, McIntosh et al., 2017).

Mercer, McIntosh, and Hoselton (2017) compared the convergent validity of several SWPBIS Tier 1 fidelity measures (SET, TFI, BoQ, TIC, and SAS) to examine whether they assessed the same construct and the extent to which comparable scores are generated. They found that the measures were comparable to one another and that the total scores can be used similarly to indicate the level of implementation. The cut-off scores, used to determine whether a school is adequately implementing SWPBIS, differ for the TFI and SET, with a 70% on the total score for the TFI, and an 80% both on the total score and Behavioral Expectations Taught subscale for the SET indicating fidelity. Mercer and colleagues (2017) found that Total scores on the SET were significantly higher than on the TFI (and all other measures). Correlation between TFI and SET was high, although the TFI sample size was relatively low ( $r = .92, p < .001, n = 36$ ). This was due to the fact that fewer years of TFI data were available, and Mercer and colleagues used an inclusion criterion of paired assessment within 30 days, which reduced the number of assessments available for analysis.

In the present study, we used the TFI and the SET to measure Tier 1 fidelity of implementation in Dutch schools. The TFI was chosen because it is the most recently developed and up-to-date instrument, it is brief, and it is based on the factors and features of existing validated fidelity measures. Only Tier 1 (universal SWPBIS features) of the TFI was assessed due to the fact that most Dutch schools did not yet have Tier 2 and 3 systems in place. The SET was chosen to compare the TFI Tier 1 measurements with more objective data. The goal of this study was to examine the extent to which core features and procedures of SWPBIS were present in Dutch schools, and if SWPBIS Tier 1 was implemented with fidelity. We also wanted to evaluate the psychometric properties of the TFI and the SET as they were modified to fit Dutch culture. For that purpose, we completed both the TFI Tier 1 and the SET in 117 schools.

Our main research questions were:

1. *To what extent are core features and standard procedures of SWPBIS Tier 1 present in Dutch schools according to TFI and SET scores?*
2. *What are psychometric properties of the TFI and SET as they were modified to fit Dutch culture?*

## Method

### Participating Schools

In this study, 117 Dutch schools participated: 92 elementary schools and 25 schools for special education. Special education schools were both elementary and secondary schools. The average number of students per school was 191 (210 students for elementary schools, 121 students for special schools). The average period of implementing SWPBIS was 29 months ( $SD 16.68$ ) for all schools, 28 months ( $SD 16.41$ ) for elementary, and 31 months ( $SD 17.85$ ) for special education. Schools were recruited through invitations posted at Dutch SWPBIS websites, flyers distributed at the national Dutch SWPBIS conference, and through invitations sent by several SWPBIS expertise centers (mostly indirectly via SWPBIS coaches). Schools themselves also contacted the researchers asking if they could participate in the project. All participating schools

chose to implement SWPBIS voluntarily and financed the implementation process themselves. Many, but not all schools, received support from an external SWPBIS coach, mainly at the beginning of the implementation process. Researchers had no involvement implementing SWPBIS in participating schools.

### Measures

**Instrument translation.** Both the TFI and the SET were translated into Dutch and double checked by a native speaker. Small adjustments were made to use the proper Dutch terminology, for example “Tier 1 team” was replaced by “SWPBIS team”. When in doubt about a translation, two authors of the measures were consulted in person or by email (i.e., Drs. Horner and McIntosh) to make sure that the original content was not affected. Also scoring issues were discussed, for example, how to score the presence of (a person with) expertise in behavioral theory on the SWPBIS leadership team. Each item that needed to be discussed was carefully introduced by the researchers by explaining the specific Dutch context. Questions or suggestions how to score were presented to Drs. Horner and McIntosh, who both replied with detailed instructions for both instruments. In the end, after several feedback rounds, the following changes were made with consent of Drs. Horner and McIntosh: “schoolwide expectations,” visible in several items of both the TFI and the SET, was translated as “school values,” and “school rules” was translated as “behavioral expectations.” “Discipline referral form” was replaced by “behavior incident form.”

The SET was pilot tested in two elementary schools (M. J. M. Nelen & van Bergen, 2013) and the TFI in six elementary schools. Based on the feedback of the SWPBIS coaches who completed the instruments, small textual adjustments were made to clarify the meaning of items in question. All adjustments made were discussed with and approved by Drs. Horner and McIntosh.

**TFI and SET.** The TFI Tier 1 (version 2.1) had 15 questions, divided into three subscales: Team, Implementation, and Evaluation. Each subscale had different numbers of items. The SET measures only Tier 1 and has seven subscales, called features, (“A” through “G”); each feature has a different number of items (see Table 8). All items on the TFI can be scored 2 (*fully implemented*), 1 (*partially implemented*), or 0 (*not implemented*). The SET has a similar way of scoring, apart from four questions (F3, F8, G1 and G2), for which only 2 (*item is present*) or 0 (*item is not present*) can be scored. The total score, indicating the level of realized features in schools, used in most of our analysis, was the sum of all separate items. For the SET total score percentage, a weighted score was used by adding all seven subscale scores (maximum score 1 per subscale), dividing by 7 and multiplying by 100. For the TFI Tier 1 total score percentage, the sum of 15 items was divided by 30 (total possible score) and multiplied by 100 (see Table 6 for total score in percentages of the TFI and SET). Both instruments were digitalized in a web-based software program that was used to process data from questionnaires to diminish the chance of missing data or errors and also provided safe storage conform to ethical standards.

## Procedure

**Data collection.** All data were collected in school years 2015–2016 and 2016–2017. Each school was assessed once. The TFI was completed by discussing the 15 questions of Tier 1 during a SWPBIS leadership team meeting, guided by an external SWPBIS coach. Preferably, this coach also was (or had been) responsible for coaching the school during SWPBIS implementation. If the school did not have an external coach who could complete TFI Tier 1, one was provided. Prior to the leadership team meeting, the SWPBIS coach briefly interviewed students and staff, and made some observations.

For the SET, the procedure was different. A SWPBIS professional who did not have any connection with the school in question, visited the school to collect data. This assessor conducted structured interviews with the principal, staff members and students, then reviewed developed products such as school policies, SWPBIS Handbook or documents, and data systems. For example, to determine how well school values and accompanying behavioral expectations had been taught, the assessor studied lesson plans and asked at least 15 students and 10 staff members if they could state the values and expectations of their school.

First, the TFI Tier 1 section was completed in schools. Following that, the SET was completed within 2 weeks. If it was not possible to complete the TFI first, SET scores (consisting of an overview of scored items, a SET scoring profile and a written report) were only sent to schools after completion of the TFI in order not to influence the TFI measurement. This was the case at 31 schools. TFI scores were immediately available after completion.

**Assessors.** The TFI and SET were completed by 82 SWPBIS professionals. Only professionals who were familiar with PBIS and received PBIS training prior to the current study were included as SET assessor. Only PBIS coaches, who were previously trained as a PBIS coach and who were actually coaching one or more schools, were used as assessors of the TFI. All assessors were selected and trained by the same researcher during a 4-hr course in groups of 10 persons maximum. All items and scoring procedures for both TFI and SET were discussed during training. Examples were provided to practice scoring and to check if assessors demonstrated a minimal level of competency on the topics covered in the training. All coaches also received a manual and written instructions. The first author was available (by telephone or email) to answer questions during or after completion of the instruments.

**Interrater agreement.** Interrater reliability was assessed for the SET ( $N = 10$  schools). In each school, two SWPBIS assessors collected data together but scored the SET form independently. Completion of the SET is highly structured. Each step in the assessment is manualized by using several checklists or forms in order to minimize variation in scoring. For example, the assessor must count the areas in which school values are

visible, or the number of staff must be noted who could state the same procedure as the principal. Cohen's kappa was used to determine agreement amongst observers. Because scoring TFI items is based on discussions in the SWPBIS leadership team, which makes independent scoring difficult, and because McIntosh et al. (2017) found a strong agreement among raters (ICC for all tiers, all items and overall were all .99), we decided not to measure the interrater reliability of this instrument.

**Research design.** To determine to what extent core features and procedures of SWPBIS were present in Dutch schools, we calculated frequencies of each item in both the TFI and the SET. To check if completion of the TFI and the SET in Dutch schools showed inconsistencies or remarkable discrepancies compared to the completion of these instruments in U.S. schools, we repeated the analysis of Horner et al. (2004). We calculated Cronbach's coefficient alpha to determine whether internal consistency of the Dutch TFI and SET were as strong as in the U.S. versions. We also conducted a series of correlational analyses (Pearson correlations) to determine content cohesiveness and discriminability of items (for TFI Tier 1) or features (for the SET) and the total score of both the TFI (Tier 1) and the SET in our sample. Because type of schools was not equally divided among participants, we conducted our analysis in two ways: all schools grouped together and separate analysis both for elementary and special education schools.

## Results

**Descriptive Analyses.** Table 6 presents the TFI and SET total score in percentages. Table 7 (TFI) and Table 8 (SET) provide basic descriptive statistics (means and standard deviations) for all TFI and SET items. For the TFI, we calculated Cronbach's alpha for all 15 Tier 1 items. The internal consistency was good:  $\alpha = .83$  for all types of schools ( $\alpha = .85$  for elementary schools only,  $\alpha = .73$  for special schools only). In the SET, calculation of Cronbach's alpha was based on subscales:  $\alpha = .73$  for all type of schools ( $\alpha = .74$  for elementary schools only,  $\alpha = .72$  for special education only). Cohen's kappa (interrater reliability,  $N = 10$ ) varied from low ( $k = .12$ ) to almost perfect ( $k = .84$ ). The average kappa score was moderate ( $k = .58$ ) (Landis & Koch, 1977). All core features and standard procedures of SWPBIS, as displayed in the fidelity measures, occurred in participating schools. For some items scores were not equally divided among scoring items. Results showed that 33% of all participating schools met the TFI criteria for adequately implementing SWPBIS Tier 1, consisting of a TFI Tier 1 total score of 70% or more. The percentage of schools reaching the cut-off score for the SET was 30% on SET total score only, whereas 25% of all schools met the 80/80 criteria on both the total score and Behavioral Expectations Taught subscale. Of all participating schools, 17% reached the cut-off score on both TFI and SET (total/subscale). Below we describe the results of items which represent high visibility of core features in schools and point out several striking results.

**Table 6. Fidelity of Implementation (N = 117)**

TFI	<i>M Total</i>	Min	Max	<i>SD</i>	% Fid.	<i>r</i> TFI-SET
All schools (N = 117)	59.54%	3.33%	100%	18.92	33	.71**
Elementary education (n = 92)	58.88%	3.33%	100%	19.74	31	.71**
Special education (n = 25)	62.00%	26.67%	86.67%	15.63	36	.69**
SET	<i>M Total</i>	Min	Max	<i>SD</i>	% Fid.	<i>r</i> TFI-SET
All schools (N = 117)	69.83%	27.80%	100%	15.83	25	.71**
Elementary education (n = 92)	66.24%	25.49%	89.87%	15.88	23	.71**
Special education (n = 25)	70.15%	46.93%	96.88%	14.01	28	.69**

**Note:** TFI = Tiered Fidelity Inventory; SET = Schoolwide Evaluation Tool; % Fid. = percentage of schools in the sample at or above the fidelity criterion of the measure (70% on total score for the TFI, and for the SET 80% both on total score and on Behavioral Expectations Taught subscale); *r* TFI-SET = (Pearson) correlations between total score of TFI and SET; \*\*Correlation is significant at the 0.01 level (2-tailed)

**Items in place.** A large majority of schools (≥ 90%) met most of the requirements regarding the SWPBIS leadership team, representing school staff members, and the principal being an active member. Leadership team operating procedures (regular team meetings, roles defined, and taking minutes) were also partially or fully implemented in almost all schools. The same pattern was visible for teaching behavior: In almost all participating schools, schoolwide behavioral expectations (e.g., “Be respectful” or “Be responsible”) were established and systematically taught. A high percentage of schools (66% for the TFI, 62-80% for the three SET items) fully implemented procedures concerning feedback and acknowledgement, meaning that schools had a reward system in place to systematically provide students with positive feedback. Most participating schools used some kind of token economy system, for example students collected tickets or marbles as both individual and group rewards. The use of SWPBIS in individual classrooms could only be scored in the TFI.

In most participating schools, SWPBIS classroom procedures were present to some extent (89% of all schools scored 1 or 2). Most schools paid attention to professional development of their school staff. Team members were trained in specific elements of Tier 1 interventions, such as teaching and acknowledging behavior, and responding to problem behavior. High scores on SET Item D3 “Documented crisis plan for responding to extreme dangerous situations” are due to requirements of Dutch law: all schools need to have a proper flight plan in place. In 52% of all participating schools, discipline data were being collected: these schools used a behavior incident form that met all the required criteria. A similar pattern is seen in SET feature E “Monitoring and Evaluation”. On the TFI in the area of collection and use of fidelity data (Item 1.14), 53% of all schools scored 2. In many schools, the implementation of SWPBIS was an important part of the school improvement plan (SET Item F1): 77% of all schools scored 2.

**Table 7. TFI Descriptive Data for Different School Types**

TFI tier 1	All schools N = 117		Elementary education n = 92		Special education n = 25	
	M	SD	M	SD	M	SD
1.1 Team composition	1.34	0.49	1.40	0.51	1.12	0.33
1.2 Team operating procedures	1.47	0.55	1.48	0.52	1.44	0.65
1.3 Behavioral expectations	1.68	0.48	1.65	0.50	1.76	0.44
1.4 Teaching expectations	1.22	0.56	1.23	0.58	1.20	0.50
1.5 Problem behavior definitions	0.99	0.76	0.90	0.77	1.32	0.63
1.6 Discipline policies	1.09	0.75	1.01	0.72	1.36	0.81
1.7 Professional development	1.27	0.68	1.24	0.68	1.40	0.64
1.8 Classroom procedures	1.22	0.62	1.20	0.62	1.32	0.63
1.9 Feedback and acknowledgement	1.49	0.77	1.50	0.76	1.44	0.82
1.10 Faculty development	1.19	0.75	1.18	0.75	1.20	0.76
1.11 Student/Family/Community involvement	0.75	0.74	0.76	0.75	0.72	0.74
1.12 Discipline data	1.25	0.86	1.17	0.87	1.52	0.77
1.13 Data-based decision making	0.81	0.68	0.79	0.67	0.88	0.73
1.14 Fidelity Data	1.31	0.81	1.36	0.79	1.12	0.88
1.15 Annual evaluation	0.79	0.70	0.78	0.72	0.80	0.64

**Note:** Each item can be scored 0 (*Not implemented*), 1 (*Partially implemented*), or 2 (*Fully implemented*).

**Table 8. SET Descriptive Data for Different School Types**

SET	All schools N = 117		Elementary education n = 92		Special education n = 25	
	M	SD	M	SD	M	SD
<b>A Expectations defined</b>	2.85	1.23	2.72	1.27	3.32	0.94
1 Documentation on staff agreement school rules	1.62	0.79	1.57	0.83	1.80	0.58
2 Expectations publicly posted	1.23	0.88	1.15	0.89	1.52	0.77
<b>B Expectations taught</b>	6.90	2.03	6.96	2.02	6.68	2.10
1 Documented system for teaching behavioral expectations	1.56	0.69	1.57	0.68	1.52	0.71
2 Staff states that teaching has occurred	1.54	0.70	1.59	0.67	1.36	0.81
3 Staff states that schoolwide program has been taught/reviewed	1.79	0.50	1.84	0.49	1.64	0.49
4 Students state school rules	0.50	0.70	0.48	0.69	0.56	0.77
5 Staff lists 67% of school rules	1.51	0.67	1.49	0.69	1.60	0.58
<b>C Reward system</b>	4.97	1.54	4.93	1.56	5.08	1.47
1 Documented system for rewarding student behavior	1.50	0.70	1.47	0.72	1.64	0.64
2 Students have received rewards	1.70	0.65	1.71	0.64	1.68	0.69
3 Staff has delivered rewards	1.76	0.52	1.76	0.54	1.76	0.44

<b>D</b>	<b>Violation System</b>	4.52	1.87	4.30	1.90	5.32	1.52
1	Documented system for dealing with and reporting specific behavioral violations	1.28	0.80	1.18	0.81	1.64	0.64
2	Staff-administration agreement on what problems are office/classroom managed	0.92	0.82	0.84	0.83	1.24	0.72
3	Documented crisis plan for responding to extreme dangerous situations	1.68	0.67	1.71	0.62	1.60	0.82
4	Staff-administration agreement on procedures handling extreme emergencies	0.63	0.75	0.58	0.71	0.84	0.85
<b>E</b>	<b>Monitoring and evaluation</b>	5.09	2.71	4.99	2.79	5.48	2.38
1	Discipline referral list present	1.44	0.85	1.39	0.88	1.64	0.70
2	System for collecting referral data	1.32	0.75	1.28	0.76	1.48	0.71
3	Discipline data reported to team	1.25	0.87	1.29	0.86	1.08	0.91
4	Discipline data being used for behavior support efforts	1.08	0.87	1.02	0.86	1.28	0.89

<b>F</b>	<b>Management</b>	13.90	2.59	13.05	2.52	12.80	2.10
1	SWPBIS is in top 3 school improvement plan	1.64	0.70	1.67	0.68	1.52	0.77
2	Staff reports that there is a schoolwide team established to address behavior support systems	1.93	0.31	1.93	0.32	1.92	0.28
3	Administrator reports team membership includes representation of all staff	5.16	17.74	4.97	17.37	5.88	19.40
4	Staff can identify team leader	1.31	0.80	1.29	0.82	1.36	0.76
5	Administrator is an active member	1.66	0.63	1.73	0.59	1.40	0.71
6	Team meets monthly	1.46	0.55	1.42	0.56	1.60	0.50
7	Team reports progress	1.79	0.53	1.85	0.47	1.60	0.71
8	Recent action plan with goals less than one year old	5.58	19.84	4.58	17.45	9.28	27.02
<b>G</b>	<b>District Support</b>	2.58	1.12	2.57	1.12	2.64	1.11
1	Allocated budget for schoolwide behavioral support	1.71	0.71	1.72	0.70	1.68	0.75
2	Out-of-school liaison in district or state	0.87	1.00	0.85	0.99	0.96	1.02

**Note:** Each item can be scored 0 (*Not implemented*), 1 (*Partially implemented*), or 2 (*Fully implemented*). For Items F3, F8, G1, and G2 only 0 (*No*) and 2 (*Yes*) could be scored.

