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PS - A SCHOOL-WIDE PREVENTION PROGRAMME. EFFECTS, CORE COMPONENTS AND IMPLEMENTATION.

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PS - A school-wide prevention programme. Effects, core components and implementation.

THESIS FOR DOCTORAL DEGREE (Ph.D.)

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ABSTRACT

PS is multi-component intervention at the primary prevention level and aims at creating a positive learning environment and decreasing problem behaviours among students in the school years 4-9. During 2009-2012 the programme was both implemented and studied for the first time in a Swedish context. The present thesis comprises four studies of PS and applies a mixed methods approach. The thesis aims to study: 1) If the programme is effective in enhancing the classroom climate, and decreasing problem behaviours among students (Study I), 2) teachers and school staff's perceptions of programme and implementation (study II and III) and 3) if teacher's use of praise and clarity of school rules, regardless of programme use, are useful as classroom management techniques, and if there are any differences between classes in terms of disruption (study IV). A quasi-randomized trial was conducted in study I, comprising 3207 students in school grades 5-7 and 188 teachers in 23 schools in the wider area of Stockholm. The participating children and their head teachers answered self-report questionnaires on three occasions: At baseline and one and two years after programme initiation. Degree of implementation in the schools was also measured. Further, a qualitative design with semi-structured interviews and thematic content analysis was used in study II and III. The interviews were conducted in seven PS schools with seven school leaders and 13 school teachers during 2010 and 2011. In study IV, students (n=2266) and classes were divided into two groups, based on teacher ratings of disruptive students in class. Baseline and 12-month follow-up responses were used to perform multiple regression analysis, to compare groups and to investigate possible longitudinal associations.

Study I showed no significant effects on students' problem behaviours and classroom climate at last follow-up. The findings from *study II* indicated barriers to programme commitment in terms of lack of consensus, collaboration barriers and insufficient process management. It was concluded that leadership, coaching and staff selection need particular attention when implementing a programme like PS, since those factors have been defined as important implementation drivers, both in this study and previously. *Study III* showed that teachers' professional identity, programme understanding and experience of change were factors affecting implementation. Ambiguities regarding the boundaries of the social assignment, opposition against the theoretical underpinnings and an unclear core component were identified as implementation barriers**.** In *study IV* it was shown that clarity of school rules did not substantially contribute to classroom climate, whereas teacher's use of praise to some extent did. The hypothesis on weaker associations in the low disruption group could not be confirmed.

This thesis cannot provide an answer to the question whether PS is effective or not, since findings indicate that the implementation did not succeed. However, findings in the last study indicate that teacher's use of praise may contribute to improve the classroom climate. If the PS programme is to be used again there is a need for revisions, and sufficient time for schools to consider programme adoption will be crucial. Aspects of programme implementation are further discussed.

LIST OF SCIENTIFIC PAPERS

I. Bodin, M. C., South, S. H., **Ingemarson, M.** (2015). A Quasi-Randomized Trial of a School-Wide Universal Prevention Program: Results and Lessons Learned. *Scandinavian Journal of Educational Research*, 17 April 2015, p.1-28.

II. **Ingemarson, M.,** Rubenson, B., Bodin, Maria., Guldbrandsson, K. (2014). Implementation of a school-wide prevention programme- Teachers' and headmasters' perceptions of organizational capacity. *Evaluation and Program Planning*, April 2014, Vol.43, p.48(7)

III. **Ingemarson, M.,** Bodin, M., Rubenson, B., & Guldbrandsson, K. (2016). The implementation of a behavioural support programme Teachers' perceptions of the programme and themselves as providers. *Health Education*, 116(6), 526-540.

IV. **Ingemarson, M.,** Rosendahl, I., Bodin, M., Birgegård, A. (Manuscript, 2017)
Teacher's use of praise, clarity of school rules and classroom climate - Comparing classroom compositions in terms of disruptive students.

CONTENTS

LIST OF ABBREVIATIONS

PS	Prevention in school
STAD	Stockholm prevents alcohol and drug problems
PALS	Positiv atferd, støttende læringsmiljø og samhandling
SWPBS	School wide positive behaviour support
FBA	Functional behaviour assessment
SDM	Social development model
QIF	Quality implementation framework
SET	School wide evaluation tool
GPA	Grade point average

1 BACKGROUND

1.1 ABOUT THIS THESIS

This thesis is based on four studies of the PS ("Prevention in School") programme, developed in 2005 for the school grades 4-9. PS is a primary prevention level, multicomponent programme and aims at creating a better classroom climate and decreasing problem behaviours. PS was implemented as part of a research project by prevention consultants from Stockholm City Council, and studied by researchers at Stockholm Prevents Alcohol and Drug Problems (STAD). The research project was commissioned by the Development Centre for Child Mental Health at the National Board of Health and Welfare in Sweden, with the aim to investigate whether the programme was effective, how it was received and if it was ready to be disseminated. All studies were ethically approved by the Ethical Board in Stockholm (Protocol 2008/5:7 with supplements) and funded by the National Board of Health and Welfare and STAD.

A first quasi-randomized trial investigated whether PS had any effects on the intended outcomes, problem behaviours and classroom climate. The following two qualitative studies concerned the implementation of the programme in terms of staff's perceptions of their schools' organizational capacity, of the PS programme and of themselves as programme providers. A fourth and last study aimed at studying core components and differences between classes in terms of disruption.

The following background sections describe the theoretical underpinnings of the PS programme and the programme in itself, starting with a description of the social development model. The background section also provides a background to implementation research, since the study of implementation has been essential to this thesis work.

1.2 SOCIAL DEVELOPMENT OF CHILDREN

According to the ecological perspective, human development happens in nested contexts within an individual's ecological framework (Bronfenbrenner, 1979), i.e. family, school. neighbourhood and the larger societal culture. The development relies on complex interactions between individual genetic/psychological processes and the outer context that surrounds them. Over the life span, individuals encounter different developmental tasks (social, emotional, cognitive, moral and behavioural), depending on their current developmental stage. These tasks may differ between different domains of the ecology, and how they are solved have implications for the future development. Different developmental stages also require different resources, and some domains are more important than others depending on age. For instance, in their early years, children are more influenced by their parents than during adolescence, when the school and neighbourhood play an increasingly important role (US National Research Council, 2009).

1.2.1 Theories of social development

Bandura's (Bandura & Walters, 1963) *social learning theory* proposes that individuals learn a lot from merely observing and imitating others. By observing an environment, individuals learn which consequences are likely to occur if they act in a certain way, and behaviour is governed by whether they think they will be rewarded or not. Within social learning theory, it is emphasized that individuals internalize external goals and standards from their environment, and then use them to evaluate their own achievements, for instance comparing the own grades with the general grading system. Also, pro-social behaviour can be obtained by modelling; that is, models in the environment can influence individual characteristics such as helpfulness, cooperativeness and concern for others. Children tend to incorporate standards from peers since those standards are easier to achieve, and hence peers are influential models. However, adults may encourage children to socialize with high-achieving peers or expose them to models who generally aim at high standards, and by that affect the standards (Crain, 1992).

Social control theory (Hirschi, 1969) was developed to explain delinquent behaviours among youth. According to this theory, delinquent behaviours are caused by weak social bonds, low attachment, low commitment and low involvement in relation to people or institutions. If social groups manage to produce bonds of attachment and commitment and promote pro social behaviour, group members will behave in accordance with those standards and values. Within the school domain, students' commitment to school norms, values and rules are expressions of their school bonding (Chapman, Buckley, Sheehan, & Shochet, 2013).

According to the *differential association theory (Sutherland & Schuessler, 1973),* in groups with criminal norms, criminal behaviour is learned by the acquisition of motives and skills which justify criminal acts. Individuals in groups that are both disorganized (i.e. lacks social control and community) and are in favour of crime have a high probability of committing crimes (Matsueda, 2006).

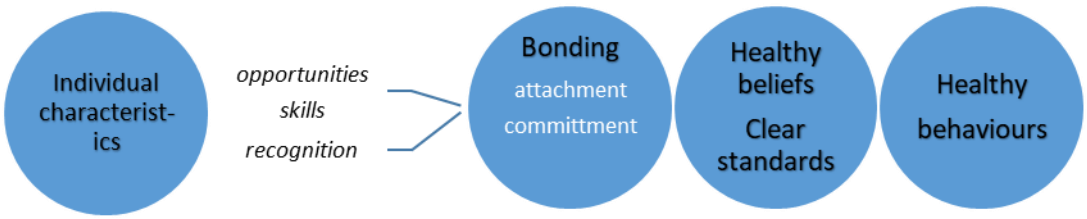
1.2.2 The social development model

The Social Development Model (SDM), which forms the basis for the PS programme, integrates empirically supported aspects from the three theories of social development described above, into a framework that describes the development of pro-social and anti-social behaviours. SDM relies empirically on findings that show how children's cognitive and socioemotional skills predict their behaviours, and that involvement with prosocial others is associated with prosocial beliefs (Brown, Catalano, Fleming, Haggerty, Abbott, et al., 2005). The SDM model describes how children may develop through prosocial or antisocial paths. According to SDM, children develop along a prosocial path when they are involved in pro-social activities, are consistently rewarded for desired behaviours, and when they are given the chance to develop the necessary social skills to be successfully involved (Catalano, Kosterman, Hawkins, Newcomb, & Abbott, 1996; Hawkins & Weis, 1985), see figure 1. In SDM, involvement is seen as a part of the socialization process which leads to bonding. The

result of bonding is belief in the values and norms of a social unit, and belief in values and norms in turn are a mediating factor which affects behaviour (Catalano, Oesterle, Fleming, & Hawkins, 2004). It is important to note though, that bonding is not automatically positive. It may as well occur to social units that are antisocial, like for instance an antisocial peer group (Maddox & Prinz, 2003).

Rather than targeting the child's behaviours and attitudes directly, SDM-based interventions aim at changing the environmental domains around a child (i.e. parents, school, peers, community and society) in order to exert an indirect influence on the child's social development. SDM also take into account that the influence of these environmental domains shifts as children and adolescents pass through different developmental stages (Brown, Catalano, Fleming, Haggerty, Abbott, et al., 2005).

Figure 1. Social development model, developed from Catalano and colleagues 1996.



1.2.3 Risk and protection

Early youth is a time characterized by extensive biological, cognitive and socio-emotional changes. Problem behaviours during this period tend to develop further, if nothing is done at an early stage (Catalano et al., 2003). Protective factors decrease the likelihood of engaging in problem behaviour, whereas risk factors increase that likelihood (Catalano, Hawkins, Berglund, Pollard, & Arthur, 2002; Jessor, Vandenbos, Vanderryn, Costa, & Turbin, 1995). Swedish children have a general good health, and problem behaviours like alcohol and tobacco use have decreased over time. However, children's self-perceived psychological and physical health tend to get less positive with increased age. The situation for girls is particularly worrying, with an increased proportion of psychological and physical disorders (The Public Health Agency of Sweden, 2014). Further, 10 % of all Swedish children have been identified to be at risk for a negative social development (Swedish National Board of Health and Welfare, 2010).

Risk and protective factors can be individual, i.e. connected to intelligence, social cognition, temperament or biology. They can also be of an environmental kind, i.e. connected to family, school, peers or community (Lösel & Farrington, 2012). The different levels or domains in the individual's ecological system together formulate the explanatory concept of psychosocial "risk", where protective factors may moderate or buffer the impact of risk exposure in the different domains (Jessor, 1987). Risk factors are often positively correlated with other risk factors, and negatively correlated to protective factors. Further, some risk and protective

factors may affect single outcomes whereas others have an impact on several areas of concern. Known risk factors of this kind are negative life events at school, family or community level. Social support and coping on the other hand, are common protective factors found to have a protective effect on a variety of negative outcomes. Risk and protective factors also affect each other over time, i.e. affect later stages of an individual's developmental pathway, as well as across different ecological domains. Hence, preventive efforts may have an effect both on the present and over time (US National Research Council, 2009).

1.3 THE SCHOOL AS A DEVELOPMENTAL DOMAIN

Academic achievement in itself can prevent future social and health problems (Lee & Gortmaker, 2012), but the school also plays a major role beyond education, through the social climate it provides. Norms, values, and relationships in school have the potential to influence students positively (Catalano et al., 2004; Peguero & Bracy, 2015). After the transition to middle school, children spend more time outside home and peers become increasingly important (Roeser, Eccles, & Sameroff, 2000; Wang & Dishion, 2012). Since gaining acceptance and a sense of belonging is central to young individuals, the peer group might constitute a potential risk, in those cases where it is built upon destructive norms and deviant behaviours (Fletcher, Bonell, & Hargreaves, 2008; Fletcher, Bonell, Sorhaindo, & Strange, 2009). However, if the school is well organized and peers are in favour of academic achievement, school bonding can occur and promote a positive development among the students (Catalano et al., 2004). The SDM concept of school-bonding includes students' attachment, i.e. positive relationships with school personnel, and students' commitment to invest time and to perform well. Strong bonds to the school can prevent behaviours which violate school norms and values (Catalano et al., 2004), and positive relationships with teachers buffer the impact of deviant peers (Crosnoe, Erickson, & Dornbusch, 2002; Wang & Dishion, 2012). Studies of early secondary school have shown that students reporting higher school connectedness were less prone to engage in later teenage substance use, had better mental health and were more successful academically than those who reported lower connectedness (Bond et al., 2007).

School satisfaction has increased during the past decades, and most Swedish children are content with their school environment. The perceptions of the own academic achievements are also more positive than during earlier decades. However, school related stress have increased, especially among fifteen year olds (the Public Health Agency of Sweden) indicating a need to address problems of more psychological and emotional character. The Swedish Curriculum (The Swedish National Agency for Education, 2011) has a main focus on general fundamental values when regulating the social aspects of the school. Nevertheless, schools are responsible for promoting a harmonious development, which is supposed to be achieved *"by means of a varied and balanced combination of content and working methods. Shared experiences and the social and cultural world that make up the school provide scope, as well as the preconditions for learning and development where different forms of*

knowledge make up a meaningful whole" (a.a. page 12.) The curriculum has been criticized for not being explicit enough regarding the work with fundamental values and to leave room for interpretation regarding the content (The Swedish Schools Inspectorate, 2012). Also, within the Swedish teacher education and educational research, aspects connected to school climate are not always prioritized (Allodi, 2010).

1.3.1 The classroom climate

Students' perceptions of the social climate in class have an impact on their perceptions of the overall school environment (Koth, Bradshaw, & Leaf, 2008). A positive classroom climate also decreases the effects of risk and promote healthy functioning among at risk children (Sabol & Pianta, 2012). Although less research has been conducted on classrooms than on entire schools, classroom climate has been found to be linked to students' motivation, involvement in classroom activities, goal orientation, academic achievement and social skills (Rowe, Kim, Baker, Kamphaus, & Horne, 2010).