**Items partly or not implemented.** Some aspects of SWPBIS seemed harder for participating schools to implement. Student, family and community involvement was low. For data-based decision making, 15% of all schools met all the TFI criteria. However, 42% of all schools scored 2 on SET Item E4 “Discipline data being used for behavior support efforts”. “Annual evaluation” is only measured with the TFI: 38% of all schools did not have any type of evaluation. For both the TFI and SET, students were asked if they could state school values: on the SET 62% of all schools scored 0 on this item. On the TFI, stating school values is part of “Teaching expectations”: 64% of all schools scored 1 on this item.

**Adapted items.** Upon examination of those items in which procedures are represented that have been adapted to the Dutch context, we saw that teaching expectations met all the fidelity criteria, except for students being able to state school values. The feedback and acknowledgement for positive student behavior was fully implemented in many participating schools. The replacement of ODRs by a behavior incident form still reflected consistency in both the TFI and SET items. Despite the Dutch focus on student and parent involvement, this TFI item scored low.

**Comparing elementary and special education.** Results for elementary and special education separately showed similar patterns. For some core features, we saw striking differences between elementary and special education. “Defining problem behavior” was in 92% of all participating special schools, partially or fully implemented. In elementary schools, the percentage was lower (65% of schools scored 1 or 2). SET Item D1 “Availability of a documented system for dealing with and reporting on behavior violations” showed a similar pattern for special education: 72% of special schools fully implemented D1 (43% of elementary schools). Agreement among staff on how to handle emergencies was difficult for both special schools and elementary schools to achieve: 44% of special schools and 55% of elementary schools scored 0 on this item. Finally, Tier 1 fidelity data were more commonly used in elementary than in special education.

## Discussion

Two fidelity measures were used to describe SWPBIS core features and procedures that were present in Dutch schools, and the extent to which Tier 1 was implemented with fidelity. TFI Tier 1 and SET measurements in 117 Dutch schools showed that all core features and standard procedures were partially or fully implemented. The correlation between the TFI and SET scores was strong ( $r = .71$ ), although smaller than in the research of Mercer et al. (2017) ( $r = .92$ ,  $n = 36$ ). All other correlations in their research varied from .59 to .71, comparable to the correlation we found in our sample. Mercer et al. had a relatively small sample when the TFI was compared with other measures. This may explain the high correlation between TFI and SET in their research. The data in this study showed that the TFI and SET could be modified to fit Dutch culture without weakening the psychometric properties of the instruments. This allows comparisons of fidelity scores across cultural contexts. Mean total scores were 60% for the TFI and 70% for the SET. To compare, U.S. schools scored 74% on the TFI total score ( $SD = 24$ ) in a study

by Kittelman, Eliason, Dickey, and McIntosh (2018). The mean SET total score was 10% higher than TFI Tier 1 total score, which is consistent with findings in U.S. schools (Mercer et al., 2017). The percentage of schools in our sample meeting the criteria for adequately implementing Tier 1 was lower than the percentages for U.S. schools found by Mercer et al. (2017, p. 4): 33% for the TFI (58% of U.S. schools scored  $\geq 70\%$  on TFI Tier 1 total score) and 25% for the SET (61% of U.S. schools scored  $\geq 80\%$  on both total score and Behavior Expectation Taught subscale). More research is necessary to comprehend the difference in percentages of schools reaching the cut-off score for the TFI Tier 1 and the SET. When only total scores of both instruments are compared, scores are comparable: 33% for TFI – 30% for SET. Horner et al. (2004) and McIntosh et al. (2017) argued that a SET total score of 80%, and correspondingly, a TFI total score of 70% are minimum levels to expect positive outcomes. The results found in the current study suggest that, with an average implementation period of 2 years and 5 months, reaching the criterion for adequate implementation is not certain. This is endorsed by McIntosh, Mercer, et al. (2013) who stated that implementing SWPBIS with fidelity takes time, effort, and resources. Research of Nese, Nese, McIntosh, Mercer, and Kittelman (2019) showed that the average time for U.S. elementary schools from PBIS training to reaching the level of adequate implementation was 2 years. The lower scores for participating Dutch schools, compared to U.S. schools, can probably be explained by the fact that SWPBIS was not only fairly new for Dutch schools, but also for professionals coaching these schools. No routines were yet developed, and all steps in the implementation process had to be discovered, which can be compared with building a bridge while walking on it.

**Cultural adaptations.** With the introduction of SWPBIS in the Netherlands, a consortium of partners from education and care organizations discussed how to adapt core features into feasible interventions fitting the cultural context, learning histories, and values and beliefs of Dutch educators. In translating the TFI and SET, these adaptations were taken into account. Of special interest are those items and subscales that reflect issues where cultural adaptations were made. Schoolwide behavioral expectations in Dutch schools are grounded in school values, established at the start of implementation by all staff members. Although almost all schools systematically taught these expectations, many students were not able to state the school values. Presumably, teachers may not actively have connected the expectations taught with the value in question (“*You should be quiet because it is respectful*”). Another explanation can be that schoolwide values may have been too abstract for students and specific school rules are easier for students to memorize.

The high percentage of schools who had a reward system fully implemented was also striking. In fact, this was the only item scoring at the same level as U.S. schools ( $M = 1.49$ ) whereas all other items scored lower (Kittelman et al., 2018). At the introduction of SWPBIS in the Netherlands, the systematic use of token economy systems met with resistance of teachers (M. J. M. Nelen, Willemsse, et al., 2019). However, for most participating schools, this seemed to be no longer an issue as they clearly have managed to implement token economy systems according to requirements. Further research on how schools and coaches managed to influence teachers to implement a token system when teachers have such great autonomy is needed.

Concerning another culturally adapted procedure, the behavior incident form as a replacement for the ODRs, results showed that this form was commonly used (fully implemented at 52% of the schools). It seemed to be much harder to use these data to develop preventive strategies: data-based decision making was only fully implemented in 15% of participating schools. This could be explained by the fact that in Dutch schools, different teams are responsible for discussing behavioral and academic data. Therefore, few schools met all criteria (score 2) at this item. The 42% of all schools that fully implemented SET Item E4 “Discipline data being used for behavior support efforts” seems to confirm this explanation, as this SET item does not focus on discussing academic data. To date, each TFI item contains several aspects of the construct concerned and is therefore more complex to score than each single SET item. More research is needed to verify this explanation and to explore the way Dutch schools use data-driven decision making.

Other TFI Tier 1 and SET items where potential differences could occur were classroom procedures and stakeholder involvement. Most of the time, classroom procedures were in line with schoolwide procedures. This was an important finding because implementing with fidelity strongly depends on how teachers act in daily practice. McIntosh, Mercer, et al. (2013) found that school team functioning was highly related to sustainable implementation, including SWPBIS-congruent behaviors. According to Kincaid et al. (2007), a lack of teacher support can be an important barrier for successful implementation of SWPBIS. Dutch schools, however, are known for high teacher autonomy (OECD, 2011), which might lead to more variation in teacher behaviors, even behaviors not supporting SWPBIS practices. To fully implement SWPBIS, support may be needed to foster teachers’ regular interactions with students and colleagues that are consistent with the core features of SWPBIS (Han & Weiss, 2005).

Student involvement and cooperation with parents are important issues in the Netherlands. However, stakeholder involvement showed that 43% of all schools scored 0. The mean score for U.S. schools was also low ( $M = 1.08$ ; Kittelman et al., 2018). The fact that involvement of both students, parents and community members were measured in one item could have influenced this score. Another explanation can be that schools’ focus at the start of implementation was probably more internally oriented and less focused on possible partners outside their school team.

Results for all participating schools on the one hand, and elementary and special schools on the other hand, showed similar patterns, except for items concerning how to deal with problem behavior. Special education schools deal with challenging and complex student behavior. The motivation to define problem behavior and discipline policies will therefore be higher in special education than in regular schools. It is striking, however, that the agreement among staff on how to handle emergencies for both special and elementary schools was low. This argues for more systematic, schoolwide procedures for responding to these situations.

## Limitations and Future Directions

Maintaining the validity of fidelity measures TFI and SET to achieve program integrity of SWPBIS in the Netherlands was an important objective of this study. However, a number of limitations necessitate discussion. First, we only succeeded in collecting interrater agreement data for the SET in 10 schools, which is less than 10% of all participating schools. Second, we did not collect similar data for the TFI. Although both SET and TFI assessments were highly structured, and the nature of TFI assessment makes it hard to collect objective data about interrater agreement, we cannot state that the training provided was effective in preparing our assessors to collect fidelity data. Future research should strive to collect more data on interrater agreement. Finally, the impact of culturally adapted coaching and staff buy-in on fidelity cannot be measured by only assessing TFI or SET. A more detailed (case) description of the implementation process and the adaptations made in culturally diverse schools outside the US, could help us better understand the cultural adaptation process of SWPBIS in other countries.

## Conclusions

By completing TFI and SET, we assessed what SWPBIS looks like in 117 Dutch schools. All core features and standard procedures as displayed in the fidelity measures were present in participating schools. Adaptations in procedures and cultural adaptive coaching to align SWPBIS with the Dutch educational context did not seem to interfere with fidelity of implementation of Tier 1. The level of implementation needed to achieve positive outcomes in Dutch schools cannot yet be determined. The next step is to investigate the relation between fidelity and outcome data in Dutch schools.

Chapter 4.

**Results  
of SWPBIS**

## Abstract

In 2009, School-Wide Positive Behavioral Interventions and Supports (SWPBIS) was introduced in the Netherlands to support schools in creating safe learning environments. In this longitudinal study, we explored effects of SWPBIS on student outcomes in the Netherlands. Fidelity of implementation of SWPBIS has been associated with improved student outcomes. The purpose of this study was to examine the relation between changes in fidelity and student outcomes. Sixty-six elementary schools ( $n = 14,256$  students) were followed for 3 years (2015–2018). We collected yearly data on fidelity, social safety (consisting of students' social well-being, general feeling of safety, harassment, prevalence of unsafe locations in and around schools), behavior incidents, and additional behavioral support. Using repeated measures ANOVAs, we saw an increase in fidelity scores and a decline in the percentage of students stating there were unsafe locations in and around school. Multiple regression analyses showed that changes in fidelity were related to changes in both students' social well-being and the number of behavior incidents. Limitations were discussed, such as the absence of comparison schools not implementing SWPBIS, and schools at different stages of implementation, and we accounted for missing data.

**Keywords:** School-Wide Positive Behavioral Interventions and Supports, fidelity, effects

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## Creating a positive school climate



## Introduction

In 2009, School-Wide Positive Behavioral Interventions and Supports (SWPBIS) was introduced in the Netherlands to support schools in dealing with problem behavior and creating safe environments. SWPBIS was originally developed in the US in the 1980s by researchers from the University of Oregon (Sugai & Simonsen, 2012), and more than 26,000 U.S. schools are currently working with SWPBIS. Its aim is to develop school-wide systems and procedures that promote positive changes in student behavior by targeting staff behavior (Bradshaw et al., 2010). SWPBIS is a framework, not a method with specific protocols or standardized interventions: Strategies and interventions are developed and modified in alignment with the context of the individual school, referred

to as contextual fit (McIntosh et al., 2010). Research has shown that SWPBIS resulted in a decrease in problem behavior, an increase in prosocial skills and perceptions of school safety, and an improvement of the overall school climate (e.g., Bradshaw et al., 2008; Bradshaw et al., 2009; Bradshaw et al., 2012; Horner et al., 2010; Horner et al., 2009; Waasdorp et al., 2012). Most SWPBIS research has been U.S.-oriented, although other countries such as Norway and Australia have been building evidence for the effectiveness of SWPBIS as well (Sørli & Ogden, 2015; Yeung et al., 2016). Implementing SWPBIS with fidelity has been shown to be important for achieving positive outcomes (McIntosh, Mercer, et al., 2013). In this study, we aimed to explore effects of SWPBIS in the Netherlands, with particular attention to the role of fidelity of implementation. We followed 66 elementary schools (14,256 students) for 3 years, collecting data on fidelity of implementation and student outcomes.

## SWPBIS Features

Sugai and Horner (2009) described the theoretical and conceptual characteristics of SWPBIS as (a) the behavioral foundation of SWPBIS; (b) emphasis on prevention in a multi-tiered system of behavior support; (c) teaching of behavior; (d) the use of evidence-based or research-based practices; (e) the implementation of systems that support effective practices related to school safety; and (f) the on-going collection and use of behavioral data to develop (preventive) strategies. The multi-tiered system of student support (Greenwood et al., 2008) contains universal interventions for all students (Tier 1), targeted interventions for students who need additional support (Tier 2), and individual interventions for students with chronic or severe behavioral needs who need individual support (Tier 3). At Tier 1, a SWPBIS school typically has established schoolwide expectations (such as “Be responsible”) that are being taught, systematically acknowledges positive student behavior, and has a system for handling problem behavior, including procedures for how to respond to problem behavior with consistent consequences (OSEP, 2015). Data-driven decision making is a central feature of SWPBIS (McIntosh, Ellwood, McCall, & Girvan, 2018). Behavioral data such as office discipline referrals (ODRs) are collected and used to develop and evaluate preventive interventions. Systems change and research-validated practices are used to reach valued outcomes that are defined and operationalized by the school (Sugai et al., 2012). A SWPBIS leadership team (a representative group of stakeholders including educators, school administrator(s), family members, and students) is responsible for the implementation process at the school, establishing local capacity and expertise, setting up majority agreements and commitments, measuring fidelity of implementation, and outcome evaluation (Lewis et al., 2016; Sailor et al., 2009). In the US, school-based leadership teams receive further support from district- and state-level leadership teams (OSEP, 2015).

All the separate components mentioned above are part of the SWPBIS framework and draw from several decades of systematic research in education, mental health, and behavior analysis (Horner et al., 2010). The efficacy of SWPBIS is based on focusing on the whole school approach, emphasizing the multiple tiers of support that are deli-

vered as early as possible, tying educational practices to organizational systems needed to deliver these practices with fidelity, and the systematic use of data for decision making (Sugai, Horner, & Lewis, 2009). Adapting the framework to the school context is crucial for successful implementation (McIntosh et al., 2010). This not only applies to implementation of SWPBIS in diverse US cultural contexts, but also to implementation in other countries (M. J. M. Nelen, Willemse, et al., 2019). However, adaptations made to make SWPBIS fit more closely to the (national) school context must be in line with the conceptual foundations of the framework to avoid weakening the efficacy (T. B. Smith, Domenech Rodríguez, & Bernal, 2011). When SWPBIS was introduced in the Netherlands, essential features of the framework were formulated in recognizable and culturally acceptable words, and interventions and strategies were adjusted to fit the Dutch schools. M. J. M. Nelen, Willemse, et al. (2019) have described the process of cultural adaptation of the framework to the Dutch educational context.