There is no consensus regarding an overall definition, but classroom climate is generally referred to as an aspect of the social-psychological environment for learning (Rowe et al., 2010; Toren & Seginer, 2015), i.e. student and teacher perceptions, attitudes, behaviours and interactions in the classroom (Johnson, 2009). Toren & Seigner (2015) suggest a classification of classroom climate in three important domains, based on prior research: *Teacher-student relationship,* i.e. teachers' awareness of and responses to students' academic and emotional concerns as well as their concern for students' perspectives. *Peer relationship,* i.e. peer support, relationships and interactions. *Educational atmosphere,* such as learning opportunities, classroom organization, instructional support and behaviour management strategies (Toren & Seginer, 2015). In this context, teachers are seen as important agents, since they have the ability and the formal mandate to govern classroom climate in a positive direction. Teachers who focus on pro-social values, cooperation and being supportive can improve students' behaviours, sense of belonging and their overall attitudes towards school (Christle, Jolivette, & Nelson, 2007; Jessor, Turbin, & Costa, 1998; Koth et al., 2008).

1.3.2 Problem behaviours in class

The fundamental assumption within problem behaviour theory is that behaviour is a result of an interaction between the environment and the individual. Problem behaviour is defined as behaviour that departs from the social, legal and societal norms and tends to provoke some form of social control response (Jessor, 1987). Problem behaviours among children and youth can be explained by for instance socialisation failure or lack of bonding (Catalano et al., 2003), and imply a risk of developing further future problems. Aggressive and disruptive behaviours in the class can lead to negative consequences for individual students, such as office discipline referrals or suspensions. Such punitive strategies in turn puts students at risk for a further negative development, e.g. low academic engagement or even school dropout (Skiba, Ormiston, Martinez, & Cummings, 2016), which in turn increases the risk for developing other psycho-social problems in the future (Kearney, 2008). Disturbances, such as

tardiness and talking out of turn, also create stress for both students and teachers and constitute a less positive learning environment (Clunies-Ross, Little, & Kienhuis, 2008). Because of all this, interventions are advocated that contain classroom management strategies, such as encouragement and praise, to enable teachers' nurturing of a positive classroom climate (Wang & Dishion, 2012).

1.3.3 Classroom management strategies

Classroom management has been reported by teachers as an important area for training (Skiba et al., 2016). It has been defined as "a collection of teaching strategies that promote the self-regulation of behaviour by students, to enable them to take full advantage of available learning time**"** (Skiba & Cummings, 2008).

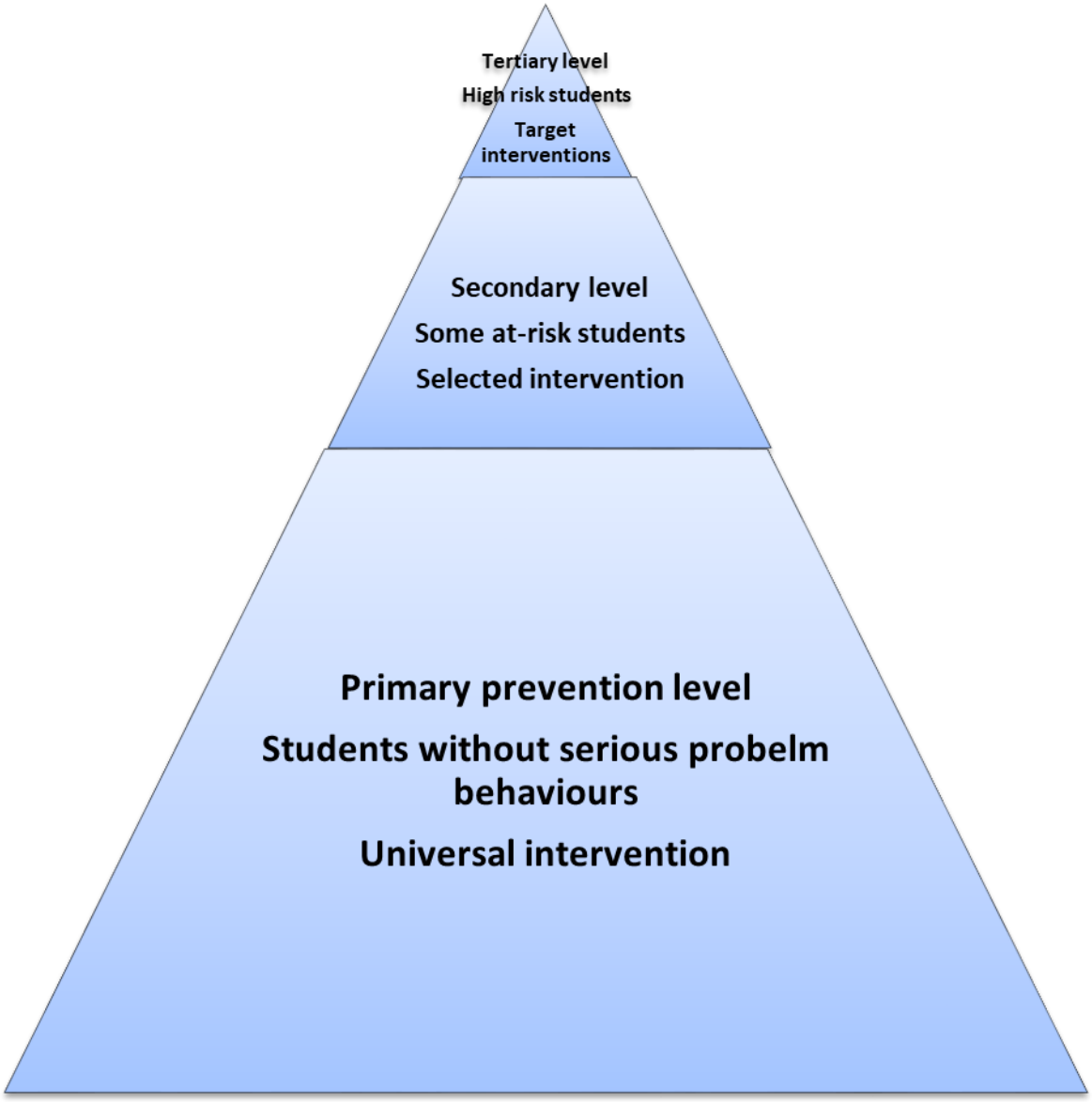
In a well-functioning classroom there is a correspondence between expectations and consequences (Skiba et al., 2016). Teachers who provide structure, teach and reinforce behavioural expectations, actively engage the students, and use a continuum of behavioural response strategies have been shown to manage their classrooms more effectively (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Research has also found links between classroom management and a variety of outcomes, such as improved academic achievement and lower levels of classroom disruption.

1.4 SCHOOL- BASED PREVENTION

Preventive interventions aim at strengthening protective factors and decreasing risk factors that might lead to individual problems (Catalano et al., 2002). When potential risk and protective factors are identified, preventive interventions can be designed to affect those factors, and to prevent a negative future development. Prevention initiatives may be offered to whole populations and/or people at risk. School is often considered a natural domain for preventing problem behaviours among youth, since the setting provides a possibility to reach virtually all children. School prevention may target present problems, like academic failure, truancy or bullying. It may also aim to prevent problems like criminality, addiction or health problems in students' future lives (US National Research Council, 2009). Further, school prevention may be oriented towards individuals and/or towards the whole school, including both social and organisational aspects (Ogden, 2005).

In schools three types of children can be identified: 1) Children who are at no risk, 2) students with elevated risk for developing antisocial behaviours and 3) children with severe problems, who are at risk for life persistent antisocial behaviours. This has been conceptualized and illustrated in a model with different levels, where each (risk) level is connected to specific intervention strategies (see figure 2). At the primary prevention level, universal interventions are supposed to enhance protective factors and to prevent minor problems to become more serious. These strategies are applied to all students. At the secondary prevention level, selected interventions provide support to students who do not respond to universal efforts. These are mostly applied on an individual or small group basis. The tertiary prevention level comprises targeted interventions, applied to help students with chronic problems with a severe risk to develop along an antisocial pathway. Optimally all these strategies are coordinated and students who do not respond to interventions on one level can be referred to the next. However, it is assumed that adjustment problems among 75-85 % of the students can be prevented at the primary prevention level (Walker & Shinn, 2002).

Figure 2. Adpated from Walker & Shinn 2002.



1.4.1 Multi-component environmental approaches

Since different risk and protective factors interact in complex ways and also change over time, it is difficult to predict which children are at risk (Berryhill & Prinz, 2003; Catalano et al., 2002; Flay, 2002). Because of this, interventions need to address multiple factors and domains (Catalano et al., 2002), all prevention levels (Walker & Shinn, 2002) and promote good behaviours as well as reducing anti-social behaviours, in order to affect social development in a positive way (Catalano et al., 2002). Hence, environmental programmes which combine different theoretical approaches have been developed over the decades (Ogden, 2005). Environmental approaches aim to modify the social and organizational environment in school, and focus on the interactions and/or organizational functioning and structure (Berryhill & Prinz, 2003). Specific for programmes based on SDM is the use of multiple components, classroom management strategies, parental involvement and skills training (Catalano et al., 2004); most of these features also used in the PS programme.

1.5 ENVIRONMENTAL, BEHAVIOURAL SCHOOL PROGRAMMES

Two Nordic examples of environmental programmes formed the basis for the development of the PS-programme: The Swedish School-Comet (Forster & Karlberg, 2005) and the Norwegian school-wide PALS programme (Sørlie & Ogden, 2007). The later a Scandinavian version of the US school-wide positive behaviour support model (SWPBS).

1.5.1 Operant learning theory

Both PS, School-Comet and PALS use operant learning theory as a theory of change, i.e. as a tool to create behavioural change. Operant theory was developed through the works of American psychologists E.L. Thorndike, John Watson and B.F. Skinner (Wong, 2008). According to the theory, the consequences that follow a behaviour, will determine whether the behaviour will be repeated or not (i.e., learnt). The core part of the theory is often presented figuratively as an ABC-sequence:

Antecedent – **B**ehaviour – **C**onsequence

The antecedent refers to the situation or stimuli that influences or "triggers" the occurrence of a particular behaviour. The behaviour is the person's response to the antecedent. The consequence refers to what happens after the behaviour has occurred, which will result in either reinforcement (strengthening) or weakening of the behavioural response.

Reinforcement is when consequences of a particular behaviour increase the likelihood that the behaviour will be repeated. The consequence that reinforces behaviour may either be given to (positive reinforcement) or removed from the person (negative reinforcement). Positive reinforcement typically includes stimuli that the individual perceives as rewarding in some way, such as getting praise and encouragement after an accomplishment. Negative reinforcement represents the removal of unpleasant (adverse) stimuli, i.e. a parent stops nagging when their child starts working on her assignment or cleaning his room. What is considered a rewarding or adverse stimulus (i.e. what will "work" as a reinforcer) may vary between individuals and situations. One factor affecting the effectiveness of reinforcement is the time interval between the behaviour and the appearance of the reinforcer. In general, the shorter the time interval, the more likely it is that a behaviour will be learnt. *Extinction* refers to the decrease in a learned behaviour that is no longer reinforced; a behaviour which no longer serves any function for the person will eventually cease. *Punishment* refers to when consequences of a behaviour decrease the probability of that behaviour occurring again. This may mean either that an appetitive stimulus is being removed from the person (e.g., afternoon play with friends cancelled due to an unfinished school assignment), or that an adverse stimulus is added (e.g. being sent to the headmaster for a reprimand) (Wong, 2008).

1.5.2 Functional behavioural assessment

As mentioned above, learning in operant theory occurs when the consequences increase the likelihood that the behaviour will be repeated in the future. In order to determine whether a desired behaviour increases (and whether problem behaviour decreases) as circumstances

change, the use of measurement is needed. An important feature of behavioural interventions is the use of *functional behavioural assessment* (FBA). FBA includes the gathering of information about the antecedents, behavioural responses, and consequences of a problem behaviour, in order to determine its reason (function). Information is collected for a specified period of time and an intervention plan is made based on the observed patterns. The plan involves clearly stated goals (behavioural expectations) which are reviewed together with the individual or individuals. Reinforcement of goal behaviours is primarily performed by adding appetitive stimuli (e.g., praise). Observational data are collected again, in order to determine if the problem behaviour has decreased or not. If it has not, the assumptions about the behavioural antecedents and consequences need alteration and further evaluation. In this way, FBA is used to plan, guide and evaluate behavioural interventions (Gresham, Watson, & Skinner, 2001; Wong, 2008).

1.5.3 School-Comet for classroom management

School-Comet is a Swedish programme (Forster & Karlberg, 2005) based on learning theory and social skills training, and focuses on secondary and tertiary prevention levels. It also contains classroom strategies of encouragement and pro-social approaches to create a better social climate. Functional behavioural assessment (FBA), reinforcement and extinction, work with consequences, token economy and rewards are the basic features of School-Comet (Karlberg, 2011). Studies on School-Comet has indicated effects on problem behaviours among at-risk students (Forster, Sundell, Morris, Karlberg, & Melin, 2012; Karlberg, 2011). It has also been found that the programme decreases teachers' reprimands and prevents decrease in their praise-giving (Karlberg, 2011) and that teachers' behavioural change mediates programme effects (Forster et al., 2012).

1.5.4 PALS

The development of the PALS programme (*Positiv atferd, støttende læringsmiljø og samhandling*) started in 2002 (Arnesen, Ogden, & Sørlie, 2003) and it had been implemented in 214 schools in 66 Norwegian municipalities by the end of 2014 (Norwegian Center for Child Behavioural Development). A quasi-experimental pilot study showed a moderate to large teacher-observed decrease in problem behaviours, although the results were not confirmed by student reports (Sørlie & Ogden, 2007). A later quasi-experimental study performed in 28 intervention and 20 control schools indicated positive effects after three years for moderate and less severe problem behaviours, and improved the classroom climate, as rated by teachers (Sørlie & Ogden, 2015).

PALS follows SWPBS, which was initially developed at Oregon University (Horner et al., 2014) and has currently been implemented in around 20 000 US schools (Freeman et al., 2016) and in a variety of different school settings (Solomon, Klein, Hintze, Cressey, & Peller, 2012).