## SWPBIS in the Netherlands

Discussing effects of SWPBIS in a country requires understanding of the cultural context. In the 2015–2016 school year, there were 6,431 elementary schools (grades 1–8, ages 4–12 years) in the Netherlands. Many elementary schools are relatively small (50% of all elementary schools have fewer than 200 students,  $M = 224$  students). The average class size in elementary school is approximately 24 students. Almost all schools are funded by the Dutch government, as long as prescriptive goals are achieved. Dutch schools are known for their high (teacher) autonomy (OECD, 2011). Every school is free to choose its curriculum and methods, achievement measures, and staff-to-student ratio. A national inspectorate monitors the quality of education in the schools. Parents are free to choose a school, and costs are minimal.

In 2009, a consortium of universities of applied sciences and youth care agencies introduced SWPBIS in the Netherlands and initiated PBIS coach training. The consortium presented several adaptations to SWPBIS procedures. As problem behavior is mostly classroom-managed and ODRs do not exist in Dutch schools, a behavior incident form was developed for the ongoing use of behavioral data. Collecting behavior incident data for preventive reasons is not common in Dutch schools. Therefore, during SWPBIS implementation, schools are usually coached on determining when, what and how to register. In 2014, a Dutch version of the Schoolwide Information System (SWIS, May et al., 2010) was introduced in the Netherlands. As openly praising students in the Netherlands is often considered “over the top”, the introduction of token economy systems initially met with some resistance from teachers (M. J. M. Nelen, Willemse, et al., 2019). However, research on the use of fidelity measures in Dutch schools showed that feedback and acknowledgement for positive student behavior was fully implemented at most schools (M. J. M. Nelen, Blonk, et al., 2020). This suggests that culturally appropriate ways of reinforcing student behavior were found (such as group awards or “thumbs up”). Finally, culturally adaptive ways of coaching were developed, taking into account the high degree of autonomy of Dutch teachers. There are currently different modalities for supporting schools in implementing SWPBIS in the Netherlands: schools

can be coached by a SWPBIS coach, networks of SWPBIS schools have arisen, and some schools have started SWPBIS without the guidance of a coach (M. J. M. Nelen, Blonk, et al., 2020). Today, SWPBIS has been implemented in approximately 350 schools (approximately 4.5% of all Dutch schools), mostly elementary schools.

## Fidelity of Implementation

Many studies have reported that implementing SWPBIS with fidelity is associated with positive school outcomes such as improvement of school climate and safety, and a decrease in behavioral problems (e.g., Bradshaw et al., 2009; Simonsen et al., 2012). Fidelity of implementation is the extent to which components of an intervention, as conceptualized in a theoretical model or manual, are implemented as intended (Schulte et al., 2009). In SWPBIS studies, fidelity has been operationalized by measuring to what extent the core features and standard procedures of SWPBIS were present in schools. Fidelity measures reflect core features and standard procedures and contain items on the SWPBIS leadership team (composition, procedures and universal screening), implementation (teaching behavioral expectations, problem behavior definitions, classroom procedures, providing students with feedback and acknowledgement, stakeholder involvement and professional development), and evaluation (collecting discipline data, data based decision making, measuring fidelity and annual evaluation). As the process of implementation can vary across schools in different countries, measuring fidelity provides information regarding the extent to which a school has succeeded in implementing core features and procedures (McIntosh et al., 2017).

Fidelity does not happen automatically: schools work hard to contextualize and implement core features and procedures. Usually, SWPBIS coaches support schools in their implementation efforts. Fixsen, Blase, Naoom, and Wallace (2009) distinguished several stages of implementation: creating readiness, initial implementation and institutionalization. Nese et al. (2019) found that most schools reached adequate implementation at Tier 1 during their second year of implementation following training. The initial years of implementation are crucial as threats like administrator or team turnover can easily lead to abandoning SWPBIS. To embed SWPBIS practices into school routines may even take three to five years (Sugai, Horner, & McIntosh, 2008). Reaching implementation early is a strong predictor of sustained implementation (McIntosh, Mercer, Nese, Strickland-Cohen, & Hoselton, 2015).

To measure fidelity of Tier 1 implementation, several instruments have been developed. The most recently developed is the Tiered Fidelity Inventory (TFI, McIntosh et al., 2017). The SWPBIS leadership team of a school completes a questionnaire, preferably with guidance by a SWPBIS coach to ensure as much objectivity as possible. The School-wide Evaluation Tool (SET, Horner et al., 2004) is another fidelity measure, mostly used in research studies because it is considered to be a more objective measure, as it is completed by an external assessor. Both instruments are valid and reliable, and assess the same construct (Mercer et al., 2017). They both result in a total score, indicating the level at which features are realized. Higher scores mean greater fidelity. When the total score meets or exceeds a criterion (e.g., 80% for the SET and 70% for the TFI),

it indicates that a school is implementing SWPBIS “with fidelity” (Mercer et al., 2017). In the present study, we used both the TFI and the SET to measure fidelity of Tier 1 implementation in Dutch schools. The TFI was chosen because it is the most recently developed and up-to-date instrument, it is brief, and it is based on the factors and features in existing validated fidelity measures. The SET was chosen to compare TFI measurements with more objective data (M. J. M. Nelen, Blonk, et al., 2020).

## School Safety

SWPBIS, when implemented with fidelity, is expected to promote safe schools, not only by reducing problem behavior or improving school climate (Horner et al., 2009), but also by enhancing schools’ organizational context (Bradshaw et al., 2009). Safe schools are pivotal for learning. According to J. Cohen, McCabe, Michelli, and Pickeral (2009), positive school climate is associated with and predictive of academic achievement, school success, effective violence prevention, students’ healthy development, and teacher retention. Nijs et al. (2014) stated that school environment is an important determinant of psychosocial function and may also be related to mental health. Kutsyruba, Klinger, and Hussain (2015) found that school climate, feelings of school attachment/connectedness and personal safety are some of the most important variables for understanding school safety.

In the Netherlands, school safety is emphasized as social safety. The Dutch Ministry of Education, Culture, and Science defined three aspects of social safety: social and physical safety of students, and social well-being. When students’ safety is not being violated by others, a school is considered to be safe (W. Nelen et al., 2018). Yearly monitoring of school safety is mandatory for Dutch schools. Although the government organizes a bi-yearly measurement of school safety, each school is free to choose an instrument for monitoring school safety. In this study, we followed the Dutch government’s definition of social safety, which we operationalized as students’ perceptions of school safety and the prevalence of behavior incidents. Social well-being is defined as the way students perceive their class, contacts with classmates, and being at school. Physical safety is defined as the absence of physical harassment (such as hurting, pushing or fighting; W. Nelen et al., 2018). Research showing that SWPBIS contributes to improved social safety has mainly been conducted in countries outside the Netherlands (for the US: e.g., Bradshaw, Mitchell, & Leaf, 2010, Canada: e.g., McIntosh, Bennett, & Price, 2011, and Norway: e.g., Sørli, & Ogden, 2015). Therefore, we wanted to explore whether these results were replicable for the Netherlands.

## Purpose of the Study

Fidelity of implementation has been associated with positive student outcomes, such as a decrease in problem behavior and an increase in social safety. To examine this, some studies have used fidelity cut-off scores (meeting or exceeding a criterion) in their analyses (e.g., Simonsen et al., 2012). Others used fidelity as both a continuous and a dichotomous variable (e.g., Bradshaw et al., 2009). The relation between changes in fidelity and changes in student outcomes has been less examined. In the Nether-

lands, to our knowledge, research to study the relation between fidelity and student outcomes has not been done before. In Dutch schools, there are also different modalities for supporting SWPBIS implementation. To examine whether the core components of SWPBIS were being implemented as intended, measuring fidelity of implementation was important. Earlier research on the use of fidelity measures in the Netherlands showed that all items displayed in the TFI and SET were present in participating schools (M. J. M. Nelen, Blonk, et al., 2020), and, therefore, these measures could be used to measure fidelity of implementation.

The number of Dutch schools implementing SWPBIS is relatively small, and in the Netherlands there is usually no (research) funding to finance the costs of implementation. Therefore, we decided to focus on elementary schools that were already implementing SWPBIS, rather than on schools that started at study onset. For 3 consecutive years, we measured fidelity of Tier 1 implementation, students' perceptions of social safety and the prevalence of behavior incidents. To determine the distribution of the multi-tiered model in participating Dutch schools, we also collected data on the percentage of students receiving additional support for their behavior.

Our research questions were:

1. *To what extent do fidelity of Tier 1 SWPBIS implementation and student outcomes (i.e., students' perceptions of social safety, the prevalence of behavior incidents, and the percentage of students receiving additional support for behavior) in Dutch elementary schools change over time?*
2. *What is the relation between SWPBIS Tier 1 fidelity of implementation and student outcomes in participating schools?*
3. *Is an increase in SWPBIS Tier 1 fidelity of implementation related to improvement in student outcomes in participating schools?*

## Method

### Participating Schools

Elementary schools implementing SWPBIS were recruited through invitations posted on Dutch SWPBIS websites, flyers distributed at the annual Dutch SWPBIS conference, and invitations sent by several SWPBIS expertise centers (mostly indirectly via SWPBIS coaches). Of 83 schools asked to participate in the 3-year study, 76 initially accepted the invitation. Of these schools, six schools declined before study onset. During data collection, four schools withdrew due to management changes or not being able to provide the data requested. In the end, 66 schools participated for all 3 years. Effect sizes for SWPBIS have been reported to vary across studies from relatively small ( $d = 0.31$ ; Simonsen et al., 2012) to very large ( $d = 2.63$ ; Bradshaw et al., 2010), and to depend on the variables assessed (Horner et al., 2009). For student outcomes, mean effect sizes are around  $d = 0.32$  (Simonsen et al., 2012), and for fidelity measures effect sizes are well above 1 ( $d$  varies between 1.08 and 2.63). Based on the smallest reported effect size (0.31), an alpha of .05 and a power of .80, a total sample size of 52 schools for a repeated measures ANOVA was considered large enough to detect significant effects.

All participating schools started implementing SWPBIS before study onset. Average duration of implementation at study onset was 22.97 months ( $SD = 16.53$  months, range 2 to 74 months). All schools received support from a trained SWPBIS coach, mainly at the beginning of the implementation process. The training contained, among others, issues such as implementing and monitoring fidelity of SWPBIS implementation. Authors had no involvement with implementing SWPBIS in participating schools. The process of implementation was not part of this study. Schools in our sample were comparable with other Dutch elementary schools in size, location, and affiliation. Twenty-five schools reported they were located in a multi-problem neighborhood. We defined this as a neighborhood where multiple problems occur, such as unemployment, violence, criminality, addiction-related problems, and health problems such as higher mortality rate and obesity (e.g., Marlet, Poort, & van Woerkens, 2009). See Table 9 for summary information about numbers of teachers, students, and classes at participating schools.

**Table 9. Descriptive data for participating schools at T1 ( $N = 66$ )**

	<i>M</i>	Min	Max	<i>SD</i>
Number of students	216	57	476	104.73
Number of teachers	17.35	6	42	8.33
Number of classes	9.29	3	19	3.97

### Procedure

**Data collection.** Data were collected for 3 consecutive years, with a focus on the first and last wave (T1 and T3), in repeated measurements of fidelity of Tier 1 implementation and student outcomes (social safety, behavior incidents, and the percentage of students receiving additional behavioral support). All data were collected between October 2015 and August 2018. In defining our measures, we stayed as close as possible to the daily practice in schools. We chose measures that were either part of SWPBIS (behavior incident form), or part of schools' obligation to collect data on social safety (social safety monitor).

Fidelity, social safety, and the percentage of students receiving additional support were measured yearly. Data on behavior incidents were collected several times per year in 10 periods of 4 weeks each. Data collection was synchronized each year. For behavior incidents and students receiving additional support, we asked schools to anonymize their data before sending them per email. Most data were at the school level, except for the social safety monitor; in that, individual student data were collected.

Schools were invited by email to subscribe to the safety monitor. In accordance with the official survey procedure, only students from grades 7 and 8 (10- to 12- year-olds) received a login code (more than 3,500 students), so they could complete the survey anonymously. The safety monitor used in this study is one of the social safety monitors officially approved by the Dutch inspectorate of education. Since monitoring social safety is prescribed by law, no parental consent for participation of students was needed. The internal review board of the research institute approved the study (ECSW 2016-2501-369). At the beginning of the school year, each school received an overview of which data were planned to be collected when. When a school did not provide the data requested, several reminder emails were sent.

## Measures

Fidelity of implementation was measured with both the TFI Tier 1 and the SET. We focused on Tier 1, because not many schools have implemented Tiers 2 and 3 yet. The TFI Tier 1 (version 2.1) has 15 questions, divided into three subscales: "Team", "Implementation", and "Evaluation" (McIntosh et al., 2017). The SET was originally designed for academic research and is completed by an external assessor (Horner et al., 2004). It has seven subscales, "Expectations defined", "Behavior expectations taught", "Reward system", "Violations system", "Monitoring and evaluation", "Management", and "District support". There are multiple items per subscale with a total of 28 items. For each subscale, the sum score is divided by the maximum score per scale. In both measures items can be scored 2 (*fully implemented*), 1 (*partially implemented*), or 0 (*not implemented*). The total score indicates the level at which features are realized in schools in percentages. A weighted score was used for the SET total score by adding all seven subscale scores (maximum score 1 per subscale), divided by 7 and multiplied by 100. For the TFI Tier 1 total score, the sum for the 15 items was divided by 30 (total possible score) and multiplied by 100.

The TFI Tier 1 was completed first, by discussing the 15 questions in order to reach consensus during a SWPBIS leadership team meeting. The meeting was guided by a SWPBIS coach, who explicitly asked for substantiation of the choices made. Prior to the meeting, the SWPBIS coach made some observations, and briefly interviewed both students and teachers about school values and behavioral expectations, and acknowledging students. Preferably, this SWPBIS coach also was (or had been) responsible for coaching the school during SWPBIS implementation. When the school did not have a SWPBIS coach to assist with completing the measurement, one was provided (approximately 14 times). Following that, the SET was completed within two weeks by a different SWPBIS professional who was not familiar with the school. This professional conducted structured interviews with the administrator, staff members and students, observed the school environment, and reviewed developed products such as school policies, SWPBIS Handbook or documents, and data systems. For example, to determine how well a school's values and accompanying behavioral expectations had been taught, the assessor studied lesson plans and asked at least 15 students and 10 staff members whether they could state the values and behavioral expectations of their school.

The TFI was completed by the same assessor every year, whereas the SET assessor varied each year. All TFI and SET assessors were familiar with SWPBIS, and were selected and trained by the first author in completing both instruments. The interrater agreement of SET assessors was moderate ( $k = .58$ ) when measured in an earlier study on the use of TFI and SET in Dutch schools (M. J. M. Nelen, Blonk, et al., 2020). That study also included data for the first fidelity measurements at T1 used in this study (66 of the 117 schools included in that study). The interrater agreement for the TFI was not calculated in that study, because scoring TFI items is based on discussions in the SWPBIS leadership team, which makes independent scoring difficult. For a more detailed description of the use of these fidelity measures in Dutch schools, see M. J. M. Nelen, Blonk, et al. (2020).

**Social safety** was measured with an online survey measuring perceptions of social safety and required interventions, and harassment (Mooij, De Wit, & Fettelaar, 2011). The survey consists of eight different topics. For example, "About school", "Feeling safe", "Being bullied" and "Being a bully." An example of a question was "Are you being bullied at school?" This question could be scored "Every day", "Every week, but not every day", "Sometimes, but not every week", "Almost never", or "No, never". At the beginning of each page, students were reminded that the questions were about the present school year. There was a maximum of 71 questions. Several questions are shown or hidden depending on the reaction of a previous question. Most questions were answered by multiple choice or a Likert scale. The number and content of the options varied depending on the question. In the survey, four dimensions of positive or negative aspects of social safety were distinguished: 1) the perception of safety at different school locations; 2) unacceptable behavior, represented by the prevalence of behavior incidents and substance abuse; 3) harassment of students; and 4) the perceived need for extra interventions to improve social safety in and around the school (W. Nelen et al., 2018). For the purpose of this study, we only used questions about students' social well-being, general feeling of safety, unsafe locations, and harassment. "Well-being" was operationalized as the average of the scores for three questions about liking one's class, number of contacts with classmates, and appreciation of these contacts (scale existing of three items, Cronbach's alpha varying from .61 in 2017 to .65 in 2016 and 2018). "General safety" was operationalized by asking students how safe they generally felt at school, on a five-point scale (single question, validated with similar questions on safety). "Unsafe locations" was operationalized by asking students if there were various locations (total of seven, e.g., classroom, hallway, playground) in or around school where they did not feel safe at any time the past year. And "Harassment" was operationalized by asking if students had been a victim of various types of harassment at any time the past year (scale existing of six items, Cronbach's alpha varying from .81 in 2016 to .97 in 2017 and 2018). Here a mean score was calculated for being bullied and/or being a victim of minor physical (e.g., hurting, pushing or fighting), social (e.g., exclusion, ignoring or threatening), material (e.g., destroying or stealing), and/or verbal (e.g., name-calling or yelling) harassment.

All data were aggregated at school level. First, answers were dichotomized (e.g., for bullying: “Almost never” and “No, never” as “0”, and “Every day”, “Every week, but not every day”, and “Sometimes, but not every week” as “1”). Next, the answers of all students were aggregated at school level. In our example of the item on bullying, this resulted in the percentage of students who stating that they were being bullied during the last school year.

**Behavior incidents.** To measure the prevalence of behavior that was not tolerated at a school, we asked schools to provide data on the number and location (in or outside class) of major and minor problem behaviors, using the schools’ data collection method. Behavior was considered an incident as it interfered (or could interfere) with daily practice in schools. Minor incidents could be resolved quickly without disturbing class, with no need for support from outside class. Examples are not following a teacher’s directions or name calling. Examples of major problem behaviors are physical violence, theft or vandalism. Most Dutch SWPBIS schools first define what particular behaviors can be considered as problem behavior (both minor and major), as this can vary across contexts. Second, each school decides what, when, and how to report. For this study, to support schools in collecting data on behavior incidents, we provided them with descriptions and examples based on the Dutch version of the SWIS. Data were recorded by means of the Dutch SWIS or Excel sheets, programmed by the Dutch SWPBIS consortium. For our analyses, we counted the total number of behavior incidents (major and minor incidents) and standardized this by calculating the average number of incidents per 100 students per day, for two intervals from the same 4-week period, at T1 and T3. For example: school A had 19 incidents over 18 school days in the 4-week period, and a total number of 128 students. This resulted in the following score:  $[(19 / 18) / 128] * 100 = 0.82$  incidents per 100 students per day.

**Additional support.** We asked schools to complete a form each year with the number of students receiving additional support for behavior. We defined it as extra arrangements for students, comparable to Tier 2 or Tier 3 interventions, including examples such as Check-In-Check-Out or an individual behavior plan with different rules for playing outside at recess. Each student could only be counted once. For each school, we calculated the percentage of students who received additional behavioral support.

**Analyses.** In our study, the school was the unit of analysis. All analyses were performed with SPSS version 20 for Windows 10. Not all schools provided all the data requested. Therefore, the number of participating schools varied across time. We focused on the first (T1) and last (T3) waves of data collection, as we had a loss of 20% of our data if we used all three waves. Comparison between T1 and T3, two years apart, would allow for more change over time to occur that could be related to fidelity of implementation. We tested whether the non-response over time (i.e., attrition) was systematic or not. We compared the scores at T1 of schools with incomplete data at T3 with the scores at T1 of schools with complete data at T3. There were no significant differences for any of the outcome variables. We therefore concluded that the non-response was random and not selective, as the two groups did not differ systematically at T1.

To answer the first research question, we used within-subjects repeated measures ANOVAs to examine how group means for Tier 1 fidelity of implementation and student outcomes changed over time. To examine the relation between fidelity of implementation and student outcomes (Research Questions 2 and 3), we used regression analyses, as is recommended for testing associations between a predictor and outcomes. We conducted 6 multiple regression analyses with SET scores at T1 as the independent variable, using student outcomes at T3 as the dependent variables. We also conducted these analyses with TFI scores as the independent variable. These analyses enabled us to determine whether the level of implementation was related to changes in student outcomes (see Table 11). Next, we performed 6 multiple regression analyses with changes in fidelity (i.e., the difference between fidelity scores at T3 and T1) scores as the independent variable, first for SET, and second for TFI, again controlling for student outcomes at T1. These results were used to study whether changes in student outcomes depended on changes in fidelity (see Table 11). As many studies have focused on the results of schools that started implementing SWPBIS at study onset, we also calculated means for both fidelity and outcome variables for the nine schools that started in August 2015, and reported on their results separately, to give an impression of their progress across 3 years.

## Results

**Relation of outcomes and fidelity.** Table 10 gives descriptive data and results of repeated measures ANOVAs, to see if student outcomes and fidelity changed over the years. Fidelity of implementation improved significantly. In addition, the percentage of students stating there were locations in or around school where they felt unsafe decreased significantly. The other variables did not change significantly, although the decrease in behavior incidents showed a small effect. For the nine schools that started implementing SWPBIS just before study onset, all means for student outcome variables improved, but the number of cases was too low to draw conclusions. As there was a considerable variation in months of SWPBIS implementation for participating schools that could have influenced the results found, we checked whether using months of implementation as a between-subjects factor in the repeated measures ANOVAs revealed any differences for student outcomes. This was not the case.

In Table 11, the multiple regression analyses with student outcomes at T3 as dependent variables and TFI and SET scores as independent variable are displayed. Whereas ANOVAs use group means, multiple regression analyses were conducted to identify patterns in individual school scores. On the first row of Table 11, the contribution of Well-being at T1 to predicting Well-being at T3 is presented, interpreted as the stability of Well-being scores. For all variables stability appeared to be low, although for two variables (Well-being and Behavior incidents) there were statistically significant  $\beta$  values. For Well-being, the  $\beta$  value was .34 ( $p < .05$ ), indicating that stability was not perfect, so there was change in students’ social well-being at individual schools. This was also the case for the number of behavior incidents ( $\beta = .51$ ). On the next two rows, we controlled for the level of fidelity. We saw no effect of the predictors SET or TFI at

T1 on Well-being at T3, nor on any other variable. On the fourth row, the interaction effects are presented. The effects displayed in the third and fourth column, indicate the extent to which the stability depended on the level of the SET or TFI score. For none of the variables, the interaction effect was statistically significant.

We repeated these analyses using *changes* in fidelity scores instead of level of fidelity. Again, Well-being changed from T1 to T3 ( $\beta = .49, p < .01$ ). In contrast to the result for the absolute level of fidelity, the effect of the interaction on Well-being at T3 was significant ( $\beta = .51, p < .01$ ). This indicates that the change in students' social well-being depended on the changes in fidelity. Behavior incidents showed a similar, though slightly different pattern: a significant change in the number of behavior incidents occurred, which was predicted by the change in fidelity ( $\beta = .27, p < .05$ ). Other variables did not show significant changes.

For the TFI, results were similar. Well-being and Behavior incidents changed significantly. Other variables did not show significant change. TFI total scores were not related with student outcomes at T3. Changes in Well-being were significantly related to changes in TFI scores, indicating that students' social well-being increased at schools with increasing levels of implementation fidelity. In contrast to the SET, there was no significant relation between Behavior incidents and changes in TFI scores, indicating that the number of behavior incidents did not decrease at schools with increasing levels of fidelity.

**Table 10. Repeated measures ANOVAs: change over time**

	Number of schools	$M_{T1}$	$SD_{T1}$	$M_{T3}$	$SD_{T3}$	$M_{T3-T1}$	95 % confidence interval of the difference		$p$	Cohen's $d$
							lower	upper		
TFI	66	57.48 <sup>a</sup>	20.97	82.83	15.54	25.35	19.84	30.87	.00	1.13
SET	66	68.56 <sup>a</sup>	16.99	84.29	11.06	15.73	11.32	20.15	.00	0.88
Well-being	39	84.38 <sup>b</sup>	8.77	85.97	7.63	1.59	-1.53	4.71	.31	0.17
General safety	39	85.47 <sup>c</sup>	8.17	86.21	5.73	0.748	-2.39	3.88	.63	0.08
Unsafe location	39	25.31 <sup>d</sup>	10.06	20.61	9.75	-4.70	-8.46	-0.93	.02	-0.41
Harassment	39	32.27 <sup>e</sup>	10.03	30.18	10.14	-2.09	-6.89	2.70	.38	-0.14
Additional support	38	4.17 <sup>f</sup>	2.70	3.83	2.33	-0.34	-7.66	3.25	.52	-0.13
Behavior incidents	42	1.61 <sup>g</sup>	1.65	1.23	1.32	-0.37	-0.84	0.09	.11	-0.25

**Note:** <sup>a</sup> Total score, meaning the percentage of realized SWPBIS features. <sup>b</sup> The average score of liking ones class, contact with classmates, appreciation of these contacts, and liking being at school, in percentages. <sup>c</sup> The percentage of students stating they generally felt safe. <sup>d</sup> The percentage of students stating there were various locations in and around school where they not felt safe at any time the past year. <sup>e</sup> The percentage of students stating they had been a victim of various types of harassment at any time the past year. <sup>f</sup> The percentage of students receiving additional behavioral support. <sup>g</sup> Incidents per 100 students per day.

**Table 11. Regression analyses with student outcomes at T3 as dependent variables**

	Level of fidelity					Change in fidelity			
	B SET	$\beta$ SET	B TFI	$\beta$ TFI		B SET	$\beta$ SET	B TFI	$\beta$ TFI
<b>Well-being T1</b>	.30*	.34*	.28*	.32	<b>Well-being T1</b>	.43**	.49**	.37*	.42
SET T1	-.10	-.21			$\Delta$ SET (T3-T1)	.08	.20		
TFI T1			-.07	-.19	$\Delta$ TFI (T3-T1)			.09	.28
Interaction T1 <sup>b</sup>	.01	.11	.01	.25	Interaction T1 <sup>c</sup>	.02**	.51**	.01*	.37
<b>General safety T1</b>	.04	.06	.04	.06	<b>Well-being T1</b>	-.00	-.01	.02	.03
SET T1	.01	.02			$\Delta$ SET (T3-T1)	.00	.01		
TFI T1			-.02	-.06	$\Delta$ TFI (T3-T1)			.02	.08
Interaction T1 <sup>b</sup>	-.01	-.24	-.00	-.02	Interaction T1 <sup>c</sup>	.01 <sup>a</sup>	.29 <sup>a</sup>	.00	.10
<b>Unsafe location T1</b>	.27	.28	.28 <sup>a</sup>	.29	<b>Unsafe location T1</b>	.31 <sup>a</sup>	.32 <sup>a</sup>	.31 <sup>a</sup>	.32
SET T1	.07	.12			$\Delta$ SET (T3-T1)	-.03	-.06		
TFI T1			.06	.15	$\Delta$ TFI (T3-T1)			-.04	-.10
Interaction T1 <sup>b</sup>	.00	.05	.00	.06	Interaction T1 <sup>c</sup>	-.00	-.00	.00	.04

	Level of fidelity					Change in fidelity			
	B SET	$\beta$ SET	B TFI	$\beta$ TFI		B SET	$\beta$ SET	B TFI	$\beta$ TFI
<b>Harassment T1</b>	-.07	-.07	-.13	-.13	<b>Harassment T1</b>	-.08	-.08	-.08	-.08
SET T1	.05	.08			$\Delta$ SET (T3-T1)	-.03	-.06		
TFI T1			.06	.14	$\Delta$ TFI (T3-T1)			-.05	-.12
Interaction T1 <sup>b</sup>	-.01	-.08	.01	.19	Interaction T1 <sup>c</sup>	.00	.03	.00	.04
<b>Additional support T1</b>	.18	.21	.18	.21	<b>Additional support T1</b>	.16	.19	.15	.18
SET T1	.02	.12			$\Delta$ SET (T3-T1)	-.01	-.04		
TFI T1			.03 <sup>a</sup>	.28	$\Delta$ TFI (T3-T1)			-.01	-.10
Interaction T1 <sup>b</sup>	-.10	-.22	-.01	-.22	Interaction T1 <sup>c</sup>	.01	.10	.00	.03
<b>Behavior incidents T1</b>	.41**	.51**	.51**	.64	<b>Behavior incidents T1</b>	.45**	.57**	.41**	.51
SET T1	-.02 <sup>a</sup>	-.24 <sup>a</sup>			$\Delta$ SET (T3-T1)	.02*	.27*		
TFI T1			.00	.02	$\Delta$ TFI (T3-T1)			.01	.14
Interaction T1 <sup>b</sup>	-.02	-.20	.01 <sup>a</sup>	.27	Interaction T1 <sup>c</sup>	.01	.14	-.00	-.06

\* p < .05; \*\* p < .01; <sup>a</sup> .05 < p < .1; <sup>b</sup> SET or TFI at T1 x student outcome variable T1. <sup>c</sup>  $\Delta$ SET or  $\Delta$ TFI at T1 x student outcome variable.

## Discussion

Little is known about the effects of implementing SWPBIS Tier 1 in the Netherlands. In this longitudinal study, we examined to what extent fidelity of SWPBIS implementation at Tier 1 in Dutch elementary schools was related to students' perceptions of social safety, the prevalence of behavior incidents, and the percentage of students receiving additional support for behavior, over 3 years. Our findings showed that fidelity scores, measured with both TFI and SET, and the percentage of students stating there were unsafe locations in and around school improved significantly from the first year to the third year. Students' well-being, general feelings of safety, harassment, behavior incidents, and students receiving additional support did not change significantly, though means scores of these variables headed in a similar, positive direction. We conducted two different analyses: the ANOVA repeated measures analyses (Table 10) were used to measure change over time in group means for fidelity and outcome variables. And second, we conducted regression analyses (Table 11) to detect patterns in individual school scores, controlling both for fidelity and change in fidelity. The ANOVA repeated measures showed a decrease in unsafe locations in and around schools, suggesting that students perceived their school as a more safe place to be. The regression analyses showed a decrease in behavior incidents, and an increase of student well-being. One could argue that these findings indicate that students increasingly perceived school as a safe place.

Although many studies (e.g., Simonsen et al., 2012) have shown that fidelity of implementation is crucial for achieving positive outcomes, in our study, a strong, unambiguous relation between fidelity and student outcomes was not found. Changes in fidelity were related to an increase in students' social well-being and a decrease in the number of behavior incidents, indicating that if a school strongly improved on fidelity of implementation, positive outcomes for social well-being and behavioral incidents were also likely to be seen. However, these results need to be carefully interpreted due to the absence of a control group. Other factors could also have influenced the changes found, such as maturation or staff turn-over.

Most likely, the composition of the sample influenced the results found. Most schools were already implementing SWPBIS, except nine schools that started one month before study onset. Nese et al. (2019) stated that the average period for elementary schools to reach adequate implementation was 2 years. In our sample, 36% of schools had implemented SWPBIS for more than 2 years at study onset. Bradshaw et al. (2009) saw organizational changes reaching significance at the end of year 3 (21% of the schools in our sample at study onset). These findings suggest that positive effects could already have been established in participating schools before the study started. This may be the reason why we did not see significant changes in most student outcomes, although we cannot be sure, as there were no pre-SWPBIS data (for both fidelity and student outcomes) available for these schools. For the nine schools that just had started implementing SWPBIS at study onset, we saw student outcomes improving over time, but the number of such starting schools was too small to draw solid conclusions from those data.

In our study, student outcome results were compared for a three-year interval. Every year, student population changes due to students entering and leaving school. Thus the group of students in Year 1 (T1) was not the same as the group of students in Year 3 (T3). However, in our study, not the individual student, but the school was the unit of analysis. As data from large groups of students were aggregated at school level, these changes in student population are not likely to have significantly affected the outcomes of this study.

Reflecting on the outcomes of this study, another phenomenon that needs to be considered is a ceiling effect. Dutch schools perform relatively well. Most elementary students (94–97% in 2010–2018) and teachers (94–96%) feel safe at school, and not many major violent incidents occur (W. Nelen et al., 2018). In our study, at baseline (T1), students' social well-being was good and 86% of students generally felt safe at school. These figures seemed to leave not much room for improvement. However, creating safe schools remains important. For example, a 1% increase in social well-being or general feeling of safety would positively affect the life of more than 15,000 Dutch elementary students, which would make the effort of implementing SWPBIS worthwhile.

## Limitations and Future Directions

For the first time, implementation of SWPBIS in Dutch schools was systematically examined in an exploratory study. Approximately 19% of all Dutch SWPBIS elementary schools participated. Several limitations should be noted. Despite multiple efforts, no control group could be assembled. Free lectures on data-based decision making were offered, but non-SWPBIS schools saw no gain in participating in a 3-year study. As a result, data from SWPBIS schools could not be compared with data from non-SWPBIS schools. Another research design often used, a pretest-posttest design, was also not an option, because all schools had already begun implementing SWPBIS at study onset. Instead, over a period of 3 years, we collected data on fidelity of implementation and student outcomes in 66 elementary schools that were implementing SWPBIS. For student outcomes, approximately 58% of participating schools succeeded in providing the data requested. This presented us with a *fait accompli* of 42% missing data for student outcomes. For fidelity of implementation, the first author organized the data collection, and there were no data missing. Although we accounted for the missing data by examining if missing data were selective or not, and, based on this analysis, could conclude that the nonresponse was random and not selective, the large proportion of missing data negatively affected the power of our analyses. We carefully chose our outcome measures, reminded schools via email to send in their data, and provided them with examples. Still, this type of research seems to be demanding for schools when data collection is not facilitated by researchers (Veerman, Hendriks, van Huijgevoort, Blonk, & Dollevoet, 2019).