1.5.5 SWPBS

SWPBS has its roots in Skinnerian operant learning theory (see below) and is based on the assumption that behaviours are caused by the environment rather than by intra-psychological processes (Singer & Wang, 2009). The model originally evolved within the field of special education and for students with disabilities, and was later adapted to a school-wide format (Singer & Wang 2009). The main focus of SWPBS is to design environments that promote desired behaviours and minimize problem behaviours. Lifestyle outcomes are also central, i.e. SWPBS should result not only in reduction of the current problem behaviours, but also promote a future positive development. SWPBS targets all prevention levels, i.e. it includes universal interventions for all students, targeted interventions for students at elevated risk of developing behaviour problems, as well as strategies for high-risk students with indicated problems. The universal level aims at creating a school environment where all students both expect and support positive behaviours. This, in turn, is supposed to lead to a better learning environment and a school perceived as socially predictable, consistent, safe and positive (Horner et al., 2009).

SWPBS aims at creating a systems change with a focus on the organization and the cultural system of the intervention, e.g., schedules, staffing, cultural expectations, budgeting, and organizational policies (Horner et al., 2004; Singer & Wang, 2009).

In SWPBS it is stipulated that each school should be managed by a local school team, that works with district level support and supervision, and includes the following core activities:

- Definition of 3 to 5 school rules for expected, desired behaviour in classrooms and non-classroom settings (e.g., “Be safe. Be responsible. Be cooperative.”).
- Teaching and active instruction of desired behaviours to students by skills training and modelling.
- Consistent monitoring and acknowledgement of students for fulfilling behavioural expectations through praise and rewards.
- Minimizing rewards for problem behaviours and providing consequences for problem behaviours if needed.
- Strategies for continuously collecting data about the students’ social behaviours and the use of these data for decision-making on a regular basis.
- Preventing problem behaviours by re-designing the environment.

Randomized controlled effectiveness trials of SWPBS conducted in the US have indicated significant reductions in student suspensions and office discipline referrals (Bradshaw, Mitchell, & Leaf, 2010), with greater effects among at-risk and high-risk students (Bradshaw, Waasdorp, & Leaf, 2015). A meta-analysis of SWPBS showed promising results for both middle and elementary schools with moderate effects on problem behaviours (Solomon et al., 2012). A further review indicated little to no relationship between the use of SWPBS and academic achievement (Gage, Sugai, Lewis, & Brzozowy, 2015).

1.6 THE PS PROGRAMME

1.6.1 Brief background

PS was developed in 2005-2007 by a group of teachers, psychologists and researchers at the department for research and development in the city of Stockholm (i.e. the municipality of Stockholm). The work was initiated to develop a comprehensive manual-based school-prevention programme based on prevention science. A universal prevention approach was chosen, since it would reach all students without stigmatizing individual students in need of support. The project encountered several barriers during programme development, such as staff replacements and a research manager changing jobs (personal communication with Knut Sundell, August 21 th, 2015). PS was tested in four schools, but only one of those tried out all programme parts. The programme was not revised to any greater extent, as a result of this (Personal communication with Anne Hellqvist, March 30th, 2016). The work resulted in a comprehensive manual *Prevention i Skolan: Forskningsbaserat preventionsprogram för grundskolans år 4-9* (English: Prevention in School: A research-based prevention programme for school years 4-9) (Sundell et al., 2007). In 2009 the evaluation of the programme started at STAD.

1.6.2 General description of PS

PS is a proactive programme which aims at preventing problems before they arise, rather than by reacting to already existing problems. SDM and operant learning theory serves as the basis for its multi-component approach, which aims to equip school staff and parents with tools to create supportive and consistent social environments for children. PS primarily targets the Swedish school grades 4-9 but can be used in lower grades as well. It involves all school staff, all students and their parents and aims at creating a better classroom climate and decreasing problem behaviours among students. PS comprises three core components:

1. Norm work – the elaboration and agreement on 4-6 school-wide behavioural rules.
2. Positive leadership – teachers' use of positive behaviour support and classroom management techniques.
3. Parental forum – information for parents to support a positive development in their children.

After a school has made a collective decision to adopt the programme, the core components are taught under the supervision of external PS consultants over the course of approximately one year. Aside from the core components, PS also includes four optional applications, if necessary. Once the core components are up and running, one or more of these may be implemented: 1. Pro-social activities, stimulating the students to do things for the benefit of others in order to increase school connectedness and loyalty towards the school. 2. Work against bullying, inspired by Olweus' anti-bullying programme (Olweus,1996). 3. Work against truancy, including collaboration with parents, encouraging attendance, and immediate and consistent reactions to truancy (Sundell et al., 2007). 4. Work against substance use aims

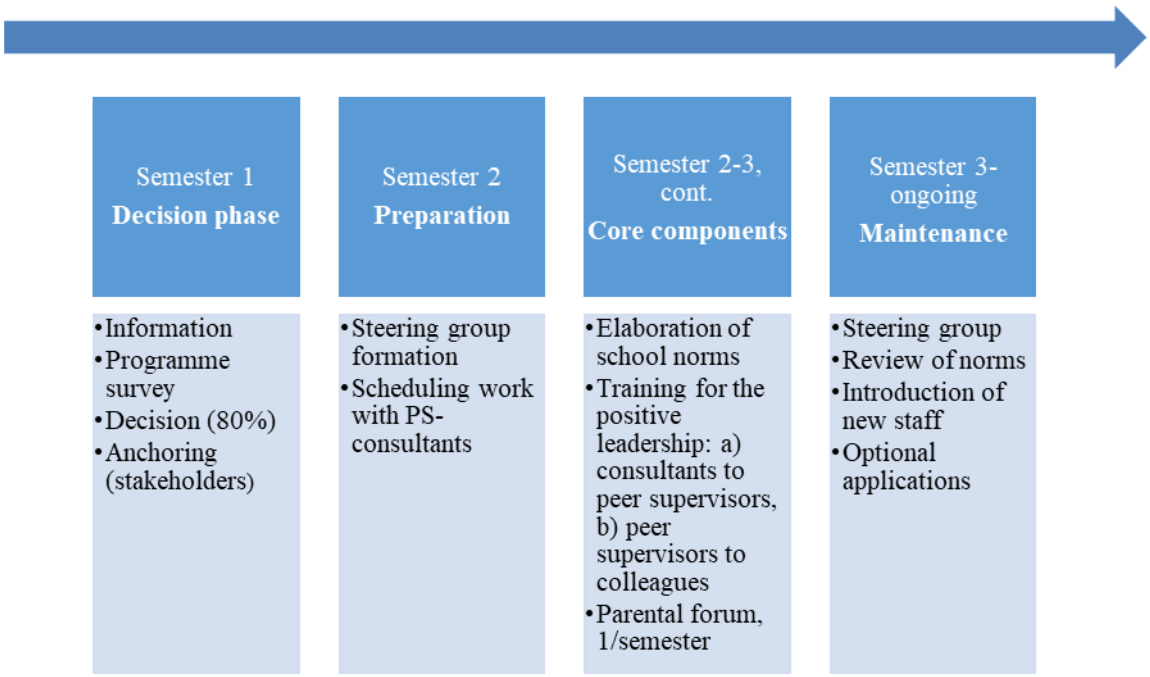
at preventing drug abuse by postponing the alcohol debut. As this thesis concerns the evaluation of the mandatory part of PS (i.e. the core components), the optional applications will not be described further.

1.6.3 Implementation structure, activities and process

Central features of the implementation support structure, influenced by the SWPBS model, are:
a) A local PS steering group of 5-8 persons, led by the school headmaster.
b) External PS consultants who provide training and supervision to each school.
The steering group is supposed to manage, drive and organize the activities for programme implementation and maintenance. The PS consultants assist schools in their decision of whether to adopt the programme or not, and then guide the steering group through implementation of the core components (a period of approximately 1 year). After full implementation, supervision is to be less frequent and performed only on demand, or if the school decides to implement any optional components. With time, the steering group is supposed to take on the responsibility for maintaining the work, since each school is supposed to "own" their own prevention work.

Figure 3 shows the activities to be performed in each of the four phases during implementation of PS. The process comprises a decision phase, a preparation phase, a phase for teaching, training and initial use of core components, and ongoing maintenance. The actual time needed for training of the core components and initial programme implementation is estimated to seven full working days. Once the work is up and running, steering group meetings are estimated to be required on two occasions each semester (Sundell et al., 2007)

Figure 3. Structure and activities for implementing PS.



1.6.4 Decision phase

Several activities are initiated to help school managers and staff to reach a decision on whether to implement the programme or not.

1. *Introductory lecture.*

The introductory lecture describes key prevention principles in the PS manual, covering for example the value of a) preventive (proactive) versus reactive strategies to address behaviour problems, b) addressing multiple risk and protective factors rather than single factors, and c) addressing all students rather than only students with indicated problems.

2. *School survey.*

A survey is administered to staff and students to assess the school's social and pedagogical situation and to investigate if there is a need for intervention. The survey results are then presented to staff in relation to the PS components.

3. *Decision on participation.*

Once the results have been presented, the school decides whether to adopt PS or not, and 80 % of the staff has to be in favour of programme adoption. Optimally, the schools are given four months to consider adoption, from the first lecture until the decision is made. At least three years must be allocated for the programme work.

4. *Establish commitment* among teachers.

It is suggested that consultants refer to the parts of PS which are connected to the Swedish curriculum, such as the requirements to work against offensive discrimination, to cooperate with parents, to clarify educational goals and to develop students' skills to exert influence and to take responsibility. The involvement of other stakeholders is also emphasized, e.g., stakeholders at the community level, to ensure that PS remains a priority even if there is a change of leadership at the local school level.

1.6.5 Preparation phase

Once a school decides to adopt PS, a local steering group with 5-8 members is formed, including the school headmaster, teachers, and school health personnel. The manual stipulates that group members need to be committed and have the mandate from colleagues. The group is operative and manages the local implementation process. This includes ensuring continued support for the programme, supervising colleagues, to follow up and secure implementation, and to provide ongoing information.

1.6.6 Core component 1: Norm work

The Norm work includes the development and teaching of 4-6 common school-wide rules ("Norms") which state expected behaviour. All school staff, students and parents are to be familiarized with the norms. The component resembles the PALS programme and SWPBS

model, but is not identical. The students are involved in the creation of norms under the assumption that students will be less prone to violate norms they have created themselves. The norms agreed upon should explicitly describe the desired behaviours in classrooms and during the breaks, and should be:

- concrete and measurable,
- positively formulated, stating desired behaviours and
- consistently applied.

Other essential principles in the norm work are clearly defined consequences of norm violations, acknowledging norm compliance and ignoring norm violations, as far as possible. The consequences are, like the norms, formulated through joint efforts. Consequences should be:

- fair,
- consistent,
- logical, and
- focus on behaviour.

The students should be well aware of what happens if they violate a norm. The work relies on knowledge about how we maintain behaviours due to their consequences (see also above, operant learning theory). If we experience a consequence as rewarding, chances increase that we will behave in the same way again. Conversely a presumed unwanted consequence, like getting extra homework, might make a student less prone to act in a certain way (Hammarberg, 2012; Sundell et al., 2007).

1.6.7 Core component 2: Positive leadership

Positive leadership is mainly based on the School-Comet programme (Forster & Karlberg, 2005). The training in positive leadership is conducted during five sessions and is held by peer supervisors educated by PS consultants. The peer supervisors get three hours of training in order to conduct the five sessions of peer supervision. The peer supervisors train their colleagues in parallel with their own training.

S*ession 1. To motivate with rewards.*

Teachers get instructions on how to acknowledge wanted behaviours, and how to decrease the focus on unwanted behaviours. Techniques to facilitate the giving of praise as well as motivation strategies are taught in the session. One motivation strategy is based on Premack's principle, that states that preferred activities (e.g. eating ice-cream) may reinforce non-preferred activities (i.e. eating and ordinary dinner with vegetables) (Myers, 1992). Preferred activities may therefore be allowed immediately after the students have completed a task, as an external motivation or "dessert."

S*ession 2. Classroom management.*

Teacher are trained sin preparation, instruction-giving and praise. The idea is that if students are properly prepared and aware of how a lesson is planned, they are more likely to complete their assignments. Teachers are taught to give very clear instructions on what needs to be accomplished during a lesson in terms of quantity and quality. The instructions are to be positive and the teacher are supposed to communicate positive expectations. This can be done by saying "I know you can do this" or "let us see if you can manage this task as brilliantly as you did yesterday." When students follow the instructions they should be praised for doing so. This is supposed to reinforce the behaviour to follow future instructions. Further, teachers are taught to give effective instructions, e.g., avoiding questions, approaching students with eye contact and giving each student enough time. The teachers are also advised to focus on what needs to be done, rather than paying attention on norm violations (Sundell et al., 2007).

Session 3. Ignoring disruptive behaviours.

The session concerns how to ignore undesirable behaviours. The manual describes this part of the programme as perhaps the most difficult, but it is stressed that ignoring is an effective evidence-based method, especially when it is combined with positive reinforcement. Teachers are to make a list of which behaviours that may be ignored (e.g., walking around in class or tardiness) and what behaviours cannot be ignored (such as making threats or fighting). The ignoring of behaviours is to be done consistently.

Session 4. To motivate with rewards.

The session contains training in classroom motivation programmes. It is about giving points or rewards when the class behaves according to norms and rules. An example is collecting peas in a bowl (a pea is put into the bowl every time a student has acted in a desired way) and rewarding the whole class (e.g., watching a movie and eating popcorn together) once the bowl is full of peas. Immediate reward ("catching the student doing something good") is another form of motivation, where a reward is given instantly after a certain accomplishment (for instance directly after a student has arrived in class on time). The motivation with rewards also include parents. When students behave well they get notes to bring home. Parents are encouraged to praise their children when they get those notes, in order to further reinforce the behaviour.

Session 5. More about norms.

Now, the work with norms continues with a focus on what to do if a student does not follow the norms. In those cases, it might be necessary to add consequences. They can be natural, e.g., cleaning up your own mess, or constructed, e.g., getting additional homework. The consequences that are used should be clearly defined, predictable, ethical and never be harmful (Sundell et al., 2007).

1.6.8 Core component 3: Parental forum

The parental forum is based on the Örebro prevention programme (Koutakis, Stattin, & Kerr, 2008) and the purpose is to give parents information, support and guidance in their role as parents. The main aims of the parental forum are:

- To motivate parents to encourage their children to participate in meaningful leisure activities.
- To motivate parents to be more restrictive to norm violations, especially drinking alcohol.
- To help parents make common agreements with other parents regarding rules and approaches towards their children.
- To increase the amount of quality time that parents and children spend together.