Another limitation that needs to be addressed is the use of behavior incidents data in this study. First, although data-driven decision making is a distinct critical feature of SWPBIS, many Dutch SWPBIS schools struggle with collecting data on behavior incidents (M. J. M. Nelen, Blonk, et al., 2020). Using prevalence or type of behavior incident

data to develop preventive interventions was relatively new to them. Thirty percent of participating schools did not collect data on behavior incidents. Second, schools used different methods to collect data on behavior incidents. Therefore, we asked schools only to provide data on the number and location (in or outside class) of major and minor problem behaviors. In this study, we could not support schools in collecting behavior incidents data, other than providing them with examples each time we asked for their data. Third, reaching team agreement on what kind of incidents to log, and when and how to record them is hard to achieve in daily practice and often subject to fluctuations. Thus, it is unknown whether there was consistency in data collection within schools from one year to the next. Since this also applies for schools collecting data on ODRs, as reported in large effect studies such as Bradshaw et al. (2010), we considered behavior incidents to be a similar—but not identical—outcome measure. And last, the findings for the number of behavior incidents could also have been influenced by the fact that we counted both major and minor incidents. According to Vincent, Horner, and May (2009), minor incidents often are not consistently reported. In U.S. research, usually only major incidents are taken into account. However, the analyses we performed were the best fit for the current situation in Dutch schools. As more and more Dutch schools start using the SWIS, this will ease analyzing behavioral data in future research.

In the Netherlands, several modalities exist for supporting schools in implementing SWPBIS. It is possible that student outcomes will vary depending on what kind of support a school receives. In our analyses, we could not use different forms of support as a covariate, because support was subject to many changes. Some schools received support from a SWPBIS coach all the time and others only at the beginning, schools changed coaches, or schools started with a SWPBIS coach and switched to network support. In future research this information should be collected and taken into account.

Despite these limitations, this study opened the way for further research and building of evidence regarding the use of SWPBIS in the Netherlands. According to Horner et al. (2010), documenting the evidence base for SWPBIS is complex, as it is a “large constellation of systems and practices” (p. 5). Implementing SWPBIS is considered to be a school development process, with many factors influencing the outcomes. If SWPBIS alters school organizations (Bradshaw et al., 2009), it is most likely that it also affects the faith a school community has in their ability to change for the better. Most likely, implementing SWPBIS establishes a kind of “school efficacy”, and this growing faith also contributes to achieving positive outcomes.

## Conclusions and Implications for Practice

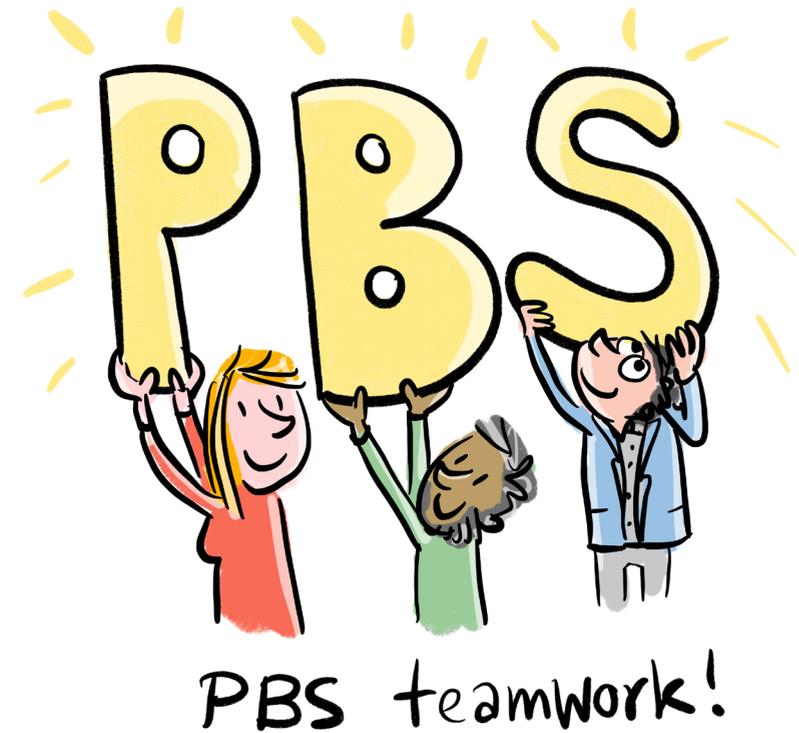
In an exploratory longitudinal study on effects of SWPBIS implementation in 66 Dutch elementary schools, a significant increase in fidelity scores, and a significant decline in the percentage of students stating there were unsafe locations in and around school were found. Changes in fidelity were related to an increase in students’ social well-being and a decrease in the number of behavior incidents, indicating that if a school strongly improved on fidelity of implementation, positive outcomes for social well-being and behavior incidents were also likely to be seen. These results imply that taking care to implement SWPBIS with fidelity is important. For schools starting to implement SWPBIS, working on fidelity can make a change in achieving positive student outcomes. For schools that have already reached an acceptable level of implementation, sustaining fidelity can contribute to the continuation of positive student outcomes. In our study, schools highly valued the yearly measurement of fidelity. Fidelity instruments serve multiple purposes (McIntosh et al., 2017). Together with a SWPBIS coach (e.g., a school psychologist), school leadership teams can obtain a clear overview of what core features of SWPBIS they have already realized, and what is yet to be done toward full implementation. As TFI measurements come with an action planning tool, schools can learn to use their data to identify needs for improvement in their systems. Measuring and analyzing student outcomes systematically can provide schools with information on their output. Fidelity therefore has important links with practice on many levels.

Chapter 5.

**General**

**conclusion and**

**discussion**



### Introduction

SWPBIS is a schoolwide approach to support schools in creating safe learning environments for all students in a multi-tiered system of support (Sugai & Horner, 2009). Originally, SWPBIS is developed in the US and introduced in the Netherlands in 2009. In order to make this U.S. approach fit the Dutch educational context, it was necessary to make several adaptations to SWPBIS. Apart from cultural adaptation, or more specific, contextual fit (modifying the schoolwide approach to fit the context of the school, McIntosh et al., 2010), fidelity of implementation is also crucial to achieve positive outcomes (e.g., Simonsen et al., 2012). The main objectives of this dissertation were threefold: (1) examining the cultural adaptation of SWPBIS to the Dutch educational context;

(2) describing fidelity of implementation of SWPBIS in Dutch schools; and (3) exploring the relation between fidelity of implementation and student outcomes at school level.

The general research questions were:

1. *How was SWPBIS modified to fit the Dutch educational context?;*
2. *To what extent is SWPBIS implemented with fidelity in Dutch schools?;* and
3. *What is the relation between fidelity of implementation and student outcomes (i.e., social safety, behavior incidents, additional behavioral support) in in Dutch elementary schools?*

In order to answer these research questions, this concluding chapter provides the main findings of each separate study followed by the general, overarching conclusions. It subsequently presents a critical reflection on three main topics: contextual fit, fidelity and results of SWPBIS. As we also collected data on comprehensive reading and mathematics in our 3-year study, a separate paragraph is devoted to the relation between SWPBIS and academic outcomes, using the school as the unit of analysis. Next, limitations and methodological considerations are discussed. Chapter 5 concludes with the scientific contribution of this dissertation as well as practical implications for various stakeholders.

## Summary of main conclusions

### Cultural adaptation: perceptions of Dutch SWPBIS experts (Chapter 2)

In the first qualitative, explorative study, Dutch experts reflected on the core features and standard procedures of SWPBIS in the Netherlands. The consultation of these experts showed that cultural adaptation was merely about adjusting certain procedures. All experts defined the five key features of SWPBIS: (1) Schoolwide approach based on shared values; (2) Prevention (including a multi-tiered system of support, and consistent response to problem behaviors); (3) Teaching expectations and acknowledging positive behavior; (4) Data-driven decision making; and (5) Partnership with parents and cooperation with stakeholders. Procedures that were adjusted to the Dutch educational context (lesson plans, ways of responding to problem behavior, collecting data, and procedures to involve students, parents, and professional partners outside education) were recognized and agreed on by most experts. Although initially, the use of token economy systems met with some resistance in the Netherlands, all experts involved in this study agreed on the fact that acknowledging student behavior was an important core feature of SWPBIS. The acceptance of a schoolwide approach, such as SWPBIS, is linked to the personal beliefs, values and motivation of teachers, which are all grounded in one's own historical and cultural background. SWPBIS reflects important aspects of U.S. culture, and therefore underlying values need to be taken into account when adapting SWPBIS to another country, as they can hinder staff buy-in. Overall can be concluded that core features of SWPBIS seemed to be quite consistent across cultures, but adaptations in procedures were necessary.

### Fidelity in Dutch schools (Chapter 3)

The second, descriptive study focused on measuring fidelity in 117 Dutch schools. Due to the broad variety in implementation strategies and the autonomy of Dutch schools and coaches, which could lead to a less rigorous application of the approach nationwide, it was not clear which core features and standard procedures were present in schools. Results showed that all core features and standard procedures were partially or fully implemented. Most participating schools appeared to have leadership teams, and expectations were taught. Most schools had a reward system for acknowledging student behavior fully implemented. Teams had been trained, and discipline data collected. In most participating schools, SWPBIS classroom procedures were present to some extent. Compared to other features, annual evaluation, data-based decision making and stakeholder involvement were less well implemented. The data in this study showed that the TFI and SET could be modified to fit Dutch culture without weakening the psychometric properties of the instruments. This allows comparisons of fidelity scores across cultural contexts. Adaptations in procedures and cultural adaptive coaching to align SWPBIS with the Dutch educational context did not seem to interfere with fidelity of implementation of Tier 1.

### Relation between fidelity and behavioral student outcomes (Chapter 4)

The third, exploratory, longitudinal study examined the relation between fidelity of SWPBIS implementation and behavioral student outcomes in 66 Dutch elementary schools. For 3 consecutive years, data on social safety (consisting of students' social well-being, general feeling of safety, harassment, prevalence of unsafe locations in and around schools) additional behavioral support, and behavior incidents were collected. Yearly, fidelity was measured with the TFI and SET. Fidelity scores, measured with both TFI and SET, and the percentage of students stating there were unsafe locations in and around school improved significantly from the first year to the third year. Changes in fidelity were related to an increase in students' social well-being and a decrease in the number of behavior incidents, indicating that if a school strongly improved on fidelity of implementation, positive outcomes for social well-being and behavioral incidents were likely to be seen. However, these results need to be carefully interpreted due to the absence of a control group to compare the results found with. Most likely, the composition of the sample influenced the results found. As most schools started implementing SWPBIS before study onset, positive effects could already have been established in participating schools before the study started. Also a ceiling effect could have occurred. At baseline, students' social well-being was good and 86% of students generally felt safe at school, leaving not much room for improvement.

## Main conclusions

At the introduction of SWPBIS to the Netherlands, a consortium of cooperating partners was responsible for modifying SWPBIS to the Dutch educational context. Core features remained intact and several procedures were adapted. TFI and SET measurements in 117 schools showed that all SWPBIS core features and standard procedures were present. Adaptations in procedures did not seem to interfere with fidelity of implementation. In a longitudinal study in 66 Dutch elementary schools, a significant increase in fidelity scores, and a significant decline in the percentage of students stating there were unsafe locations in and around school were found. Changes in fidelity were related to an increase in students' social well-being and a decrease in the number of behavior incidents, indicating that if a school strongly improved on fidelity of implementation, positive outcomes for social well-being and behavior incidents were also likely to be seen.

## Discussion

### Contextual fit

In Chapter 2 we concluded that the transfer and adoption of SWPBIS from the US to the Netherlands is more than just translating core features and procedures. Many scholars argued that modifying SWPBIS to the context of the school is crucial for achieving outcomes valued by the school (e.g., McIntosh et al., 2010). Adjusting SWPBIS to another country with different values, systems and practices seems to take contextual fit one step further, taking into account not only differences within culture but also between cultures. Education has, apart from qualification and socialization purposes, a social mission, defined by the cultural context and period in history in which education takes place (e.g., Leeman & Wardekker, 2004; onderwijs, 2020; Onderwijsraad, 2016, 2018).

SWPBIS is not an aim in itself: It is an approach to achieve goals and, consequently, valued outcomes, that are set by the school that is implementing SWPBIS. The social mission of education most likely influences the goals a school wants to achieve. For example, in the Netherlands, "citizenship" is a core goal of education, meaning that the school is responsible to support students in becoming autonomous and social responsible participants in Dutch society and to focus on social integration. This means, among other things, respectful behavior towards generally accepted values and norms, and towards cultural and sexual diversity in Dutch society (OCW, 2020). Citizenship education can have different aims: adaptation, individual development or a critical democratic attitude (Veugelers, 2020). Dutch schools have some autonomy in choosing their own interpretation of citizenship education. SWPBIS can contribute to citizenship education in several ways: by creating safe schools where all students are accepted for who they are; by exploring schools' core values at the start of SWPBIS with both educators, students, and parents, within the context of the prescribed goals set by the Dutch government and the schools' social mission; and by translating these

values into behavioral expectations for all participants in the community of the school. Also, SWPBIS practices can contribute to acquire competencies. For example, by installing SWPBIS kids teams, students can practice principles of democracy in school.

When selecting an approach to realize schools' social mission and socialization goals, each school should carefully consider if the strategies and interventions connected to the approach chosen, match their pedagogical vision. SWPBIS itself does not contain a pedagogical vision, it stimulates schools to define what is important to them and, accordingly, set goals. A next step in adapting SWPBIS to the Dutch context can be verbalizing more explicitly a pedagogical<sup>5</sup> vision by integrating SWPBIS with citizenship education. To support students in becoming autonomous and responsible citizens, a school should focus on developing students' social competencies, and critical reflecting attitudes of both teachers and students (M. J. M. Nelen, 2010). A school with pedagogical quality needs teachers (a) who reflect on their actions; (b) who know what interventions can be used when and for whom, preferably theory-informed and based on relevant data; (c) that stimulate students to reflect on their behavior; and (d) that support the development of social competencies, not just by modelling and teaching expectations, but also by teaching their students to critically reflect on their own behavior in relation to others (Leeman & Wardekker, 2004).

Cultural adaptation of SWPBIS, as described in Chapter 2, is an ongoing process, resulting from new insights and responding to recent developments. The crux is to align these insights and developments with SWPBIS by exploring how it fits with core features and standard procedures of SWPBIS, in order not to jeopardize fidelity of implementation. For example, currently in the Netherlands, an integration of SWPBIS with social emotional learning (SEL) strategies can be seen. SEL can be defined as the process through which children understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). SEL strategies can also contribute to citizenship education as described above.

In Chapter 2, the importance of staff buy-in needed for successful implementation is described. Many educators seemed to have negative associations with the behavioral foundation of SWPBIS, often based on a lack of understanding or knowledge about theory and practices of behavioral theory in education. In this light, it was striking to find in Study 2 that the use of token economy systems in many participating schools was fully implemented (Chapter 3). A thorough exploration of underlying theories in combination with a more explicit pedagogical vision of SWPBIS could contribute in achieving staff buy-in in Dutch schools. Although many studies showed that SWPBIS is related to positive effects, such as a decrease of problem behavior or enlargement of teacher efficacy (Horner et al., 2010), these results are not enough for most educators to embrace SWPBIS. As implementation can take two to four years, teachers, administrators and other school staff need to know what they are getting into, and how SWPBIS can serve the goals they consider important. When SWPBIS is being considered for adoption outside the US, adding a step to the process of SWPBIS implemen-

<sup>5</sup> "Pedagogy" as a human science of the child's upbringing, as it is used in the Netherlands ("pedagogiek"), Germany and other European countries, not as a method as it is often referred to in English-language literature (Ponte & Ax, 2009).

tation could be considered, in which the theoretical foundations, pedagogical vision, school values and core features are overtly defined and discussed.

## Fidelity of implementation

Chapter 3 highlights that cultural adaptation and contextual fit are strongly connected to fidelity of implementation. Not only as the tension between fidelity and fit (Castro et al., 2004), but also because, for sustainable use of SWPBIS, implementation efforts should align with changes in the context of the school. For example, if the school population changes, other goals might be needed to be set. Or if another initiative emerges, the school needs to reconsider how to align this initiative with SWPBIS, as is inherent to school development processes. Also, changes in school capacity (e.g., attrition of school personnel) or outcomes need to be considered. Regular measurement of fidelity of implementation can be helpful to identify barriers and adjust SWPBIS to the current situation.