The parental forum is held once every semester within the regular parental meetings. An educated supervisor holds the lecture (the class teacher, or another teacher from the school). The forum starts with a 20-minute presentation. Research is presented on how leisure activities can positively influence well-being and social adjustment among children, as well as research on how parents' attitudes towards drinking affect youth drinking. Every forum contains elements that aim to strengthen the parent-child relation, such as common agreements among parents. The presentations are adapted to fit the different school years, with one presentation for the school years 4-5 and one for the years 6-9 (Sundell et al., 2007).

1.6.9 Programme maintenance

PS also gives advice on programme maintenance. The headmaster is stipulated as responsible for programme maintenance and keeping the programme on the school agenda. It is also suggested that the PS consultants distribute questionnaires to measure the effects of PS, and that time should be set aside twice per semester to discuss the results and any problems that might have occurred. If the results of the questionnaires indicate positive effects, it is suggested they are communicated to students, teachers, parents, local municipal leaders, the union and other stakeholders. Also, new employees need to be introduced to the programme as quickly as possible, with a member from the steering group responsible for those introductions. The programme content also needs to be repeated, especially after the summer break, preferably both at teacher meetings and in the classrooms setting (Sundell et al., 2007).

1.6.10 Alterations of the programme

According to the PS booklet/manual, schools should be given one semester to consider programme adoption. However, due to the time limits of the research project, the schools were asked to make a decision within three weeks. Also, before PS was implemented, the PS consultants found it necessary to perform some modifications. They created manuals with more specific instructions regarding each programme component. The manuals comprised

more concrete descriptions of how to work with PS, for instance guidance in how to use role play and discussions etc. They also added a FBA tool to the Positive leadership component.

1.7 INTERVENTION IMPLEMENTATION

1.7.1 A background to implementation research

There has been an increased interest in distinguishing intervention outcomes from implementation outcomes and to study implementation in itself (Lipsey & Pollard, 1989; Proctor et al., 2011). To study implementation of interventions are imperative when conducting effectiveness trials to enable interpretation of the results, and especially if no effects are identified (Fraser, Richman, Galinsky, & Day, 2009; Proctor et al., 2009). Studying implementation is also important when transferring an intervention from a controlled setting into the everyday practice, or when adjustments and programme changes need to be made (Proctor et al., 2009). Generally, the concept of implementation refers to the realization of ideas and is used as a synonym for words like perform, apply, realize or put into practice (Nilsen, 2014). Everett Rogers is often referred to in implementation studies. He started his work decades ago with studies on the diffusion of innovations (Rogers, 2003), i.e. research on how new innovations were spread through social systems and on the factors which facilitated or hindered their diffusion (Forman et al., 2013; Rogers, 2003). Rogers (2003) describes diffusion as a process with four main elements connected in the following way: An *innovation* (an idea, practice or object perceived as new) is *communicated* through certain channels *over time* among members (the providers) of a *social system.* Diffusion can be either planned or unplanned, or both. Planned change with a defined purpose is often designated dissemination, although both planned and unplanned change are included within the diffusion theory (Rogers, 2003). Further, Rogers found that the attributes of an innovation, as perceived by individuals in a social system, help to explain the rate of adoption, i.e. the implementation outcome (Rogers, 2003). He defined five important attributes:

- *Relative advantage* concerns whether the innovation is perceived as better than the previous ideas and if individuals perceive that the innovation could be beneficial.
- *Compatibility* refers to how the new ideas relate to existing socio-cultural values and beliefs, previously introduced ideas and the need for the innovation.
- *Complexity* refers to how difficult the innovation is to understand and use.
- *Trialability* is about whether it is possible to test the innovation or not. Testing is a way of giving meaning to and understanding an innovation, and to see how it works given the existing practices.
- The final attribute, *observability,* concerns whether there are any visible results of the innovation.

The providers of an intervention have been described as “being the intervention” (Fixsen, Blase, Naoom, & Wallace, 2009), since who they are, i.e. their perceptions of their profession

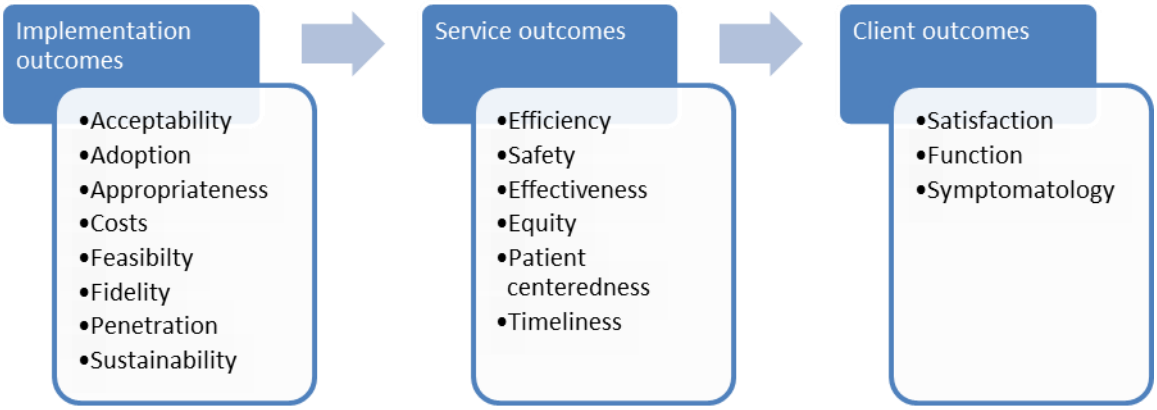
and of the intervention in itself may affect implementation (Durlak & DuPre, 2008; Greenhalgh, 2005; Rogers, 2003). The term adopter is sometimes used instead of provider and Rogers has classified different kinds of adopters, i.e. of how quick members of a social group are to embrace a new innovation: innovators, early adopters, early majority, late majority and laggards (Rogers, 2003).

Within the dissemination approach, implementation is usually defined as deliberate and purposive actions to put evidence-based practices to use (Brownson, Colditz, & Proctor, 2012; Proctor et al., 2009). Recent implementation studies within the field of human services (e.g., prevention, social work, education, health) aim at bridging the gap between the knowledge about what is effective and what is actually used in practice (Nilsen, 2014). The delivering organization, the programme providers, feedback mechanisms and the outer context are in focus here (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). Different models and frameworks have been developed describing implementation, and what needs to be considered during the process. Some models describe the implementation process and temporal order, and important factors during the different process steps (Meyers, Durlak, & Wandersman, 2012). Others focus on the different domains which surround the implementation process, and describe facilitators and barriers to implementation within the domains (Durlak & DuPre, 2008; Wandersman et al., 2008); as an example, essential factors connected to the community domain are funding or politics (Durlak & DuPre, 2008). Three models are described below.

1.7.2 Proctors conceptual model

Proctor and colleagues (2009, 2011) developed a conceptual model (figure 4) of types of outcomes in implementation research, where implementation outcomes, service outcomes and client outcomes are distinguished from each other. They suggest that conceptualizing and measuring implementation outcomes will lead to a better understanding of processes and facilitate comparative studies as well as increasing the efficiency within the implementation field (Proctor et al., 2011). The model is based on the logic that implementation affects service outcomes which in turn affect client outcomes, and that all outcomes need to be studied. Implementation outcomes are defined as "the effects of deliberate and purposive actions to implement new treatments, practices and services" (Proctor et al., 2011, page 65). Service outcomes are connected to the intervention and client outcomes refer to the practical and individual relevance for the client. Implementation outcomes are of special interest in the present thesis and are described further in the following.

Figure 4. Types of outcomes in implementation research (Proctor et.al. 2011)



The purpose of the definitions of the implementation outcomes was to develop a common nomenclature and provide a framework for evaluating implementation strategies. The concepts are all commonly used in implementation research, and earlier similar definitions also exist.

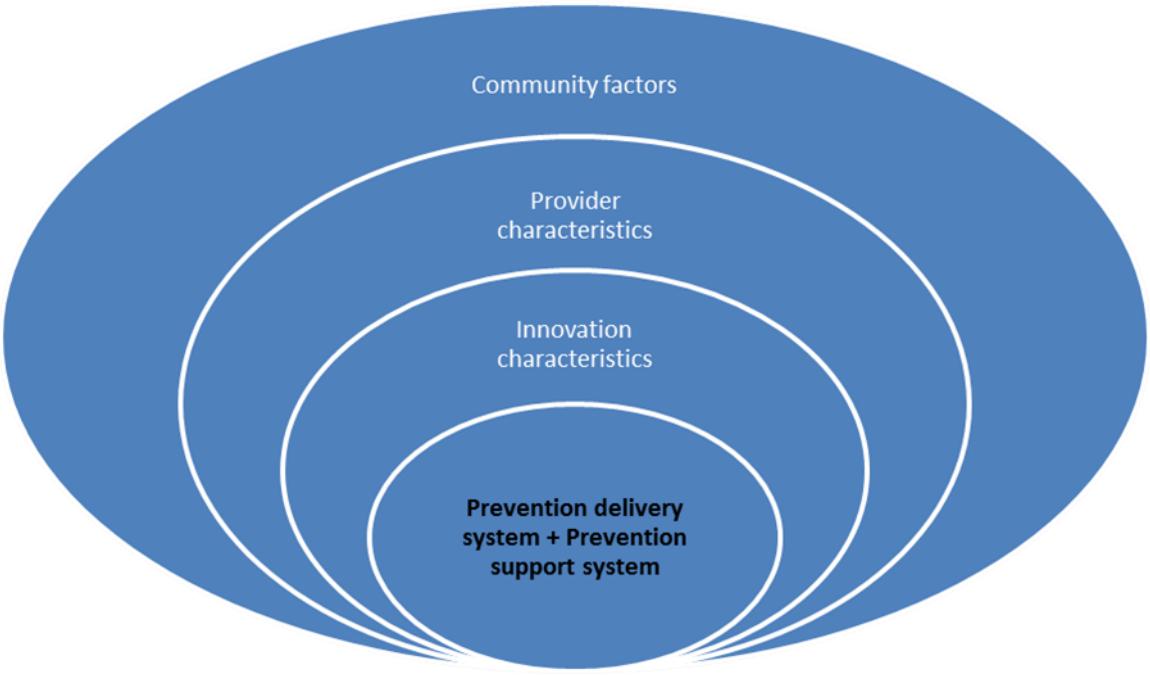
- *Acceptability* concerns whether the intervention is appealing, agreeable or satisfactory to the stakeholders and comprises factors such as content, complexity or comfort. It is presumed that acceptability changes over time and with experience. Acceptability resembles Rogers' relative advantage (see above).
- *Adoption* refers to the decision to use and to the uptake of the intervention.
- *Appropriateness* is the perceived fit, relevance and compatibility with the practice setting and/or the perceived fit given the specific problem. Appropriateness is distinguished from acceptability, since a programme might be appropriate in terms of how to solve a problem, but inacceptable because it would be too difficult to use. Appropriateness also incorporates the consistency with the providers' skills, expectations and professional roles, given the social climate and culture of the setting. Appropriateness resembles compatibility (see Rogers above and Durlak and DuPre below).
- *Cost* depends on the intervention in itself (complex interventions are often costlier than less complex ones), the implementing strategy (complex strategies cost more) and the service delivery setting (settings also vary in terms of complexity).
- *Feasibility* is about the possibility of implementing an intervention in a successful way, i.e. is it possible to use in practice? Feasibility is often connected to cost.
- *Fidelity* concerns whether the intervention has been implemented as prescribed. It covers *adherence* to programme protocol, as well as *dose* and *quality* of programme delivery (Proctor et al., 2011).
- *Penetration* is the integration of the intervention into the adopting setting and refers to both client and provider use.

- *Sustainability* refers to whether an intervention is institutionalized, e.g., permanently funded, integrated in budgets and sub-systems. Sustainability can be connected to penetration, since higher use of the intervention might lead to sustainability (Proctor et al., 2011).

1.7.3 The framework for effective implementation

Durlak and DuPre (2008) reviewed 81 studies of implementation of preventive interventions and identified over 20 sub-factors important to an effective implementation, many of them similar to those of Proctor (2011). They organized the factors as an ecological framework with five areas of concern: Community level factors, provider characteristics, innovation characteristics, organizational capacity/prevention delivery system and factors connected to the prevention support system (figure 5).

Figure 5. The framework for effective implementation, adapted from Durlak and DuPre (2008)



- The identified factors related to the *community* were prevention theory and research, politics, funding and policies. For instance, too much top-down pressure to provide new interventions might lead to less committed staff, and insufficient funding might result in low implementation.
- *Provider characteristics* were needs, benefits, self-efficacy and skills. Providers who actually perceive that there are needs and benefits connected to an intervention, who feel confident in their abilities to use it and have the right skills, are more likely to use the intervention.
- Regarding *innovation characteristics* adaptability and compatibility were the most prominent aspects found in the review. Adaptability refers to the flexibility of the

innovation and if it can be adapted to fit local needs. Compatibility is about contextual fit and whether the innovation is congruent with mission, priorities and values.

- Factors related to *organizational capacity/the prevention delivery system* were many, and were therefore organized in three categories: *General organizational factors* were a positive work climate, openness to change (innovativeness), integration of new programming and a shared vison regarding the programme (i.e. consensus and commitment to use the programme). The identified *specific practices and processes* were identified as shared decision-making regarding adoption, coordination and networking with other agencies, effective communication and task formulation (procedures that facilitate planning and clear roles). Finally, *specific staffing considerations* were identified as an important factor, i.e. leadership and a trusted programme champion who can create support for the intervention and negotiate solutions and administrative support**.**
- Identified factors related to the *prevention support system* were training to ensure skills and self-efficacy among providers, and technical assistance.

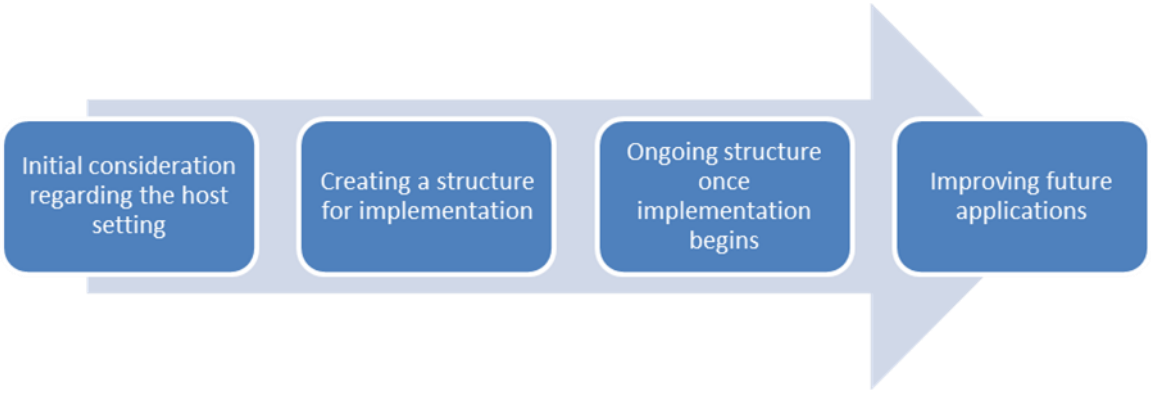
The prevention delivery system and the prevention support system are closely intervened and hence placed together in the inner circle of the figure. That is, a certain organizational structure as well as training and technical assistance for staff are at core to a successful implementation (Durlak & DuPre, 2008). The relationship between fidelity and adaptability is often discussed. If a programme is adapted, how can it be delivered as intended in the beginning? Since it makes sense to assume that changes in core components would affect fidelity more seriously than minor changes, a distinction between adoption as changing core components and adoption as making additions or modifications has been suggested (Berkel, Mauricio, Schoenfelder, & Sandler, 2011).

1.7.4 The Quality Implementation Framework

Within Rogers's diffusion perspective, implementation is seen as a step within a bigger decision process: *The knowledge phase* is about getting a first understanding of the innovation, *The persuasion phase* is where the attitudes towards the innovation are formed, *The decision phase* is about deciding to adopt or reject the innovation, *The implementation phase* is where the innovation is put to into use and *The confirmation phase* is when the decision to adopt or reject further use of the innovation is made (Rogers, 2003).

Meyers and colleagues conducted a literature review and a synthesis of 25 different implementation frameworks and theories, and presented the findings in the "Quality implementation framework" (QIF). It describes a process with four phases (figure 6), and basically develops the three last phases proposed by Rogers (above). Within each phase, critical steps or actions are identified, and most of them need to be addressed prior to the actual implementation phase (Meyers et al., 2012).

Figure 6. The quality implementation framework (Meyers et.al. 2012)



Phase 1. Initial consideration regarding the host setting.

Assessment strategies to explore the ecological fit of the innovation and evaluate the capacity to implement are to be used during this first phase. A *decision about adaptation* is also to be made: Does the intervention correspond to the needs? If not, is it possible to adapt and how can this be done? Staff may contribute valuable information about what might need to be adapted given their specific knowledge context, and they need a good understanding of the innovation's rationale to be able to do so. All these measures presuppose a programme model that is clear, with distinct training and programme manuals.

Once the fit has been assessed and any adaptations have been made, *strategies for capacity building* need to be set. Organizational capacity is a broad concept which refers to general organizational factors like work climate, openness to change, shared vision and integration of new programming. Capacity connected to a specific intervention delivery may be distinguished from general organizational capacity, i.e. there is a difference between the general capacity which exists regardless of the intervention and the capacity needed to succeed with the chosen intervention. However, this distinction is not often made in implementation studies. During capacity building, factors connected to infrastructure, skills and motivation need to be considered, such as securing the commitment of key leaders and staff, aligning the innovation with mission and values, as well as identifying possible barriers and facilitators to innovation use. A facilitative administration with a proactive leadership and a system for decision-making which is based on data is optimal. Identifying programme champions and rearrangements of the staff members may be necessary actions during this step, since the most suitable professionals need to be selected to perform the new programme or practice. A programme champion is a trusted opinion leader, an individual who facilitates the programme and serves as an advocate, a support and a negotiator during programme implementation. This is a professional who has the colleagues' mandate and who can affect the process of implementation in a positive way. Not only formal competency and experience are important, but also characteristics that are not easily learned, such as willingness to learn, common sense, empathy, ethics etc. The staff requirements might differ due to the degree of programme complexity; simple programmes are not as dependent on staff selection as more complex ones.

A final step during this first phase is to provide *effective pre-innovation training*, and it is optimally employed if resources, shared vision, leadership and support are secured. Training should provide a deeper understanding of the programme logic, develop skills and comprise feedback. It is a key driver in creating the required behavioural change, with active forms of training being more effective, e.g., role playing or performance feedback.

Phase 2. **Creating a structure for implementation.**

During this phase, *implementation teams* with qualified individuals who can take an overall responsibility for the implementation process need to be created as well as *implementation plans*. A well-functioning leadership is crucial and can be divided into two different types: a) Technical leadership, which refers to a more traditional process management that might be sufficient when an intervention is of a less complex kind, with little doubt about what needs to be done. b) Adaptive leadership, which is needed when the setting and/or the intervention is of a more complex kind, and it is more challenging to gain understanding and consensus among staff.

Phase 3. Ongoing structure once implementation begins.

This is when the actual implementation begins, i.e. the innovation is put into practice. In this phase, ongoing support strategies are needed. The staff need *coaching/supervision* in how to handle more challenging parts of the work. In addition to training, staff can be given coaching, which is a way to reinforce change in behaviours among practitioners. Coaching is about providing "learning on the job", and can be facilitated by creating specific coaching plans and by selecting coaches consciously. This is especially important when everything is new and it might be easy to fall back into old behavioural patterns. The most effective coaching activities include both data feedback and direct observation (in person, audio or video) to assess and develop skills. During this phase, a *process evaluation* of the innovation's limitations and strengths and how well the implementation is conducted should be performed, since some things might need to be adjusted. The fidelity of the providers' performance and the coaching are of interest. The use of data systems, e.g. collected data on implementation activities, can facilitate programme fidelity, but in order to be useful the data systems must be accessible and easy to understand. Hence, a structure for the feedback of evaluation findings is also necessary. *Feedback* also needs to be provided in a *supportive* manner and be perceived as an opportunity to learn and develop skills.

Phase 4. Improving future applications.

During this last phase, developers and researchers conduct retrospective analysis and self-reflection, i.e. *learning from experience* of failure and success. This can be facilitated through a collaborative relationship with the host setting and a genuine interest in practitioners' experiences of which factors that affect the implementation process, and how the process can be improved.

The QIF model described above is theoretical, and describes the best possible process, in reality, it may be that the adopting organization at some stage needs to reconsider earlier phases and make adjustments (Fixsen et al., 2009; Meyers et al., 2012). However, Meyers and colleagues found that certain steps need to be taken in a specific temporal order, to enhance the chances of implementation success. The agreement between the reviewed frameworks behind the QIF-model, in terms of their contents, was high for several aspects. In total, 92 % pointed to the importance of monitoring the implementation process and 92 % to staff acceptance and a supportive organizational climate. Many frameworks also referred to the importance of ongoing training (88 %), technical assistance/coaching/supervision (80 %), feedback mechanisms (72 %), and implementation teams (68 %). When the authors compared their synthesis with other implementation studies they found the strongest research support for training and technical assistance (especially the combination of these two).

1.7.5 Implementation in schools

In Sweden, the school system has gone through two major reforms during the last decades; municipalisation and the abolition of the state monopoly. Although schools have become more independent in relation to the state, research has showed that Swedish teachers feel restrained and unfree. They perceive an increased workload with new tasks which are not directly connected to traditional teaching (The Swedish National Agency for Education 2013), for instance increased documentation. The increased demands are not only a Swedish phenomenon, but exist in many other western countries (Ballet & Kelchtermans, 2008). Schools have encountered reforms, contradictory goals (van Veen, Sleegers, Bergen, & Klaassen, 2001), and also an expansion of the teacher's professional role to include more social responsibility (Jacobs & Struyf, 2013). Self-efficacy refers to providers' confidence in their abilities to use a programme (Durlak & DuPre, 2008), and teachers' self-efficacy has been associated with implementation success, whereas emotional exhaustion has been found to affect attitudes towards implementation negatively. However, alliances with coaches can buffer the effects of stress, and a good relationship with a coach has been found to moderate the effect of emotional exhaustion (Domitrovich et al., 2015).

Studies of implementation in schools need to consider schools as complex, ever-changing settings (Forman et al., 2013), affected by a variety of external factors (Lee & Gortmaker, 2012). Generally, research on implementation in schools shows that factors connected to organizational capacity, programme providers (often teachers) and the programme in itself are crucial (Han & Weiss, 2005; Lee & Gortmaker, 2012). During the initial phases of implementation, the degree of acceptance and consistency with teachers' philosophy is of particular concern. However, over time, the experience of whether a programme is effective or not plays a more vital role (Domitrovich et al., 2015). Also, school programmes are more likely to change during delivery than family-based or community-based prevention efforts (Molloy, Moore, Trail, Van Epps, & Hopfer, 2013). School researchers underline the importance of conducting careful process evaluations to investigate how interventions work in school practice and to consider the perspectives of the different stakeholders (Lee &

Gortmaker, 2012). Intervention studies have also been criticised for neglecting providers' perceptions, and the importance of investigating context-specific factors (Wandersman et al., 2008) and staff reactions has been emphasized (Greenhalgh, 2005; van Veen et al., 2001).

In a literature review of factors related to teachers' implementation of school-based interventions (Han & Weiss, 2005), four basic ingredients were identified that characterize sustainable teacher-delivered classroom interventions: a) *Acceptability to the teachers.* The programme needs to both meet perceived needs and complement teaching styles. The teachers' perceptions of acceptability are affected by a variety of factors: school district support, severity of student problems, type of intervention techniques, amount of required time, the compatibility with beliefs regarding what is needed and what is known about programme effectiveness. b) *Programme effectiveness.* In order to reach the desired outcomes, a programme needs to be used with fidelity. To achieve fidelity, training must be intense enough and comprise in-classroom feedback, in order to give teachers a wide and deep knowledge of how to use the core components. Teachers also need to experience effects on students to be motivated to continue the programme work. c) *Feasibility of ongoing implementation.* Besides being acceptable and effective, the programme also needs to be possible to implement given the specific school setting and sufficient resources need to be available. When a project ends, cuts in targeted funding are often made. In order to be sustained without external funding the programme has to function with relatively small resources, and be easy to integrate within regular practice. A way to accomplish this is to use teachers or school counsellors as implementers after the initial training period, a strategy stipulated in the PS programme. d) *Flexibility and adaptability.* An intervention needs to be adaptable to meet all changes likely to occur, and to fit the different kinds of classroom environments. Adaptation requires a flexible programme and an in-depth understanding of the programme's rationale, so that it is clear to which extent the programme can be adapted (Han & Weiss, 2005).

1.8 BACKGROUND SUMMARY

Even if most Swedish children develop in a positive way, their school related stress has increased (The Swedish Natinal Board of Health and Welfare, 2014) and some are at risk of a negative social development (The Swedish National Board of Health and Welfare, 2010). However, children develop in complex ways not always predictable, i.e. we cannot always know who is at risk for a negative development (Berryhill & Prinz, 2003; Catalano et al., 2002). That is also why programmes like PS target all children (Christle et al., 2007; Sundell et al., 2007). The school constitutes an important arena for intervention where practically all children can be reached. According to the social development model, school bonding promotes a positive development and prevents social and mental health problems (Bond et al., 2007). If a school is well organized and peers are in favour of academic achievement, school bonding can occur (Catalano et al., 2004).

Although less research has been conducted on classrooms than on entire schools, classroom climate has been linked to students' motivation, involvement in classroom activities, goal

orientation, academic achievement and social skills (Rowe et al., 2010). These are all factors known to facilitate school bonding (Catalano et al., 2004), and a positive development among students. Most of the interaction between teachers and students takes place in the classroom. Teachers who support pro-social values and cooperative relationships in class can improve students' behaviours, sense of belonging and attitudes towards the school (Christle et al., 2007; Jessor et al., 1998; Koth et al., 2008). Creating a clear structure for the classroom work, teaching and reinforcing clear behavioural expectations, and using behavioural response techniques are all strategies that promote a positive classroom climate (Simonsen et al., 2008). All of these strategies are included in the PS programme, and clear rules/expectations and teacher's use of praise are of special interest in the present thesis.

The PS programme was created to give all students a possibility to develop positively, and was built on the social development model (Sundell et al., 2007). It was inspired by behavioural programmes like the Scandinavian School-Comet and PALS. The Scandinavian programmes and the US SWPBS have indicated promising results like decreased reprimands, increased praise giving among teachers (Karlberg, 2011), a decrease in problem behaviours (Bradshaw et al., 2015; Forster et al., 2012; Karlberg, 2011; Solomon et al., 2012; Sørlie & Ogden, 2015) and an improved classroom climate (Sørlie & Ogden, 2015).

An implementation process ideally needs to follow a certain temporal order, but at the same time a variety of factors on different levels may affect the process. Schools' organizational capacity, as well as provider and programme characteristics (Durlak & DuPre, 2008) are of specific interest in this thesis, and are aspects found to be crucial to implementation in schools (Lee & Gortmaker, 2012). Researchers have advocated studies of implementation process and teachers' perceptions, to see if interventions fit the school practice (Lee & Gortmaker, 2012). Some have also criticized intervention researchers for neglecting providers and aspects specific to the implementation context (Wandersman et al., 2008).

2 AIM AND RESEARCH QUESTIONS

The PS programme differs from PALS/SWPBS and School Comet in several ways. Above all, it does not include targeted strategies for students at risk. Furthermore, PS is a programme that has never been fully used and evaluated before this thesis work. Based on this, it is of special interest to investigate if PS may have any effects in Swedish schools, especially since it aims at the universal prevention level only. Due to the programme's universal approach, with a variety of strategies to be implemented into a practice already put under pressure, implementation is of key interest to this thesis. In other words, to benefit the development of Swedish children, PS needs to be both effective and possible to use in practice. In this thesis aspects connected to the implementation capacity of the school, and the programme and the providers (teachers and headmasters) are of special interest.

Clear rules/expectations, teacher's use of praise and classroom climate are also of interest in this thesis. Most studies of such management strategies were conducted some decades ago, and there is a lack of studies on single strategies (Spilt, Leflot, Onghena, & Colpin, 2016).

Further, not much research has been conducted on classroom climate alone as an outcome, since aspects of the overall school environment often have received more attention (Pas, Cash, O'Brennan, Debnam, & Bradshaw, 2015). Also, more of studies based on students' perspectives has been recommended (Sabol & Pianta, 2012).

The initial aim of the thesis was twofold, to study:

1) If the programme is effective in enhancing the classroom climate, and decreasing problem behaviours among students (Study I) and

2) teachers and school staff's perceptions of programme and implementation (study II and III).