Measuring fidelity of implementation was not common practice in Dutch schools. Fidelity measurements serve several goals: (1) to assess which core features of SWPBIS are present in school and what needs to be done to achieve full implementation; and (2) to assess sustainability of implementation by comparing results with earlier measurements. By participating in this project, both schools and SWPBIS coaches learned to assess fidelity. Based on fidelity outcomes, SWPBIS coaches supported schools in drawing an action plan. As a result, for 3 consecutive years, all participating schools yearly received an objective overview of the current situation of SWPBIS in their school including an action plan that gave direction to their future activities. In this way, research activities contributed to improving school practices. A next step for schools is combining yearly fidelity measurements with an analysis of school outcomes to provide insight in the effectiveness of the schools' actions.

The results of Study 3 (Chapter 4) indicated that implementation speed can be relevant for achieving positive outcomes, as changes in fidelity were related to an increase in students' social well-being and a decrease in the number of behavior incidents. This is endorsed by McIntosh et al. (2010) who found that speed of initial implementation was related to positive outcomes and a significant, although small, predictor of sustained implementation. In a systematic review, Yeung et al. (2016) found the following factors to be influential for sustainability: administrator support, professional development, and fidelity of implementation at classroom level. In our second study (Chapter 3), professional development was fully implemented in 40% of participating schools; in 33% of participating schools SWPBS practices were fully implemented in class. To achieve a high level of implementation in a short period of time, a lot needs to be done by the school team, asking for adequate high quality professional development, administrator support for the school team and technical assistance. Fidelity measurements can give direction to what needs to be done.

## Effects of SWPBIS

**School safety.** In our third study (Chapter 4), a decrease of students stating there are unsafe locations in or around schools was found. Changes in fidelity were related to an increase in students' well-being and a decrease in behavior incidents. Although these results need to be carefully interpreted due to an absence of a control group, the large number of missing data, and the composition of the sample, these results seem to indicate that SWPBIS positively contributes to improving school safety in Dutch elementary schools. The Health Behaviour in School-aged Children (HBSC) study showed that Dutch students are among the happiest students in the world. In this comparative study among young people (11-16 years) in 48 countries across Europe and North America, Dutch youth rated their own health and well-being very positively (HBSC, 2017). Notwithstanding the fact that Dutch young people are very happy with their social relations<sup>6</sup>, in recent years, there is much attention for social safety in Dutch schools, more specific for anti-bullying programs. Working on establishing (or maintaining) safe schools remains important. In Dutch schools, "Be safe" is often chosen by schools as one of their core values, although one could argue that safety is more a precondition for learning than a core value. Also, teachers indicated that working with students with problem behavior is one of the most challenging parts of their work (Goei & Kleijnen, 2009). This endorses the importance of providing teachers and schools with tools to handle problem behavior and creating safe learning environments.

**Behavior incidents.** Data-based decision making is one of the core features of SWPBIS. McIntosh, Mercer, et al. (2013) found that team use of data was not only one of the factors related to sustained implementation but also an independent predictor for sustainability. Team use of data in SWPBIS contains regular fidelity measurements and collecting behavioral data, such as behavior incidents. Results from TFI measurements in Study 2 (Chapter 3) showed that team use of data was hard for participating schools: in approximately 30% of participating schools several TFI items were not implemented at all: in 27% of participating schools for collecting data on behavior incidents; 34% for data-driven decision making, 22% for fidelity measurements, and 38% for annual evaluation.

Contrary to the collection of data on academic achievements, collection of behavior incidents for preventive purposes is not standard procedure in Dutch schools. Usually, only major incidents are reported (obligation by law used as tracking record), and most schools have a system to collect data on students' social-emotional development. Schildkamp, Poortman, and Handelzalts (2016) stated that many schools make little productive use of data, gather almost no systematic data, and have very little training or opportunity to gain practical experience in using data for decision making. The majority of decisions in schools are based on intuition or experience, according to Schildkamp et al. (2016).

In SWPBIS behavioral data are used (a) to identify what preventive interventions are needed for all students; (b) to identify students that need additional support; (c) to evaluate the effects of the interventions (Blonk, 2013). In the Netherlands, some

<sup>6</sup> [www.youthpolicy.nl/en/Introduction-to-Dutch-youth-policy/Facts-and-Figures](http://www.youthpolicy.nl/en/Introduction-to-Dutch-youth-policy/Facts-and-Figures)

SWPBIS schools use the concept of data-based addressing of challenging educational situations (Wichers-Bots & Das 2015). In this procedure SWPBIS leadership teams first identify the situation that is considered to be challenging for teachers. Next steps are to (2) analyze relevant data; (3) decide whether to execute an intervention or not; (4) study what interventions were executed in similar situations and their results; (5) design and execute a suitable intervention; (6) check if everyone has done what was agreed upon; and (7) evaluate the outcomes. All steps are related to the school values and executed to achieve the goals the school has set. In our longitudinal study (Chapter 4), 30% of participating schools did not collect behavioral data at all, despite the fact that this is considered to be a core feature of SWPBIS.

Based on the high number of schools not collecting any behavioral data, and consistent with the findings of Schildkamp et al. (2016), one could argue that schools need more coaching in how to use these kinds of data for data-based decision making. Apparently, the support offered to schools during the implementation process was not sufficient enough to establish a culture shift in schools. To further develop data-based decision making by schools, adequate professional development, administrator support, and technical assistance is needed, and educators need to be facilitated in time and technology. In the Netherlands, the number of schools working with SWIS (Schoolwide Information System, a SWPBIS related tool to collect and analyze data on behavior incidents), is increasing. SWIS always starts with a training for educators in how to collect and analyze data on behavior incidents. Hopefully, when educators are supported in how to use behavioral data, and experience the value of data-based decision making related to school values and the goals that are set by the school, educators are more likely to use data to improve their practices.

**Additional support.** The logic of a multi-tiered system of supports is that in every school setting, approximately 20% of students need additional support (i.e., 15% of students need a Tier 2 intervention and 5% need Tier 3 interventions). One of the hypotheses of Study 3 was that if schools succeeded in implementing Tier 1 interventions that fit the context, fewer students would need additional support. However, based on the data we collected we could not draw solid conclusions. The percentage of students receiving additional behavioral support was always smaller than 5%. More research is needed to find out if the number of students needing additional support will decrease if Tier 1 is implemented with fidelity.

**Academic outcomes.** For Study 3, apart from behavioral data, also student outcome data on academic achievements have been collected to study the relation between SWPBIS and comprehensive reading and mathematics. Due to methodological problems, these data were not included in this dissertation and have been omitted from the research questions. In this paragraph, a short reflection on the relation between SWPBIS and academic achievements, the methodological issues we faced, and the lessons learned are described. In Appendix A, the data on the relation between SWPBIS fidelity and academic achievements are presented.

By implementing SWPBIS school safety most likely increases, and safety is a precondition for learning. Regarding the relation between SWPBIS and academic outcomes, the underlying assumption is that improving social behavior and reducing problem behavior allows students to spend more time in class, increases access to academic instruction, and provides greater opportunity for academic success (Gage, Sugai, Lewis, & Brzozowy, 2015). However, according to Scott, Gage, Hirn, Lingo, and Burt (2019) the evidence for improved academic outcomes as a result of SWPBIS implementation is limited and sometimes even contradictory. Early studies described improvements in reading (e.g., Horner et al., 2009) when schools implement SWPBIS with fidelity. Simonsen et al. (2012) showed that fidelity was associated with improved outcomes for mathematics. Gage, Leite, Childs, and Kincaid (2017) found that schools implementing with fidelity had more students at or above grade-level benchmarks for reading and mathematics. Kim, McIntosh, Mercer, and Nese (2018) found that mathematics was, but reading was not related to SWPBIS fidelity. Based on a comprehensive literature review and longitudinal state level analysis of 936 Connecticut schools, Gage et al. (2015) concluded that there was little to no relationship between SWPBIS alone and school-level academic achievement. Recently, Lee and Gage (2020) updated prior literature reviews on effects of SWPBIS on school, educator, and student outcomes by including both peer reviewed studies and dissertations, and conducting a meta-analysis of effects sizes. Thirteen studies reported on results for academic outcomes. When aggregating effect sizes, Lee and Gage (2020) found higher levels of average academic achievement in SWPBIS schools; however, not all individual studies reported improved academic achievement. Within a SWPBIS framework, educators teach social and emotional skills that facilitate learning (e.g., academic engagement), and students may have increased access to learning; however, SWPBIS does not directly improve academic instruction (Gage et al., 2015; McIntosh et al., 2013). Although engagement is a key factor for learning, and safe schools are pivotal for learning, still, high quality instruction is needed to improve learning (Scott et al., 2019).

In the Netherlands, no research has yet been done on the relation between SWPBIS and academic achievements. To fill this gap in literature, we tried to build evidence by collecting data on academic outcomes. Most Dutch elementary schools collect data for comprehensive reading and mathematics twice a year (in January and June) using standardized tests developed by a national testing organization, Cito ([www.cito.com](http://www.cito.com)), called LOVS (a Dutch acronym for a system for following students' learning outcomes, Sanders et al., 2017). In Grade 8, the June measurement is a final test ("eindtoets") before leaving elementary school. For *reading*, decoding, vocabulary, analyzing grammatical structures, reading strategies, metacognitive knowledge, text structure, prior knowledge of text content, and motivation are measured. For *mathematics*, both arithmetic fluency (i.e., fluency of addition, subtraction, multiplication and division operations) and mathematical problem-solving (i.e., solving problems presented in mathematical notation or problems presented in a textual and/or visual pictured contexts) are measured. As reading and mathematical skills increase over the years, tests are adjusted to norm-referenced expected level of achievement with each measurement, so-called *skill scores* (Hollenberg & Veerbeek, 2014). In our study we used aggregated grade-level skill scores.

For three consecutive years, we asked participating schools ( $N = 66$ ) to send us their aggregated grade-level skill scores for comprehensive reading and mathematics. As most schools in the Netherlands use LOVS to monitor their students' academic achievements, we expected this to be relatively easy for schools. However, we experienced many challenges. First, despite a manual sent to schools instructing them how to extract group skill data from their student tracking system, and several reminder emails, only a few schools succeeded in sending us the group skill data for all three years we needed for our analyses. Second, during our study, Cito launched a new version of LOVS. Schools responded differently: some schools switched versions for the entire school, other schools used both versions, fading out the oldest version. Group skill data from both versions were not comparable. As a result, we had a large number of incommensurable and missing data. Consequently, the data for comprehensive reading and mathematics were not of sufficient quality and quantity for exploring the relation between SWPBIS fidelity and academic outcomes in Dutch elementary schools. Therefore, we were not able to conduct this part of the study as we had planned.

## Limitations

This research study was, to our knowledge, the first scientific study of the cultural adaptation of SWPBIS in the Netherlands. This research describes the adoption of a schoolwide approach in another country, with a different history, language, values, laws, and educational system. It also reviews the use of fidelity measures in the Netherlands, showing these measures are fit to use in another cultural context. For the spread of SWPBIS to other countries outside the US, our studies provide useful information. This project was also the first to study the relation between fidelity of implementation and student outcomes in the Netherlands. Approximately 20% of all Dutch SWPBIS schools participated in this project. The project not only produced scientific insights, but also had practical relevance. By participating, both schools and SWPBIS coaches learned how to use fidelity measurements and action planning tools, and this was highly appreciated by practitioners.

Despite the care with which this project was carried out, several limitations must be noted. In our analyses, we were confronted with a large number of missing data for student outcomes at school level. Although we accounted for the missing data by examining whether missing data were selective or not, and, based on this analysis, could conclude that the nonresponse was random and not selective, the large proportion of missing data negatively affected the power of our analyses. The high number of missing data for academic achievement even prevented relevant analyses to explore whether fidelity of SWPBIS implementation was related to achievement scores. Schools apparently could have used more support in collecting these data. Also, allocating the responsibilities for research tasks to professionals in the schools, for example SWPBIS coaches or master practitioners, would probably have resulted in less missing data.

As we did not succeed in establishing a control group, we were not able to compare our results with elementary schools not implementing SWPBIS which probably would have strengthened our conclusions. More efforts need to be done to support and compensate schools when participating in a time-consuming three-year research project. In the current project, limited resources were available to support a large group of schools. To follow 66 elementary schools for three years collecting data on fidelity of implementation and student outcomes is a time consuming, and, as a result, expensive project. In total, the studies include data from 117 schools, 1,207 teachers, and 96 SWPBIS coaches. A conservative estimate showed that at least 15,190 hours were spent on this project. That is working hours from both SWPBIS and school professionals, and all researchers involved in this dissertation included. Schools were facilitated in measuring fidelity of implementation, but had to collect data on student outcomes themselves with a little support from the author (sending planning overviews, nudging them to collect data, and providing them with examples).

Another limitation is the composition of the sample. Many schools were already implementing SWPBIS at study onset. At the start of this study, in 2015, many SWPBIS professionals and schools were interested in cooperating in building evidence for SWPBIS in the Netherlands. Therefore, we chose to follow all schools instead of focusing on the nine schools that started implementing SWPBIS in September 2015. To prevent losing participants in this longitudinal study, it was important to develop a research design in which participation added value for both schools and SWPBIS coaches. As Tobin (2009) stated: *"When we do research, we have the obligation to our participants that the research benefits them"* (Tobin, 2009, p.270). We estimated that the student outcome variables chosen (to relate fidelity with outcomes of SWPBIS) were relevant for schools, as they were either in line with SWPBIS core features (behavior incidents) or obliged by law to collect (social safety and academic achievements).

## Future directions

### Implications for research

Contextual fit not only defines how SWPBIS is practiced in school, it also determines the outcomes that a school values. If a school implements SWPBIS in order to improve school safety, other goals will be set than when a school wants to promote team cohesion. As a result, other outcomes need to be evaluated to see if SWPBIS is successful. In our study, we did not check which specific outcomes were valued by schools. We aimed to stay as close as possible to research designs carried out in the U.S. (e.g., Simonsen et al., 2012). In the future, schools that strive for comparable outcomes can be combined for research purposes, also taking into account the length of implementation and comparing results with schools not implementing SWPBIS.

In Study 3 we focused on the relation between fidelity and social safety. For that purpose, we analyzed student data. However, teachers, school management, and parents can have a different perspective on the schools' social safety. In the safety monitor, these data were also collected. It would be interesting to study in future research how these stakeholders experience social safety in their school, and what, according to them, could be done to improve it.

For 3 consecutive years, we collected quantitative data in 66 Dutch elementary schools on social safety, behavior incidents, percentage of students receiving additional support, and academic outcomes. Most effect studies collect data on limited outcomes in large samples. To gain more insight in what specifically works for Dutch schools, also qualitative data on a more broad spectrum of variables can be collected. In fact, repeated single case designs can contribute to building evidence for SWPBIS in the Dutch context. In the US, early research documented the impact of SWPBIS Tier 1 interventions through a series of descriptive, quasi-experimental, and single case studies, whereas more recent research used large-scale, randomized experimental designs (Mitchell, Hatton, Lewis, 2018).

Fidelity of implementation at classroom level is one of the predicting factors for sustainable implementation of SWPBIS (Yeung et al., 2016). Study 2 showed that SWPBIS at classroom level needs more attention in Dutch schools: 57% of participating schools had partly implemented SWPBIS features in class, while 10% of participating schools had not implemented classroom SWPBIS at all. Scott, Alter, and Hirn (2011) found, based on classroom observations, that teachers actually both carry out less effective strategies and less well than they think. Important techniques at classroom level are classroom management, handling problem behavior consistent with school policy, and providing (positive) feedback to students. Teachers seem to need more support in practicing these techniques, especially teachers who just started their teaching career. Research that examines the effects of different forms of teacher support in SWPBIS techniques on student outcomes is recommended.

Building evidence on SWPBIS takes time. In the US, large numbers of schools are working with SWPBIS. The national technical assistance center on PBIS ([www.pbis.org](http://www.pbis.org)) provides these schools with tools to collect data. Many U.S. schools collect fidelity data on a regular basis. As a result, large numbers of data are available, and researchers can use these data to conduct research on a wide spectrum of issues. In the Netherlands, the Windesheim Expertise Center for PBS in collaborating with the Academic Group Meaningful and Inclusive Learning Environments is making preparations to build a data base with, for the Dutch context relevant information, such as fidelity of implementation and behavior incidents. When this data base succeeds in collecting data at a national level, more possibilities for research in the Dutch context will emerge.