In the studies of implementation, the findings suggested that the programme at times was perceived as difficult to use, and that some teachers did not perceive any change in classes with groupings of disturbing students. The question arose, if the programme techniques might be more difficult to use in disruptive classrooms. Since less studies had been conducted on classroom climate, the possible longitudinal associations between teachers' use of praise/clarity of school rules and classroom climate became of interest. Also, earlier studies indicated that both students' perceptions of the learning environment (Koth et al., 2008) and teachers' strategies are of a more negative kind (Pas et al., 2015) in classes with more disruption. This led to an extension of the thesis aim, to also include:

3) To study if teacher's use of praise and clarity of school rules, regardless of programme use, could be useful as classroom management techniques, and if there were any differences between classes with fewer vs more of disruptive students (study IV).

The thesis addresses the following research questions:

- Does the PS programme lower the levels of students' externalizing behaviours?
- Does the PS programme lead to a better classroom climate?
- Which school organizational factors are crucial to the implementation of the PS programme? How do these factors influence implementation?
- How do teachers perceive themselves as providers of the PS programme and how does this affect implementation?
- How do teachers perceive the programme characteristics and how does this affect implementation?
- Do levels of student-rated clarity of rules, use of praise and classroom climate differ between students in classes with lower vs. higher numbers of disruptive students?
- Are clarity of school rules and teacher´s use of praise, as perceived by students longitudinally associated with classroom climate?
- Do the possible longitudinal associations between clarity of school rules and teacher's use of praise and classroom climate differ between classes with higher and lower numbers of disruptive students?

3 MATERIALS AND METHODS

3.1 PAPER I

3.1.1 Design

Study I is based on data collected between 2009 and 2012, and a quasi-randomized trial. A priori estimations of statistical power suggested that a sample of 3 887 students in 26 schools would generate a power of 80 % to detect a small effect size difference between groups. In spite of considerable recruitment efforts, only 23 schools were eventually included. The participating youths and their head teachers answered self-report questionnaires on three occasions. Due to project deadlines, the first school was predetermined to be a programme school, i.e. the PS consultants needed to start the implementation work. The rest of the participating schools (n=22) were assigned one by one immediately after the baseline measurement (T1), using simple randomization by opaque envelopes. In total, 13 schools were assigned to PS (1 867 youths and 119 teachers) and 10 to the control group (1 340 youths, 69 teachers). The baseline measurement (T1) was made in the grades 5, 6 and 7 and included 3 207 students and 188 teachers. The two follow-up measurements took place with 12 month intervals ± one month.

3.1.2 Recruitment

Municipal schools in Stockholm county and commuter cities in nearby counties which comprised the grades 4-9 and had at least two classes in the grades 5-7 were eligible. Invitations were sent to headmasters in the eligible schools, specifying that schools should have explicit goals to create supportive learning environments and prevent problem behaviour. They should also be willing to redistribute resources to support the process of programme implementation. When schools reported interest in participating, PS consultants and researchers made joint visits to inform the school management and staff about PS and the conditions for participation in the trial. After these meetings, a decision of whether or not to enter the trial was made at each school. As a prerequisite for study participation, 80 % of the staff should be in favour of the programme and trial participation. Also the number of students in the grades 5-7 needed to meet the criteria for enough study power. Of 347 schools assessed for eligibility, 243 did not meet inclusion criteria and 81 schools declined to participate, resulting in a total of 23 participating schools.

3.1.3 Measurements

Before the baseline measurement, information about the study was sent to parents with a possibility to decline their children's participation. All questionnaires were administered on site in the participating schools by the author of the thesis and a research assistant, who were both blind to the school's group allocation at T1, but aware of it at T2 and T3. Students and

teachers were informed that participation was voluntary and that their responses would be treated confidentially.

3.1.4 Control group

The schools randomized to the control group carried on with their usual work ("treatment as usual"). In order to facilitate recruitment and prevent attrition at follow-up measurements, each school assigned to the control group was given 20 000 Swedish crowns to be used for collective staff development and/or education.

3.1.5 Implementation of PS within the study

The schools randomized to PS used the programme in all classes in grades 4-9. School staff was trained by external PS consultants. The training and initial implementation comprised meetings with school steering groups, lectures on risk and protective factors and programme components and training in peer-coaching. The consultants had a minimum of 50 hours' contact with each programme school. Identical materials for the three core components were used in all programme schools and included instructions regarding the general structure, how to perform activities and how to apply them in the daily work. Three PS consultants worked with programme implementation, two were former teachers with cognitive behavioural training and with prior experience from working with School-Comet and one was an experienced school psychologist. They were employed by the Prevention unit in Stockholm City Council. The unit was specialized in classroom management and parenting programmes based on operant and social learning theory. Since they were the first consultants to work with the programme they did not get any specific training in the PS programme.

3.1.6 Measures, student reports

Classroom disorder: Problem behaviour in the classroom was measured using two items from the PS programme surveys (Hellqvist & Sundell, 2007) that reflect classroom disorder: "Classes are noisy and messy" and "Classes takes a long time to start because of disorder" (1 =Strongly disagree, 2 =Disagree, 3 =Agree and 4 = Strongly agree). Spearman-Brown, the preferred reliability estimate for two-item scales (Eisinga, Te Grotenhuis, & Pelzer, 2013), ranged between 0.72 and 0.74 for the three measurements.

Truancy and experiences of being bullied: Truancy was measured using one item "During last semester, did you ever play truant for a whole day?" (0 = No, 1 = Once, 2 = 2-3 times, 3 = 4-10 times and 4 = Yes, > 10 times). Three items based on Olweus' (Dan Olweus, 1993) definitions were used to measure experiences of being bullied. They reflected verbal, physical and non-direct types of harassment during the preceding semester and had four available response alternatives (0 = No, it has not happened, 1 = Yes, once or twice, 2 = Yes, about 2-3 times per month, 3 = Yes, about once a week, 4 = Yes, more often than once a week). Cronbach's alpha for these items was 0.67 at T1, 0.71 at T2 and 0.78 at T3. Since bullying is defined by Olweus (1993) as the repeated occurrence of harassment, a value of two or more indicated being bullied. The truancy and bullying variables were dichotomized due to

severely skewed data distributions. For truancy, the cut-off was zero (with 0 = 0 and all other values = 1).

Classroom climate: The 22-item student version of Class Room Climate Scale (Sørlie & Nordahl, 1998; Sørlie & Ogden, 2007) includes statements such as "Students in this class are interested and active during lessons" or "Students in this class collaborate well when we are asked to." Response options were 1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree. Cronbach's alpha was 0.92-0.93 for the three measurements.

Clarity of school rules: Clarity of school rules was reflected by five items from the PS programme surveys (Hellqvist & Sundell, 2007): "I know the rules in this school." "My parents know what goes on in school." "I care about what teachers say." "Teachers explain what we can and cannot do." "If I saw another student writing/drawing graffiti at school, I would tell them not to." Response options were: 1 = Strongly disagree, 2 = Disagree, 3 = Agree and 4 = Strongly agree. Cronbach's alpha was 0.69-0.70 for the three measurements.

Teachers' use of praise: Teachers' use of praise was reflected by four items from the PS programme surveys (Hellqvist & Sundell, 2007): "When I accomplish something at school I get praise from teachers." "Teachers often praise and encourage us." "If there's something you don't understand you quickly get help from teachers." "Teachers let my parents know when I do well at school." Cronbach's alpha was 0.76-0.78 for the three measurements.

3.1.7 Measures, teacher reports

Problems in schools and problems in classes: Two instruments were used for teacher reports of disruptive behaviour (Grey & Sime, 1989; Sørlie & Ogden, 2007). Teachers are asked how often they have managed various incidents (e.g., running in hallways, verbal assaults) during the preceding week in both school areas (15 items) and classrooms (20 items). Cronbach's alphas of 0.84 to 0.88 have been reported (Sørlie & Ogden, 2007); here they ranged between 0.80 and 0.84 for measurements of problems at school. For problems in classes, Cronbach's alpha was 0.88 for all measurements.

Behaviour problem students: The "Behaviour problems among students in class this year" (Ogden, 1998) with fifteen items asks the teachers how many students in their class exhibit problem behaviours, such as fighting or being inattentive, which make teaching or learning difficult. Sørlie and Ogden (2007) report a Cronbach's alpha of 0.82 for this measure. In this study, Cronbach's alpha ranged between 0.86 and 0.88 for the three measurements.

Classroom climate: The 14- item teacher version (Sørlie & Nordahl, 1998; Sørlie & Ogden, 2007) mirrors parts of the student version (see youth reports). Cronbach's alpha for this scale was low, between 0.44 and 0.46 for the three measurements.

Clarity of school rules: Three items from the PS programme surveys (Hellqvist & Sundell, 2007) reflect clarity of school rules for teachers: "Teachers in this school are in agreement on the rules that apply." "We really make sure that we apply the same rules to all students."

"Adults at this school know what students do during recess and gaps between lectures." Cronbach's alpha for teacher reports was 0.62 at T1, 0.58 at T2 and 0.67 at T3.

Teachers' use of praise: Teachers' self-reported praise of students (Hellqvist & Sundell, 2007) was reflected by three items from the PS programme survey: "I often praise and encourage students." "I inform parents when students do well in school." "I praise students who do well in school." Cronbach's alpha was 0.67 at T1, 0.54 at T2, and 0.61 at T3.

3.1.8 Implementation measure

To measure implementation, two items (for youth and teachers, respectively) from the 28-item School-wide Evaluation Tool (SET) (Horner et al., 2004) were used. In each school, 10 teachers and 15 students were randomly approached and asked to state their school rules and if they have given/received any rewards for expected behaviour in the last two months. The brief interviews were conducted by a research assistant during the second study year.

3.1.9 Sample characteristics

The trial comprised 23 schools situated in Stockholm county and in the neighbouring county of Uppsala. One Stockholm school was private and the rest public. Most schools in Stockholm county were located in suburban areas, although two were situated in the city. The 2011 grade point average (GPA) in the participating schools was similar to the GPA for all Swedish public schools in the same year (216.4 compared with 217.5). The study sample was representative of Stockholm county in terms of students' family demographics and emotional, behavioural and social problems.

3.1.10 Attrition

All 23 schools, including the two programme schools that terminated their participation during programme implementation, completed all measurements (T1, T2 and T3). Among the 3 207 students who participated in the measurement at T1, 426 (13.3 %) were absent at T2 and 603 (18.8 %) were absent at T3. The most common reason was a change of school. Among the 188 class teachers from T1, 107 (57 %) were replaced by one or two successors at T2 and/or at T3.

3.1.11 Statistical procedures

3.1.11.1 Sample

Analyses were based on data from all students (n=3 207) and their head teachers (n=188), measured at baseline, T2 and T3.

3.1.11.2 Analysis

Multilevel linear growth curve models were used to analyse the continuous outcomes, while multilevel multivariate logistic models were used for dichotomized outcomes. The models had four levels: school, class, student/teacher, and measurement occasion/response indicator.

Missing data were addressed by the maximum likelihood estimation procedure. Full information estimation procedures allow the inclusion of individuals who have missing data, under the assumption that the state of being missing is not related to a participant's actual status on that variable.

3.2 PAPER II

3.2.1 Design

A qualitative design with semi-structured interviews and thematic content analysis was used. The interviews were conducted in seven PS schools with seven school leaders and 13 school teachers during 2010 and 2011. The design of the interview guides was framed by concepts derived from a review of research on implementation of preventive and promotive programmes (Durlak & DuPre, 2008).

3.2.2 Participants

The sampling was made in the first six schools that had completed the training in the core components of the PS programme and in a seventh school that had terminated participation during training. The selection of study participants in each school was purposeful, and based on level of involvement in the PS work. Teachers from the steering groups were selected, since they had the best insight into the implementation process. In one school, teachers were recruited after drawing of lots, since there were more than two possible study participants. The selected school leaders were either headmasters or assistant headmasters, depending on who had been most involved in the programme.

3.2.3 Data collection

All interviews were semi-structured. Each interview lasted between 1 and 1.5 hours. All were conducted at the local schools, except two which were conducted at the main author's office. The interviews were recorded and transcribed verbatim.

3.2.4 Analysis

The data software Nvivo was used to facilitate the coding. The teacher and school leader interviews were analysed together through thematic content analysis. The analysis was performed in two steps, one deductive and one inductive. The initial phase was deductive and the material was coded in accordance with the pre-existing definitions of organizational capacity. The co-authors also coded a sample of the interviews and consensus discussions were held regarding the definitions of the concepts. In the inductive phase, patterns were sought and an overall theme and categories and subcategories were formulated by the PhD student and discussed with co-authors.

3.3 PAPER III

3.3.1 Design

A qualitative design with semi-structured interviews and thematic content analysis was used. The interviews were conducted in seven PS schools with 13 school teachers during 2010 and 2011. The design of the interview guides was framed by concepts derived from a review of research on implementation of preventive and promotive programmes (Durlak & DuPre, 2008).

3.3.2 Participants

The sampling was made in the first six schools that had completed training in the core components of the PS programme and in a seventh school that had terminated participation during training. The selection of study participants in each school was purposeful and based on level of involvement in the PS work. Teachers from the steering groups were primarily selected, since they had the best insight in the implementation process. In one school, the teachers were recruited after drawing of lots, since there were more than two possible study participants.

3.3.3 Data collection

All interviews were semi-structured. Each interview lasted between 1 and 1.5 hours. All were conducted at the local schools, except one which was conducted at the main author's office. The interviews were recorded and transcribed verbatim.

3.3.4 Analysis

The data software Open Code was used to facilitate the coding. The teacher interviews were analysed together through thematic content analysis. The analysis was performed in two steps, one deductive and one inductive. The initial phase was deductive and the material was coded in accordance with the predefined definitions of programme characteristics and provider characteristics. The co-authors coded a sample of the interviews and consensus discussions were held regarding the definitions of the concepts. In the inductive phase, patterns were sought and three main themes could be identified.

3.4 PAPER IV

3.4.1 Design

Study IV has a longitudinal design and is based on data collected within the quasi-randomized trial at baseline and at the 12-mont follow up (see paper I). To be able to compare classes with lower numbers of disruptive students with classes with higher numbers, head teachers' ratings of students with externalizing problem behaviour in their class were dichotomized. They were divided into: 0 = 2 or less students with problem behaviours in class, and 1 = 3 or more students with problem behaviours in class. This way the study sample could be divided into two groups.

3.4.2 Recruitment and measurements

For description of school recruitment and measurements, se paper I.

3.4.3 Measures

Number of disruptive students in class

Eight items from the 15-item scale "Behaviour problem students in class this year" (Ogden, 1998) were used. Head teachers were asked how many students in the class exhibit externalizing problem behaviour that make teaching or learning difficult, for example fighting with others or being interruptive. The questions had four response categories: 1 = 0 students, 2 = 1–2 students, 3 = 3–7 students, 4 = 8 or more students.