## Implications for practice

During this research project, schools could benefit from yearly measurements of fidelity that provided them with information on what SWPBIS core features and standard procedures were already realized and what still needed to be done to reach sustainable implementation. In informal conversations, several school administrators stated that these yearly fidelity measurements combined with the SWPBIS action planning tool supported school development processes in their school and further shaped SWPBIS. Based on our results, one can state that regular fidelity measurements can help schools implement sustainable SWPBIS. In order to conduct these measurements with fidelity, some training is needed. To assure objective measurements, an external SWPBIS coach can support SWPBIS leadership teams in assessing TFI and making action plans. If fidelity measurements are combined with outcome evaluation, this can be a strong base for school improvement. Defining the pedagogical vision, school values and valued outcomes, and accordingly the goals to achieve in the initial stage of implementation are pivotal.

Data-based decision making is a core feature of SWPBIS. Schildkamp et al. (2016) argued that schools need more active support to learn how to use their data. Dutch schools are used to collect data on academic achievements. However, most elementary schools (75%) mainly use achievement scores to focus on individual student learning, instead of evaluating the effects of teaching or developing new strategies (Ledoux, Blok, Boogaard, & Krüger, 2009). In our study, group skill scores on reading or mathematics seemed to be used less by schools. Ledoux et al. (2009) found that many educators lacked experience and knowledge to use data for other purposes than evaluating individual student progress. The past decade, the Dutch Inspectorate of Education has tried to stimulate data driven teaching, focusing on academic data (Inspectie van het Onderwijs, 2010). Lai and Schildkamp (2013) used a more broader definition of data-based decision making, entailing the collection and organization of data that are subsequently used to help improve the educational quality of individual teachers, schools or districts. The use of data seems to be complex for educators, not only for academic achievement scores, but also for monitoring behavioral data and implementation fidelity. The yearly fidelity measurements in our research project elucidated SWPBIS systems and practices for schools and SWPBIS coaches. The action planning tool made it easier for schools to plan, conduct, and evaluate concrete actions. Most likely, this contributed to reflecting on their schools' process and how to improve their practice. To succeed in using data to improve educational quality of schools and individual teachers, administrator support, professional development, and technical assistance is needed. Various support options are available to realize this: schools receiving support from external experts, such as SWPBIS coaches, but also learning communities of schools developing ways for data-based decision making that fit their context.

## Implications for policy

The processes of benefitting from research could be further developed by engaging schools in practice-based research. Practice-based research in which research questions originate in daily practice in schools, and where research and teacher professionalization are combined can contribute to school development and educational innovation (Timmermans, Ros, & Steen, 2016). Apart from recent initiatives such as academic schools and nationally funded PhD scholarships for teachers, to improve education, policy makers can further support practice based educational research and encourage schools to participate in or initiate research projects.

SWPBIS does not have a pedagogical vision in itself. It supports schools in defining their vision by exploring their values and goals. It may be helpful to schools, and suitable for the Dutch context, if the national SWPBIS leadership team develops an initiative to formulate a pedagogical vision in cooperation with members of the Dutch SWPBIS network. Accordingly, at a national level, SWPBIS partners should cooperate in (a) training SWPBIS coaches in how to support schools in data-based decision making; (b) training coaches and schools in how to use fidelity measures; (c) conducting research to build evidence for SWPBIS in the Dutch context; and (d) building a data base with relevant data to conduct future research.

All in all, this research project opened the way for building evidence on SWPBIS in the Netherlands by establishing the infrastructure and partnerships needed for research. It showed how SWPBIS was introduced in and adapted to the Dutch educational context. To measure fidelity and student outcomes, forces were joined and organizations and professionals connected. Both schools and PBS coaches learned how to use fidelity measures to improve their practices, and how to work on SWPBIS sustainability. A common language was developed on core features and standard procedures of SWPBIS. A concerted effort has resulted in a stronger knowledge base on this schoolwide approach that can support schools in addressing problem behavior and creating safe schools.

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# Appendix A

## Technical report on the relation between SWPBIS fidelity and academic achievements

In this appendix the data on academic achievements and the analyses we conducted with these data are presented. The main research question was: “Are changes in SWPBIS Tier 1 fidelity of implementation related to changes in group skill scores for comprehensive reading and mathematics in participating schools?” The data were collected in the longitudinal study presented in Chapter 4. As described in Chapter 5, the data for comprehensive reading and mathematics were not of sufficient quality and quantity for exploring the relation between SWPBIS fidelity and academic outcomes in Dutch elementary schools. Consequently, we were not able to conduct this part of the study as we had planned. This appendix shows a summary of characteristics of participating schools, the procedure we followed, measures we used, analyses we conducted, and results. More detailed information on the research design of this study can be found in Chapter 4.

### Method

#### Participating schools

In this study, 66 Dutch elementary schools participated. Almost all participating schools started implementing SWPBIS before study onset. Nine schools started implementing SWPBIS in August 2015. At study onset, average duration of implementation was 23 months (range 0-72). Schools in our sample were comparable with Dutch elementary schools in size, location, and affiliation. In the sample there were at average 216 students (range 57-476), 17 teachers (range 6-42), and 9 classes (range 3-19) per school.

#### Procedure

**Data collection.** Data were collected for three consecutive years (T1, T2, T3), in repeated measurements on fidelity of Tier 1 implementation and student outcomes (comprehensive reading and mathematics). All data were collected between August 2015 and August 2018. Twice a year (January and June), schools received an email to send in the group scores for comprehensive reading and mathematics, using the school data collection method. No individual data were collected. At the beginning of the school year, each school received an overview which data were planned to be collected when. When a school did not provide the data they had offered to provide, several reminder emails were sent. The yearly measurement of fidelity of implementation took place in the same period as the year before, and was organized by the author.

#### Measures

**Fidelity of implementation** was measured with both the TFI Tier 1 and SET. The total score represents the percentage of core features and standard procedures present in school. For more information on these fidelity measures see Chapter 3. For a more detailed description of the use of these fidelity measures in Dutch schools in our longitudinal study, see Chapter 4.

**Reading and mathematics.** Most Dutch elementary schools collect data for comprehensive reading and mathematics twice a year (in January and June) using standardized tests developed by a national testing organization, Cito ([www.cito.com](http://www.cito.com)), called LOVS (a Dutch acronym for a system for following students' learning outcomes, Sanders et al., 2017). In Grade 8, the June measurement is a final test ("eindtoets") before leaving elementary school. For *reading*, decoding, vocabulary, analyzing grammatical structures, reading strategies, metacognitive knowledge, text structure, prior knowledge of text content, and motivation are measured. For *mathematics*, both arithmetic fluency (i.e., fluency of addition, subtraction, multiplication and division operations) and mathematical problem-solving (i.e., solving problems presented in mathematical notation or problems presented in a textual and/or visual pictured contexts) are measured. As reading and mathematical skills increase over the years, tests are adjusted to norm-referenced expected level of achievement with each measurement, so-called skill scores (Hollenberg & Veerbeek, 2014). In our study we used aggregated grade-level skill scores.

## Analyses

In our study, the school was the unit of analysis. All analyses were performed with SPSS version 20 for Windows 10. Not all schools provided all the data requested. Therefore, the number of participating schools varied across time. We used within-subjects repeated measures ANOVAs to examine how group means for Tier 1 fidelity of implementation and academic achievements changed over time. As TFI and SET scores refer to a school score, we considered to calculate a school score for both comprehensive reading and mathematics. However, we abandoned this thought based on the following: (1) Group skill scores of different grades can not be compared as students' skills increase over the years, and, as a result, the group skill scores also increase. In addition, the number of students per grade differed which could interfere with a calculated school score. (2) During our study, Cito launched a new version of their tracking system. Schools responded differently: some schools switched versions for the entire school, other schools used both versions, fading out the oldest version. Group skill data from both versions (2.0 and 3.0) were not comparable.

For our analyses we used group skill scores per grade for those grades that used the same version of LOVS over the three year period of our study. We composed sequences, that used the same version across time, of group skill scores for both comprehensive reading and mathematics for three years. For example, one sequence represented group skill scores for mathematics, LOVS version 2.0, from Grade 4 at T1, Grade 5 at T2 and Grade 6 at T3. In this way, we could follow the achievements of the same group of students (apart from students repeating their grade or moving out). Theoretically, this results in 20 sequences: 3 sequences for the January measurements, and 2 sequences for the June measurement, multiplied for two subjects, and multiplied for both LOVS versions. The number of schools that provided data for each sequence varied from 0 to 25. We chose only to perform our analyses for sequences with data from 15 or more schools. This resulted in 6 sequences (see Table A1).

**Table A1. Sequences of group skill scores on comprehensive reading and mathematics. Bold sequences are used in further analyses.**

	T1	T2	T3	LOVS Version	E or M*	Number of schools
<b>Mathematics (M1)</b>	Grade 4	Grade 5	Grade 6	3.0	E	25
<b>Mathematics (M2)</b>	Grade 4	Grade 5	Grade 6	3.0	M	23
<b>Mathematics (M3)</b>	Grade 5	Grade 6	Grade 7	3.0	M	16
Mathematics	Grade 5	Grade 6	Grade 7	3.0	E	14
Mathematics	Grade 6	Grade 7	Grade 8	2.0	M	8
Mathematics	Grade 5	Grade 6	Grade 7	2.0	M	7
Mathematics	Grade 4	Grade 5	Grade 6	2.0	M	2
Mathematics	Grade 6	Grade 7	Grade 8	3.0	M	0
Mathematics	Grade 4	Grade 5	Grade 6	2.0	E	0
Mathematics	Grade 5	Grade 6	Grade 7	2.0	E	0
<b>Reading (R1)</b>	Grade 4	Grade 5	Grade 6	3.0	M	18
<b>Reading (R2)</b>	Grade 6	Grade 7	Grade 8	2.0	M	16
<b>Reading (R3)</b>	Grade 5	Grade 6	Grade 7	2.0	M	15
Reading	Grade 4	Grade 5	Grade 6	3.0	E	11
Reading	Grade 5	Grade 6	Grade 7	3.0	M	10
Reading	Grade 5	Grade 6	Grade 7	3.0	E	7
Reading	Grade 5	Grade 6	Grade 7	2.0	E	5
Reading	Grade 4	Grade 5	Grade 6	2.0	M	4
Reading	Grade 4	Grade 5	Grade 6	2.0	E	1
Reading	Grade 6	Grade 7	Grade 8	3.0	M	0

\*M = LOVS measurement in the middle of the school year (January). E = LOVS measurement at the end of the school year (June).

To analyze the relation between SWPBIS implementation and progression in group skill scores for comprehensive reading and mathematics we used an autoregression model. As covariates we used (a) difference score for fidelity at T1 and T3, and (b) the interaction between these difference score and the group skill score at T1. When the interaction is significant, this indicates that the change in group skill score depends on the change in fidelity. We analyzed the autoregression model with the six series mentioned above. However, due to the limited number of schools per analysis, we only used group skill scores at T1 and T3 to keep our analyses as simple as possible.

The data contained many missing values due to the fact that not all schools provided the data requested at every time slot, and if different LOVS versions (2.0 and 3.0) were used in a sequence, these data could not be used. Of the 66 schools in our sample, there were 6 schools that did not provide any data (100% missing data), 16 schools had 75% or more missing data, 6 schools had 50% or more missing data, 2 schools ceased participating in the research project after 1 year, and 2 schools merged after 1 year. These schools have been excluded from our analyses. As a result, we conducted our analyses with data from 34 schools.

## Results

Changes in fidelity, measured with both TFI and SET, are displayed in Table A2. The mean total TFI score at T1 is 61.4%. At T3 the TFI total score is 83.8%. The change over time for fidelity was statistically significant  $F(2, 66) = 31.38, p < .001$ . The SET total scores showed the same pattern: a significant improvement over time  $F(2, 66) = 13.56, p < .001$ .

Changes over time for group skill scores are also displayed in Table A2. Each row represents a sequence of scores for the same group of students over the years. For example, 23 schools provided group skill scores in LOVS version 3.0 for mathematics for the January measurements. At T1 the mean group skill score was 168.6, at T2 204.2, and at T3 227.5. The change over time was statistically significant,  $F(2, 44) = 449.74, p < .001$ . It is not surprising that all changes over time for comprehensive reading and mathematics were significant, due to the fact that all students make progress over the years and tests are accordingly adjusted.

**Table A2. Descriptive data of fidelity, mathematics, and reading over time (T1, T2, and T3) for six sequences<sup>1</sup>.**

	n	$M_{T1}$	$(SD_{T1})$	$M_{T2}$	$(SD_{T2})$	$M_{T3}$	$(SD_{T3})$	$\rho$
<i>TFI</i>	34	61.4	(20.3)	78.4	(14.8)	83.8	(17.3)	<.001
<i>SET</i>	34	69.0	(16.7)	78.7	(12.7)	82.3	(12.1)	<.001
<i>M1</i>	25	186.7	(14.2)	214.3	(14.8)	238.5	(11.5)	<.001
<i>M2</i>	23	168.6	(13.1)	204.2	(13.9)	227.5	(11.3)	<.001
<i>M3</i>	16	207.0	(9.1)	229.4	(11.3)	252.4	(9.1)	<.001
<i>R1</i>	18	135.2	(11.3)	152.4	(9.8)	166.9	(7.9)	<.001
<i>R2</i>	16	32.0	(6.4)	44.9	(6.1)	55.8	(6.0)	<.001
<i>R3</i>	15	25.1	(5.5)	31.5	(5.3)	44.6	(6.5)	<.001

**Note:** <sup>1</sup>The sequences of tests are presented in Table A1.

To explore the relation between fidelity and groups skill scores we conducted an autoregression analysis for each sequence (as described above in Table A2). The results, using the TFI as predictor, are displayed in Table A3. The autoregression coefficients of group skill scores for mathematics at T1 on group skill scores for mathematics at T3, or reading T1 on reading T3 were all significant, except for the effect of Reading Grade 4T1, January on Reading Grade 6T1, January. Most likely, this result can be explained by variables not included in our model. For all other sequences, group skill scores at T3 could be predicted by scores at T2, as changes were systematic. Although this is an important precondition, for answering our research question we need to study the interaction. If the interaction is significant, changes over time for group skill scores depend on changes in fidelity. Table A3 shows that no interaction coefficient was significant.

**Table A3. Autoregression analyses<sup>1</sup> for LOVS group skill scores for both reading and mathematics, using TFI difference score (T3-T1) as predictor.**

Model <sup>2</sup>	1	2	3	4	5	6
Mathematics Grade 4 <sub>T1, January</sub>	.57***					
Mathematics Grade 4 <sub>T1, June</sub>		.46**				
Mathematics Grade 5 <sub>T1, January</sub>			.71**			
Reading Grade 4 <sub>T1, January</sub>				.33 <sup>ns</sup>		
Reading Grade 5 <sub>T1, January</sub>					.83**	
Reading Grade 6 <sub>T1, January</sub>						.44 <sup>ns</sup>
TFI Difference score <sup>3</sup>	.05 <sup>ns</sup>	.02 <sup>ns</sup>	-.13 <sup>ns</sup>	.07 <sup>ns</sup>	.03 <sup>ns</sup>	-.06 <sup>ns</sup>
Interaction <sup>4</sup>	-.01 <sup>ns</sup>	-.01 <sup>ns</sup>	.01 <sup>ns</sup>	-.00 <sup>ns</sup>	-.00 <sup>ns</sup>	-.01 <sup>ns</sup>
R <sup>2</sup>	.49	.41	.59	.37	.55	.16 <sup>ns</sup>
<i>n</i>	23	25	16	18	15	16

<sup>1</sup> The reported figures are the non-standardized regression coefficients.

<sup>2</sup> The dependent variable: in model 1 is group skill scores for mathematics in Grade 6 at T3 for LOVS version 3.0, measured in January. In model 2 the group skill scores for mathematics in Grade 6 at T3 for LOVS version 3.0 measured in June. In model 3 the group skill scores for mathematics in Grade 7 at T3 for LOVS version 3.0, measured in January. In model 4 group skill scores for comprehensive reading in Grade 6 at T3 for LOVS version 3.0, measured in January. In model 5 group skill scores for comprehensive reading in Grade 7 at T3 for LOVS version 2.0, measured in January. In model 6 group skill scores for comprehensive reading in Grade 8 at T3 for LOVS version 2.0, measured in January.

<sup>3</sup> TFI Difference score is the difference between TFI total score at T3 and T1.

<sup>4</sup> The interaction is the interaction between group skill scores and TFI difference score. This is separately calculated for each model as it is defined by its variables.

\*\*\*  $p < .001$

\*\*  $p < .01$

\*  $p < .05$

In Table A4, the same data are displayed, this time using the SET difference score as predictor. Results were similar. All autoregression coefficients were significant, except for the effect of Reading Grade 4<sub>T1, January</sub> on Reading Grade 6<sub>T1, January</sub>. SET difference score had no significant effect. None of the interaction effects were significant, except in model 2, which is likely a result of sample fluctuations.