Classroom Climate

The 22-item student version of the Classroom Climate Scale was used to measure the students' perceptions of the psychosocial learning conditions in class. The Classroom Climate Scale covers two dimensions: teacher-student relationships and peer relationships. It was developed by Norwegian researchers (Sørlie & Ogden, 2007) with the Classroom Environment Scale (Trickett & Quinlan, 1979) as a model. It has earlier demonstrated good psychometric properties in terms of internal consistency (α = .88) and factorability (Sørlie & Ogden, 2007). The scale includes peer-relationship statements such as "The students in this class are good friends" and "Students in this class collaborate well when we are asked to". It also includes teacher-relationship statements such as "The teacher cares about me", "I have a god relationship with my teacher", and "The teacher makes no difference between boys and girls". The total sum ranged from 22-88 (α=0.93 at T1 and 0.92 at T2). All items were student-reported and contained the response alternatives 1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree.

Clarity of school rules

For student reports of Clarity of school rules, items from the PS programme survey (Hellqvist & Sundell, 2007) were used. Clarity of school rules was reflected by five items: "I know the rules of this school", "My parents know what goes on at school", "I care about what teachers say", "Teachers explain what we can and cannot do", and "If I saw another student writing/drawing graffiti at school I would tell the student not to". The total sum ranged from 5-20 (α = 0.68 at both T1 and T2). All items were student-reported and contained the response alternatives 1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree.

Teacher's use of praise

Four items from the PS programme survey (Hellqvist & Sundell, 2007) reflected student-reported teacher praise: "When I accomplish something at school I get praise from teachers", "Teachers often praise and encourage us", "If there's something you don't understand you quickly get help from teachers", and "Teachers let my parents know when I do well at school". The sum range was between 4 and 16 (α = .0.78 at T1 and 0.77 at T2). All items

were student-reported and contained the response alternatives 1 = Strongly disagree, 2 = Disagree, 3 = Agree, 4 = Strongly agree.

3.4.4 Sample characteristics

For the aim of the present study, 379 students in 22 classes from three schools were excluded from the original sample, since they could not be connected to a specific head teacher's ratings of number of disruptive students. Another 562 students in 25 classes, with two head teachers who were incongruent in their ratings of the number of disruptive students in class, were also excluded. The final study group consisted of 2266 students in 20 schools and 109 classes. All included schools were public schools. The grade point average (GPA) from 2011 was 207.31, which is slightly lower than the 2011 nationwide GPA of 217,5 for Swedish public schools (Swedish National Agency for Education, 2011). Due to high rates of head teachers changing school or class, the 24-month follow up is not included in the present study.

3.4.5 Missing data

For the 2266 students who participated in the present study, 1964 (87%) provided a full response and 302 (13%) a partial response to the items of the Classroom Climate Scale at T1. For the 22 individual scale items, non-responses varied between 1,2% and 2,4 %". Of all participants, 2148 (95 %) provided a full response and 118 (5 %) a partial response on the items of Teacher's use of praise. For the four items of teacher praise, non-responses varied between 1,2 % and 2,0 %". On Clarity of School Rules, 2189 (97 %) provided a full response and 77 (3 %) a partial response. On the 5 individual items, non-responses varied between 0,8 % and 1,1 %.

At T2, non-attending students were 429, and 249 of those had changed school. Hence there were 1837 attending students (i.e. 81 % of the baseline participants) at follow up, and 1603 (71 %) of those provided a full response to the 22 items of the Classroom Climate Scale. The partial non-response rate varied between 1.2 % and 2.9 %.

3.4.6 Statistical procedures

Analyses were based on data from 2266 students measured at baseline and T2. The sample consisted of two groups with 1351 students in 63 classes (56%) with lower numbers of disruptive students in class, and 915 (44%) in 46 classes with higher numbers. At baseline and in the group of students with lower numbers of disruptive students in class, 53 % were girls, compared to 47 % in the higher-number group. In both groups, 76 % reported that they spoke only Swedish at home, and 24 % reported either both Swedish and a foreign language, or only a foreign language.

To handle missing data, multiple imputation using a Markov Chain Monte Carlo (MCMC) procedure was performed. Multiple regression analyses were performed on the two subgroups (low disruption and high disruption in class) both to compare group ratings, and to study longitudinal associations. Intra- correlation coefficients (ICC) were calculated to

measure lack of independence between clusters. The calculation of standard errors of the means were adjusted for the lack of independence between classes/schools. Any further violation of the assumptions of linearity, independence of residuals, homoscedasticity, and normality were handled by using a sandwich estimator for the calculation of robust standard errors that assumes independence between, but not within clusters.

4 MAIN FINDINGS

4.1 PAPER I

Aim: To investigate if the PS programme had any effect on

- the hypothesized primary outcomes *students' externalizing behaviours* and *classroom climate*
- or on the secondary outcomes *clarity of school rules* and *teachers' use of praise*.

Results: The analysis showed no significant effect of the programme at the last follow-up, neither on students' nor on teachers' reported primary and secondary outcomes. The rate of change from T1 to T3 also did not differ between intervention and control group. The data on programme implementation showed that the majority of the schools had not implemented the programme.

4.2 PAPER II

Aim: The aim of the study was to explore teachers' and headmasters' perceptions of their school's organization and their ability to implement the PS programme. The following research questions guided the study:

- Which school organizational factors are crucial to the implementation of PS?
- How do these factors influence the implementation?

Findings: The findings show that the adoption of a comprehensive intervention like PS challenges the school organization, and the staff encountered a variety of organizational barriers when implementing the programme. Factors connected to lack of consensus, collaboration and insufficient programme management were the main barriers that could be identified. Teachers wanted a more extensive support from their headmasters in terms of participation in different programme activities. It was emphasized that peer coaches need to be prepared for their task, although the headmasters found it difficult to be able to choose those teachers who they perceived as the most suitable. It was concluded that leadership, coaching and staff selection need particular attention when implementing a programme like PS, since those factors have been defined as important implementation drivers, both in this study and previously.

4.3 PAPER III

Aim: The aim of this study was to investigate how teachers perceive and receive the PS programme and how this might affect the implementation process. The following research questions guided the study:

- How do teachers perceive themselves as providers of the programme and how does this affect implementation?
- How do the teachers perceive the programme characteristics and how does this affect implementation?

Findings: Professional identity, programme understanding and experiencing change were the general factors found to be important to implementation. Ambiguities regarding the boundaries of the social assignment, opposition against the theoretical underpinnings and an unclear nomenclature in a core component affected the implementation negatively. Among the perceived benefits were instant rewards in the form of aha moments and increased self-awareness. It was concluded that the nature of the implementation barriers indicates that PS is in need of further development.

4.4 PAPER IV

Aims: To study

- if student-rated clarity of school rules, use of praise, and classroom climate differ between students in classes with lower numbers of disruptive students vs. classes with higher numbers.
- if clarity of school rules and teacher´s use of praise are longitudinally associated with classroom climate.
- if the possible longitudinal association differs between groups. It was hypothesized that a longitudinal association would be weaker in the group of students in high disruption classes.

Results: Students in classes with less disruption rated all variables more positively. Classroom climate deteriorated over time. The low disruption group still perceived their climate as more positive at follow up, however the difference in classroom climate between the groups had decreased. Clarity of school rules did not substantially contribute to classroom climate longitudinally, whereas teacher's use of praise to some extent did. The difference in longitudinal associations between groups was marginal, and the hypothesis of weaker associations in the high disruption group could not be confirmed.

5 DISCUSSION

5.1 SUMMARY OF MAIN FINDINGS

The thesis results show no effects of PS on classroom climate and problem behaviours. However, some findings indicate that teachers' use of praise may be used to create a positive

classroom climate, regardless of programme use. Regarding the implementation of the PS programme, several barriers could be identified, and the evaluation tool SET (Horner et al., 2004) indicated that the programme was not implemented in the study schools. There was an overall lack of consensus in teachers' perceptions regarding the school's social assignment and the need for the PS programme. Collaboration was hampered since teachers sometimes worked in different buildings and also felt they lacked the time. According to the teachers, the implementation was not sufficiently supported by the headmasters, and peer coaches were not always prepared for their task. Teachers' interpretations of their professional role differed, and those with a more authoritarian approach were described as more critical towards PS. PS was also by some teachers perceived as a "behaviouristic" and "mechanistic", in a negative sense that contradicted their views on how motivation occurs. Especially the use of tangible rewards was perceived as controversial. Further, the core component norm work was perceived as difficult to use, mainly due to an unclear nomenclature. To experience change when using the PS programme was crucial. Some teachers in deed experienced a positive change, both in students' behaviours and in the own self-awareness. Others however, felt that the programme was difficult to use and had no impact on noisy classrooms, which in turn lowered their motivation and self-esteem.

Since the findings from the three first studies indicate that implementation did not succeed, important aspects of the implementation will primarily be discussed below. The implementation process and schools' organizational capacity, programme complexity and compatibility, as well as the observability of the PS programme will be in focus.

5.2 PROCESS AND CAPACITY

When implementing programmes like PS, which aim to affect the whole school environment, headmaster support and overall organizational capacity are of particular importance (Payne, 2009). According to various studies, summarized in the QIF-model described in the introduction (Meyers et al., 2012), certain steps to build up the organizational capacity are crucial and need to be taken at the right time.

The initial phase is especially important in terms of programme consideration. Since the schools were given a relatively short time to consider participation, a thorough investigation regarding programme commitment, ideology and overall mission most likely could not be done. Several teachers also stressed that there was a lack of understanding of both the programme and the effort required. It is possible that some of the problems which occurred later were consequences of having to make a rather rapid decision. During the first phase, staff selection is imperative (Meyers et al., 2012) and it is especially important when trying to implement more complex interventions (Bertram, Blase, & Fixsen, 2015). More time to consider staffing aspects during the initial phase might have solved some of the issues connected to peer coaching, though the stipulated coaching time and techniques could also have needed more careful consideration during programme development. Further, leadership support is crucial to the overall implementation process (Durlak & DuPre, 2008). The teachers requested a headmaster participating in all programme activities, a form of adaptive

leadership (Bertram et al., 2015) found to be especially important when trying to implement behavioural interventions (Forman & Barakat, 2011). However, it appeared that the headmasters were rather unaware of how important they were to implementation.

When the actual implementation begins, coaching, feedback and evaluation are important implementation drivers (Meyers et al., 2012). Feedback systems are known to enable necessary programme adjustment and increase fidelity (Bertram et al., 2015). Although there are some recommendations expressed in the PS manual regarding follow-up, feedback is not built in as mandatory and the recommended frequency is very low (once a year) (Sundell et al., 2007). This can be compared with the SWPBS model, which contains a system for continuous, data-based monitoring and evaluation. Infrequent follow-up may be another reason behind the implementation failure. Also, the PS programme lacks important features connected to successful coaching, such as direct observation in classrooms (Bertram et al., 2015). However, given that some teachers were not comfortable in giving or taking instructions from peers, in-class observations might have challenged the peer-coaching relationship even more. In summary, more time to consider adoption, more careful selection of key staff, more leadership support and structured feedback systems might have increased the opportunities to implement the PS programme.

5.3 PROGRAMME COMPLEXITY

Intervention complexity refers to how difficult an innovation is to understand and use (Rogers, 2003). The providers' perceptions of complexity affect the level of implementation, i.e. the more complex an intervention is perceived to be, the more difficult it is to implement (Proctor et al., 2011; Rogers, 2003).

During the implementation of PS, complexity was a concern as regards both understanding and programme use. The findings in study III show that it was possible to understand PS in several ways. The programme could appear as rather simplistic in terms of its theory, but at as rather complicated to implement in practice. Some teachers who seemed to have "cracked the programme code" suggested that a profound understanding of the programme was essential. Such understanding included that the teachers acknowledged themselves as active agents in the social interplay with students, i.e. as co-creators of student behaviours. Several researchers underline the importance of clear programme theories and manuals which are easy to understand (Bertram et al., 2015; Forman & Barakat, 2011; Meyers et al., 2012). The fact that the consultants had to make additional simplified manuals, and that one of the programme developers saw a need for a specific manual for the consultants (personal communication with Anne Hellqvist 31th of March 2016), indicates that programme and manuals were not sufficiently worked through. Furthermore, since the allocated time for consideration of trial participation was shortened, it seems reasonable that the teachers did not get a fair chance to understand the programme.

Regarding the use of PS, two of the programme activities – peer coaching and the norm work – were generally perceived as complicated. Although the implementation of school rules or

behavioural expectations (in PS," norms") has sometimes been found to be difficult also within SWPBS programmes (Molloy et al., 2013), the requirement for PS norms to reflect concrete, measureable behaviours might have further complicated the work. In SWPBS and PALS, the rule component comprises a two-step approach which starts with formulating brief, general rules, for example "Be safe, be responsible, be cooperative." These are made more concrete when later modelled and actively taught to students as social skills in different school areas, such as classrooms and hallways (Sørlie & Ogden, 2007). Such a structure would likely have made it easier for teachers to reach common agreements on norms in the PS work. The findings also point to the importance of using the accurate nomenclature when developing core components, i.e. concepts need to be clear and congruent with how providers normally use them.

Coaching is imperative to change behaviours among providers (Bertram et al., 2015; Fixsen et al., 2009) and peer coaching can build up self-efficacy and moderate the effects of emotional exhaustion (Domitrovich et al., 2015). However, it appears that the PS peer coaching was perceived as a complicated undertaking, which would have benefited from more supportive strategies. In line with another Swedish study (Langelotz, 2014), results showed that some teachers were uncomfortable with peer coaching from a power perspective, i.e. appeared more accustomed to work with their colleagues as equals. The training in peer coaching was also relatively low in intensity, with only five sessions, an aspect which most likely affected performance. For comparison, when implementing School-Comet (on which the positive leadership component is built) it was found that coaches needed a two-semester training to feel comfortable with their new roles (Karlberg, 2011). Successful coaching can also be facilitated by feedback from data systems and in-class observation (Bertram et al., 2015; Fixsen et al., 2009). However, as previously mentioned, no such feedback systems are included as mandatory in PS, although the consultants in the research project offered in-class observation on request. Hence, there was a lack of supporting structures to facilitate coaching, which may have contributed to it being perceived as complicated.

5.4 PROGRAMME COMPATIBILITY

A programme which is compatible with the setting is more likely to be used in an effective way (Durlak & DuPre, 2008; Proctor et al., 2011; Rogers, 2003). Thus, considering how a programme fits with mission, priorities, values and needs is crucial during the initial phase of implementation. In the findings from studies II and III, it is evident that certain aspects of the programme were not compatible with some teachers' views of their social assignment and their philosophy, including their views of motivation. Findings from study III especially indicate how a low compatibility with values and philosophy can have a large impact on implementation. In one school, lack of fit with the school's philosophy led to a decision to terminate programme implementation.