**Table A4. Autoregression analyses<sup>1</sup> for LOVS group skill scores for both reading and mathematics, using SET difference score (T3-T1) as predictor.**

Model <sup>2</sup>	1	2	3	4	5	6
Mathematics Grade 4 <sub>T1, January</sub>	.59***					
Mathematics Grade 4 <sub>T1, June</sub>		.40**				
Mathematics Grade 5 <sub>T1, January</sub>			.73**			
Reading Grade 4 <sub>T1, January</sub>				.41*		
Reading Grade 5 <sub>T1, January</sub>					1.14**	
Reading Grade 6 <sub>T1, January</sub>						-.26 <sup>ns</sup>
SET Difference score <sup>3</sup>	.06 <sup>ns</sup>	-.14 <sup>ns</sup>	-.20 <sup>ns</sup>	.06 <sup>ns</sup>	.05 <sup>ns</sup>	-.18 <sup>ns</sup>
Interaction <sup>3</sup>	-.02 <sup>ns</sup>	-.02**	.02 <sup>ns</sup>	.01 <sup>ns</sup>	-.03 <sup>ns</sup>	.01 <sup>ns</sup>
R <sup>2</sup>	.51	.60	.66	.35	.67	.19
<i>n</i>	23	25	16	18	15	16

<sup>1</sup> The reported figures are the non-standardized regression coefficients.

<sup>2</sup> The dependent variable: in model 1 is group skill scores for mathematics in Grade 6 at T3 for LOVS version 3.0, measured in January. In model 2 the group skill scores for mathematics in Grade 6 at T3 for LOVS version 3.0 measured in June. In model 3 the group skill scores for mathematics in Grade 7 at T3 for LOVS version 3.0, measured in January. In model 4 group skill scores for comprehensive reading in Grade 6 at T3 for LOVS version 3.0, measured in January. In model 5 group skill scores for comprehensive reading in Grade 7 at T3 for LOVS version 2.0, measured in January. In model 6 group skill scores for comprehensive reading in Grade 8 at T3 for LOVS version 2.0, measured in January.

<sup>3</sup> SET Difference score is the difference between SET total score at T3 and T1.

<sup>4</sup> The interaction is the interaction between group skill scores and SET difference scores. This is separately calculated for each model as it is defined by its variables.

\*\*\*  $p < .001$

\*\*  $p < .01$

\*  $p < .05$

## Conclusion

For three consecutive years data on fidelity of implementation and group skill scores for comprehensive reading and mathematics were collected in 66 elementary schools implementing SWPBIS to explore the relation between fidelity of SWPBIS implementation and academic achievements. In our study we were faced with a large number of incommensurable and missing data, caused by different, incomparable versions of LOVS student tracking systems and the fact that many schools did not provide all data requested. Consequently, the data for comprehensive reading and mathematics were not of sufficient quality and quantity for exploring the relation between SWPBIS fidelity and academic outcomes in Dutch elementary schools. Based on the current data, we saw no relation between fidelity of implementation and academic achievements. However, this result is based on a small sample. Further research is necessary to study this relationship.

# Dutch Summary

## Nederlandse samenvatting

In deze dissertatie staan de implementatie van SWPBIS (School-Wide Positive Behavioral Interventions and Support) in het Nederlandse onderwijs en de resultaten daarvan centraal. SWPBIS is een van oorsprong Amerikaanse schoolbrede aanpak die gericht is op het creëren van een positief, veilig en voorspelbaar schoolklimaat, waardoor het leren wordt bevorderd en gedragsproblemen zoveel mogelijk worden voorkomen. Kenmerkende elementen zijn het ontwerpen van een meergelaagd model van ondersteuning passend bij de context van de school, het gezamenlijk bepalen van schoolbrede gedragsverwachtingen die gebaseerd zijn op de waarden van de school en het onderwijzen van deze gedragsverwachtingen. Vanuit een positieve benadering worden gewenste gedragingen versterkt met behulp van positieve reinforcement technieken. De school bepaalt welk gedrag ongewenst is en teamleden reageren op consistente wijze op dit gedrag. Daarnaast worden data gebruikt om (1) besluiten te nemen over gedragsinterventies waarbij de nadruk ligt op preventie, (2) te evalueren en (3) de voortgang van de implementatie te monitoren. Er wordt samengewerkt met ouders en ketenpartners. Een PBS-team stuurt de implementatie in de school aan. Het PBS-team bestaat uit een afvaardiging van het personeel en de directie van de school. Indien mogelijk worden ook ouders en leerlingen betrokken bij de implementatie. Vaak is er ook een externe PBS coach die het PBS-team ondersteunt in haar rol als kartrekker. Alle teamleden worden getraind in de PBS technieken, zoals het verzorgen van de lessen in gedrag, het geven van gerichte positieve feedback, het actief toezichhouden en het geven van educatieve correcties. Onder begeleiding van het PBS-team ontwikkelt de school passende interventies voor alle leerlingen (ook wel Tier 1 of Groene interventies genoemd, zoals bijvoorbeeld lessen goed gedrag of het geven van gerichte feedback), voor groepjes leerlingen die tijdelijk extra ondersteuning nodig hebben (ook wel Tier 2 of Gele interventies genoemd, zoals bijvoorbeeld een check-in-check-out procedure) en voor individuele leerlingen interventies op maat (ook wel Tier 3 of Rode interventies genoemd) indien de leerling onvoldoende ondersteuning heeft aan de Tier 1 en 2 interventies.

SWPBIS is een raamwerk, geen vast omschreven methodiek. De kenmerkende elementen en procedures worden op maat gemaakt voor de context waarin SWPBIS geïmplementeerd wordt. Dit wordt "contextual fit" genoemd. Uit onderzoek blijkt dat wanneer SWPBIS geïmplementeerd wordt zoals bedoeld (dat wil zeggen passend bij de theoretische concepten en uitgangspunten van SWPBIS) het bijdraagt aan een verbetering van het schoolklimaat, een toename van het gevoel van veiligheid, een toename van sociale vaardigheden, een afname van gedragsproblemen en een toename van teacher efficacy en welbevinden. Betrouwbaarheid van implementatie ("fidelity of implementation") speelt daarbij een belangrijke rol. In SWPBIS wordt onder betrouwbare implementatie verstaan de mate waarin kenmerkende elementen en procedures van SWPBIS zichtbaar zijn in de school. Voor dat doel zijn verschillende instrumenten ontwikkeld ("fidelity measures"), zoals de Schoolbrede Evaluatie Toets (SET) en de Tiered Fidelity Inventory (TFI).

In 2009 is SWPBIS in Nederland geïntroduceerd door een consortium van samenwerkende partners uit onderwijs, jeugdzorg en onderzoek. Het consortium was verantwoordelijk voor de aanpassing van SWPBIS aan de Nederlandse onderwijscontext.

Bij de start van dit onderzoek in 2015 werkten ongeveer 350 scholen met SWPBIS, voornamelijk basisscholen, maar ook scholen voor voortgezet onderwijs en speciaal (basis) onderwijs.

Het doel van deze dissertatie is driedelig: (1) het onderzoeken van de aanpassing van SWPBIS aan de Nederlandse onderwijscontext; (2) het beschrijven van de betrouwbaarheid van implementatie van SWPBIS in Nederlandse scholen; en (3) het onderzoeken van de relatie tussen de betrouwbaarheid van implementatie en uitkomsten op schoolniveau in Nederlandse basisscholen. Naast een algemene introductie op het ontstaan van het raamwerk SWPBIS, en theoretische concepten en uitgangspunten die ten grondslag liggen aan dit onderzoek (**Hoofdstuk 1**) worden in deze dissertatie drie empirische studies beschreven. In **Hoofdstuk 5** worden de studies geëvalueerd en wordt gereflecteerd op de uitkomsten.

**Hoofdstuk 2** beschrijft de aanpassing van SWPBIS aan de Nederlandse onderwijscontext. De mate waarin een school erin slaagt de kenmerkende elementen en procedures van SWPBIS aan te passen aan de eigen context speelt een belangrijke rol bij het succesvol implementeren van SWPBIS. Hierbij moet niet alleen rekening worden gehouden met verschillen binnen een cultuur, maar ook tussen culturen. Het gevaar bestaat echter dat door aanpassing van SWPBIS aan de eigen context een betrouwbare implementatie in het geding komt. Om dit te onderzoeken werd aan Nederlandse SWPBIS experts gevraagd in hoeverre zij bekend waren met de kenmerkende elementen en procedures van SWPBIS. Uit deze kwalitatieve studie komt naar voren dat de aanpassingen aan de Nederlandse onderwijscontext vooral procedures betreffen. Alle experts zijn bekend met de vijf pijlers van SWPBIS: (1) een schoolbrede aanpak gebaseerd op gedeelde waarden; (2) een focus op preventie in een meergelaagd model van ondersteuning en een consistente aanpak van probleemgedrag; (3) het onderwijzen van gedragsverwachtingen en het erkennen van gewenst gedrag; (4) data gestuurd besluiten nemen; en (5) samenwerking met ouders en ketenpartners. Procedures die aangepast waren bij de introductie van SWPBIS in Nederland (zoals de manier waarop gedragslessen gegeven worden, er gereageerd wordt op probleemgedrag, gedragsdata worden verzameld en leerlingen, ouders en ketenpartners worden betrokken bij SWPBIS) werden door de experts (h)erkend. Ofschoon bij de introductie van SWPBIS het gebruik van tokens aanvankelijk op enig verzet stuitte in Nederlandse scholen, waren alle experts het erover eens dat het erkennen en waarderen van gewenst gedrag een belangrijk kenmerk van SWPBIS is. De acceptatie door leraren van een schoolbrede aanpak, zoals SWPBIS, is gekoppeld aan persoonlijke overtuigingen, waarden en motivatie van een leraar en vindt haar oorsprong in de historische en culturele achtergrond van de leraar. In SWPBIS zijn kenmerken van de Amerikaanse cultuur zichtbaar. Daar moet bij de introductie van SWPBIS in een ander land rekening mee worden gehouden aangezien dit het draagvlak in het schoolteam kan beïnvloeden. In het algemeen kan geconcludeerd worden dat de kenmerkende elementen van SWPBIS redelijk consistent lijken te zijn maar dat aanpassingen in procedures nodig zijn om SWPBIS te laten passen in een andere cultuur.

**Hoofdstuk 3** beschrijft de betrouwbaarheid van de implementatie van SWPBIS in 117 Nederlandse scholen. Als gevolg van een diversiteit in implementatiestrategieën en de autonomie van Nederlandse scholen en PBS coaches, was niet duidelijk hoe SWPBIS er in de dagelijkse onderwijspraktijk uitzag. Afname van de TFI en SET, twee instrumenten die de mate van implementatie meten, toonde aan dat alle kenmerkende elementen en standaard procedures van SWPBIS in meer of mindere mate aanwezig waren in de scholen. De meeste scholen hadden een PBS team, gaven les in de gedragsverwachtingen en hadden een beloningssysteem om gewenst gedrag te versterken. Teamleden waren getraind in SWPBIS en er werden data over gedragsincidenten verzameld. In de meeste scholen waren de SWPBIS procedures tot op zekere hoogte ook zichtbaar in de klas. Jaarlijkse evaluatie, data-gestuurd werken en het betrekken van stakeholders bij SWPBIS waren, vergeleken met andere kenmerken, minder goed geïmplementeerd. Deze beschrijvende studie toont daarnaast ook aan dat de instrumenten TFI en SET aangepast konden worden aan de Nederlandse onderwijscontext zonder de psychometrische kenmerken aan te tasten. Dit maakt vergelijking van de mate van implementatie in de verschillende landen mogelijk. Culturele aanpassingen aan de Nederlandse context lijken een betrouwbare implementatie van SWPBIS in Nederlandse scholen niet in de weg te staan.

**Hoofdstuk 4** beschrijft de relatie tussen de mate van implementatie en de opbrengsten van SWPBIS. In een longitudinale evaluatie studie werden gedurende drie schooljaren jaarlijks data verzameld op 66 basisscholen over de mate van implementatie, de perceptie van leerlingen van de sociale veiligheid op hun school (bestaande uit het welbevinden, een algemeen gevoel van veiligheid, slachtofferschap, en de prevalentie van onveilige plekken in en om de school), gedragsincidenten en het percentage leerlingen dat extra ondersteuning behoefde. De mate van implementatie, jaarlijks gemeten met zowel de TFI als de SET, nam gedurende de onderzoeksperiode significant toe. Het percentage leerlingen dat aangaf dat er één of meer onveilige plekken in en om de school waren nam gedurende de onderzoeksperiode significant af. Veranderingen in de mate van implementatie waren gerelateerd aan het welbevinden van de leerlingen en aan het aantal gedragsincidenten. Deze laatste uitkomsten suggereren dat de snelheid van implementatie gekoppeld lijkt te zijn aan een verbetering van het welbevinden en een afname van gedragsincidenten. De gevonden resultaten moeten echter met de nodige voorzichtigheid geïnterpreteerd worden, aangezien er geen controle groep was waarmee de uitkomsten vergeleken konden worden. Ook heeft de samenstelling van de groep deelnemende scholen waarschijnlijk ook de uitkomsten beïnvloed, aangezien de meeste scholen bij aanvang van de studie al enige tijd bezig waren met de implementatie van SWPBIS. Dit maakt het aannemelijk dat de positieve effecten al hadden plaatsgevonden en derhalve niet gemeten konden worden. Ook moet rekening gehouden worden met een plafondeffect. Bij de start van de studie werd de sociale veiligheid door leerlingen als goed ervaren en gaf 86% van de leerlingen aan dat zij zich over het algemeen veilig voelden in hun school, hetgeen weinig ruimte voor verbetering laat.

## Belangrijkste conclusies

Bij de introductie van SWPBIS in Nederland was een consortium van samenwerkende partners verantwoordelijk voor het aanpassen van SWPBIS aan de Nederlandse onderwijscontext. Kenmerkende elementen bleven in tact en verschillende procedures werden aangepast. TFI en SET metingen in 117 scholen tonen aan dat alle kenmerkende elementen van SWPBIS en standaard procedures in meer of mindere mate aanwezig waren in de scholen. Aanpassingen aan de Nederlandse onderwijscontext leken niet van invloed op de betrouwbaarheid van implementatie. In een longitudinale studie op 66 Nederlandse basisscholen was een significante toename van de mate van implementatie en een significant afname zichtbaar van het percentage leerlingen dat aangaf dat er onveilige plekken in of rond de school waren. Veranderingen in de mate van implementatie waren gerelateerd aan een toename van het welbevinden van leerlingen en een afname van het aantal gedragsincidenten. Dit suggereert dat snelheid van implementatie positieve uitkomsten met zich meebrengt voor het welbevinden en het aantal gedragsincidenten.

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# About the author

Monique Nelen (1964) was born in Rotterdam, the Netherlands. In 1982, she graduated from gymnasium  $\alpha$  (cum laude) in Roosendaal. In the same year she started studying Pedagogical sciences at the University of Leiden. She specialized in residential care for adolescents with severe problem behavior. After she graduated in 1988 as “Klinisch – en orthopedagoog”, she started working in a juvenile prison and several residential care institutions. In 1999 she made a career switch and started working in the educational domain at Windesheim University of Applied Sciences. Monique has worked in a variety of roles at Windesheim. She was a teacher trainer, curriculum developer, and responsible for all behavior related courses at the Master Educational Needs. As a consultant, she supported schools and teachers in professionalization activities. She participated in several research projects on teacher competencies, and was a research member in the Academic Group (lectoraat) “Pedagogical Quality of Education” led by dr. Yvonne Leeman.

Since 2011, she is involved in the Academic Group “Meaningful and Inclusive Learning Environments” led by dr. Sui Lin Goei. Monique received a doctoral grant from the Dutch Organization for Scientific Research NWO for her PhD proposal in 2014, which was awarded by prof. dr. Jet Bussemaker, former minister of Education, Culture, and Science, in 2015. In the same year she started her PhD project at the Behavioural Science Institute at Radboud University under supervision of prof. dr. Ron Scholte, prof. dr. Eddie Denessen, and dr. Anita Blonk. Related to this project, in 2019 she studied for three months at the University of Oregon in Eugene (USA), the cradle of SWPBIS, under supervision of founding fathers prof. dr. Rob Horner and prof. dr. Kent McIntosh. In addition to her research activities, Monique currently works as a teacher trainer at the Educational Masters and as a consultant at the Windesheim Expertise Center for PBS (Positive Behavior Support). She is also a member of the Dutch SWPBIS leadership team.

# Publications

## Publications

Nelen, M. J. M., Willemse, T. M., van Oudheusden, M. A., & Goei, S. L. (2020). Cultural challenges in adapting SWPBIS to a Dutch context. *Journal of Positive Behavior Interventions*, 22(2), 105-115. doi.org/10.1177/1098300719876096

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