5.4.1 Social assignment and climate

The PS programme aims at creating a better classroom climate and reducing problem behaviours among students. The findings from study III show that teachers were divided in their views of the limits of their social assignments. This heterogeneity is in itself an implementation barrier, since a shared mission is an important part of organizational capacity (Durlak & DuPre, 2008) when adopting comprehensive programmes (Payne, 2009). Teacher recognition of the programme content as a part of their regular assignment is also vital (Forman & Barakat, 2011), especially when implementing comprehensive programmes (Bradshaw et al., 2010).

Researchers have stressed that an increased focus on the social climate might be a way of balancing the overall school trends and policies, and strengthening teachers sense of professionalism (Allodi, 2010). However, even though a relatively large international research base indicates that school climate has an impact on students' future development (Bond et al., 2007; Peguero & Bracy, 2015), this has not received much attention in Swedish education. Allodi (2010) argues that this is due to a dualistic view of education where school climate and learning are seen as separate from each other, and where the educational system values cognition higher than emotion. Further, the study of aspects connected to classroom climate are not mandatory during the teacher education, and there has been less Swedish research on the topic (study IV is one contribution though). The structuring of social goals may also be problematic, since values and beliefs differ between teachers (Allodi, 2010). Such aspects of consensus are definitely evident in the thesis findings, i.e. problems in agreeing on common norms.

5.4.2 Philosophical roots

Objections to the "behaviouristic" programme theory existed to some extent in all schools included in the qualitative studies, with moral concerns regarding the "perspectives on mankind" and how to work with students' motivation. Among the programme opponents, intrinsic motivation appeared to be valued higher than extrinsic motivation, and the PS techniques were perceived as mechanistic and associated with "dog training." Those who had perceived positive effects opposed those interpretations and stated that PS had changed their work profoundly, and in a positive way. It should be noted that study IV indicates how classroom relationships were affected by teacher praise, which strengthens the notion of rewards as an effective tool. However, the existing resistance clearly hampered implementation since compatibility with teachers' philosophy is vital, especially at early stages in the implementation process (Domitrovich et al., 2015).

A scepticism within the Swedish educational field towards other research fields has been noted, especially towards educational psychology. This may create a split between professionals and researchers and hinders the uptake of research conducted within other fields. Further, Swedish educational researchers are more inspired by critical theories and often lack interest in programme intervention (Allodi, 2010). The teacher education also

conveys more critical approaches and focuses on developmental stages and intrinsic motivation (Säljö, 2003), as opposed to Bandura's theories, for instance, which emphasize the importance of extrinsic motivation as well (Crain, 1992). There is a risk that teachers interpret interventions which target social climate as merely instrumental and as measures to create "desirable" behaviours (Allodi, 2010). The teachers' resistance illuminated in the findings of study III is consistent with this line of reasoning.

5.5 PROGRAMME OBSERVABILITY

Observability, i.e. that providers perceive effects of an intervention, increases the likelihood they will continue to use it (Rogers, 2003). Findings from study III show how visible change among students motivated a further use of PS, which is in line with prior research on implementation in schools (Han & Weiss, 2005). Experiencing "aha-moments" and increased self-awareness also had a motivating effect. Those who experienced visible proof of their efforts also seemed to have a deeper understanding of the programme's rationale. Some of them had previously received education in School-Comet, which means they had received more training in techniques connected to the positive leadership component. It is likely that their prior experience made them use the PS programme in better ways. Even though some teachers reported that PS was effective in the work with individual children with ADHD diagnoses, others were disappointed that the strategies did not have any impact on disruptive groupings in their classes. In study IV it was indicated that praise may be used to create more positive classroom climate, but there were no substantial differences between groups with different classroom compositions in terms of disruption. Since prior research on three tiered SWPBS programmes has indicated some promising outcomes (Solomon et al., 2012), especially for children at risk (Bradshaw et al., 2015), the classes with disruptive groupings might have benefited from additional strategies.

5.6 METHODOLOGICAL CONSIDERATIONS

5.6.1 Study I

In theory, a randomization balances the groups on observed and unobserved variables, and provides the best chance to reliably assess program effects (Shadish, Cook, & Campbell, 2001). As the first school recruited was predetermined to be a programme school (due to project deadlines) and the remaining schools were randomized, the design of study I was quasi-randomized. This procedure theoretically implies a higher risk of selection bias due to pre-existing differences between study groups; however, there were no statistically significant differences between the groups at baseline.

Due to the possibility of both over- and underestimations when self-reporting problem behaviour, the validity of self-reported data is always a concern. However, the validity of self-reported data is often satisfactory when participants are guaranteed confidentiality (Brener, Billy, & Grady, 2003), which they were in the present trial. The nature of the trial excluded the possibility of keeping participants blinded to their group assignment. This could have affected especially the teacher responses. Teachers assigned to the PS group may, due to

knowledge of their group membership, have responded in a socially desirable way for example by reporting higher levels of praise. However, there were no differences in teacher reported praise between baseline and the 2-year follow-up. Furthermore, due to teachers changing classes and staff turnover, the reports were often made by different teachers at the different measurement occasions. This increased the margin for errors in the data, leading to difficulties in detecting program effects, if there were any.

The School-Wide Evaluation Tool (SET) is a reliable and valid instrument developed to measure implementation of SWPBS programmes. However, only two items for teachers and students, respectively, were applicable to PS. Although only a small fraction of the instrument could be used, some knowledge of the implementation of the PS core components was considered to be better than none.

The participating schools were located in cities and suburban areas, which may limit the generalizability of the results to other schools, for example in the countryside. However, the students' grade point average (GPA) was similar to the average GPA of public schools in the county that same year (2011), and the sociodemographic characteristics of the students in the participating schools were representative of schools in Stockholm county.

Regarding statistical power to detect program effects, it was estimated that 26 schools were needed. In spite of extensive efforts from both PS consultants and research team, only 23 schools could be included in the study. In addition to the implementation problems which are discussed in this thesis, it is possible that insufficient statistical power also contributed to the null findings of study I.

5.6.2 Studies II and III

There are several aspects of trustworthiness in qualitative studies. *Credibility* concerns rigour (Morrow, 2005) and congruence with reality (Shenton, 2004) and it can be achieved in several ways. In studies II and III, peer debriefing regarding concepts and coding was used throughout the process, as well as co-coding, to ensure rigour in terms of conceptualization. Both the predefined concepts and those formulated during the inductive phase of analysis were discussed. Triangulation is another strategy to enhance credibility. Through the use of different methods or a wide range of informants, congruence with reality is to be achieved (Shenton, 2004). Lack of method triangulation may be a major limitation in study II and III, if they are considered as separate from study I and IV. However, compiling the quantitative and the qualitative studies in the thesis increases the credibility of the research project as a whole. The recruited participants in studies II and III were chosen among teachers who were involved in the PS steering groups, whereas the perceptions of those not engaged in the teams were not covered. This may be a limitation, since not all teachers' perceptions were covered, and since teachers choosing not to be members of steering groups may have had a less positive view of the PS programme. The participants were, however, able to talk about the implementation processes and their school also with regard to reactions of their colleagues. Further, interviewing staff from seven schools provided results from different settings, which

is a strength in terms of range (e.g., compared with a case study), since the organizational climate most likely differs between schools.

Thick description of phenomena, examination of previous research, and familiarity with the setting also enhance credibility (Shenton, 2004). Thick description refers both to participants' experiences and to context, and was mainly covered by the use of quotes. Studies II and III might both have benefited from more information regarding the Swedish school context. In terms of familiarity with the setting, this was to some extent accomplished by spending a lot of time collecting data in the schools. This gave a possibility to gain insight regarding teachers' sometimes very stressful work situation.

Transferability concerns whether findings are applicable to other situations or settings. However, given the relatively small sample sizes in qualitative studies, this cannot be ensured like in quantitative studies. Instead, enough contextual information should be given, to enable a meaningful comparison with other settings (Shenton, 2004). The references to the teachers' general work situation in the studies, for instance on teacher identity and peer coaching, are attempts to contextualize. Possibly, more information about the Swedish school setting could have enhanced the possibility to make comparisons.

Dependability refers to transparency regarding the research process (Shenton, 2004). The different steps in the coding process are described in both studies.

Confirmability concerns whether the findings represent the phenomena investigated, as opposed to the beliefs of the researcher (Morrow, 2005). The interrater coding conducted on interview samples enhances was a way of ensuring confirmability. The SET measurements in study I also confirms the troubles in implementing the programme showed in the two qualitative studies, and the SET measures and the interviews were not conducted by the same person.

5.6.3 Study IV

The data used in this last study were also used in study I, and consequently the procedure for collecting it was the same (see study 1). Du to this the strengths and limitations regarding student and teacher reports would be the same as in study I. However, a subsample had to be selected in order to be able to classify the students in terms of numbers of disruptive students in class. Some students and classes could not be connected to a specific mentor and could not be classified. Because of this, those classes were removed. Also, in classes with two mentors who differed in their judgment of disruption the choice was made to remove those classes as well, which further decreased the study power. However, due to the fairly large sample and the use of multiple imputation to minimize loss of information within subjects and items, lack of power cannot be judged as a major concern. The removal of students and classes had some impact on the GPA of the students, which was slightly lower than in the sample in study I. However, the difference between students participating in study I and students nationwide was still not large, and most likely did not affect the representativeness, at least not with regards to GPA.

In the present study, Classroom Climate at baseline was statistically adjusted for in the longitudinal analyses, a common strategy to decrease the risk for committing type I errors, i.e. obtaining false positive findings. It has been discussed, however, whether such adjustments might provide biased estimates, and increase the risk for committing a type II error (Glymour, Weuve, Berkman, Kawachi, & Robins, 2005). When conducting analysis without baseline adjustments, the correlations between clear rules and use of praise at baseline and classroom climate at follow up were stronger in both groups (data not shown). However, due to the prevailing rule of thumb that Type I is a more serious error than Type II, we choose analyses which included baseline adjustments.

5.7 THESIS STRENGTHS AND LIMITATIONS

The evaluation of the PS programme was commissioned by the Development Centre for Child Mental Health at the National Board of Health and Welfare in Sweden. When the assignment was accepted, the research and development unit in charge of programme development did not exist anymore and the developers had moved on to other jobs. This made it complicated to get a comprehensive understanding of the process behind the programme development. For instance, after the randomized trial had been initiated, it became clear to the research team that a full pilot testing and subsequent revisions of PS had not been conducted, a circumstance which may explain why some of the core components were difficult to use. In addition to this, the PS project shows that a collaboration between evaluators and developers would have been useful, as stressed by other researchers as well (Forman et al., 2013; Lee & Gortmaker, 2012). This would have made it possible for researchers to conduct a structured pilot testing together with programme developers, teachers and consultants. However, these are ideal circumstances which require cohesive funding for many years. The findings from studies II and III indicate that the shortened time to consider adoption may have affected implementation. It is possible that some schools would have rejected participation with more time to consider the theoretical underpinnings. This applies in particular to the school which eventually chose to quit the programme because of ideological objections. Given all this, the quasi-randomized trial was performed under sub-optimal circumstances.

The main focus of this thesis is on the programme providers and the local school setting. The fact that the school system and politics are not discussed to any greater extent is a limitation. Aspects pertaining to the society level, might have had an impact on implementation as well. Like for instance, a new curriculum to be implemented. Nonetheless, the main purpose of this thesis was to evaluate the new PS programme and how it was perceived at the local school level.

The thesis' main strength is the mixed method approach, and that both implementation and programme effects are studied. Regarding studies II and III, the directed approach with pre-defined concepts can be seen as a strength, since it provides a research-based frame, but also as a limitation, since it may narrow the questions to the teachers. The concepts used were, however, rather broad in their definitions, and most likely covered all important aspects.

Grounded theory (Corbin & Strauss, 2015) could have been an alternative method, since it is developed specifically to investigate processes. At the same time, the limited time teachers had at their disposal might have made it difficult to perform required activities like follow-up interviews etc.

5.8 FUTURE RESEARCH AND IMPLICATIONS FOR PRACTICE

Given the complexity of initiatives like PS, it appears necessary to look at research, practice and policies as a whole to succeed with implementation. Several researchers also emphasize the need for a multi-actor approach, with close collaboration between researchers, providers and other stakeholders (Fixsen et al., 2005; Forman et al., 2013; Fraser et al., 2009; Lee & Gortmaker, 2012). Based on the experience of the PS project and this thesis, qualitative methods definitely have a role to play; not only as means for final evaluation, but also throughout the process of programme development and implementation. Regarding future research, maybe the question on *how* to conduct programme development and research is more important than the question of *what* needs to be further investigated.

However, some areas could benefit from more knowledge. Since the findings indicate that the teachers were disparate in their views and willingness to use PS, it would be of interest to further investigate what characterizes early adopters and late adopters among teachers. According to Domitrovich (2015), studies have indicated that high levels of experience are not associated with higher implementation, but that higher education is. Also, it has been found that younger teachers are more interested in changing their regular teaching practices than older ones. However, other studies have failed to show any association between professional characteristics and implementation (Domitrovich et al., 2015). Such contradicting results indicate there is a lack of knowledge regarding demographic and professional teacher characteristics, and the role they play for the adoption of new practices. This thesis clearly shows that behavioural approaches will not necessarily be well received by Swedish teachers, especially rewards in the form of token economy were not well received. Researchers have also suggested that differences between universal interventions and more targeted ones need to be studied further (Forman & Barakat, 2011), as well as which types of interventions that can facilitate stakeholder support (Forman et al., 2013).

In practice, a thorough discussion is imperative prior to any implementation. It appears crucial to take the time needed to understand programme rationale and to consider how it fits the views of school staff. In a Swedish context, there appears to be a need for further clarifications regarding teachers' social responsibility and how it can be put into practice.

6 CONCLUSIONS

This thesis cannot provide an answer to the question whether PS could be effective or not, since findings indicate that the implementation of PS did not succeed. However, some findings support the notion that teacher's use of praise may contribute to improve the classroom climate.

Even though the development of PS was inspired by empirically supported model programmes, findings indicate that the programme lacks some features known to be important for intervention implementation. Schools also seem to require more of organizational capacity to implement a programme of this kind.

The core component norm work was perceived as both unclear and complicated. Teachers were divided in their views of their social assignment, and there was a lack of programme compatibility with some teachers' ideological and philosophical positions. A deeper understanding of the programme's theoretical standpoints before programme adoption most likely would have been beneficial.

It can be concluded, that if the PS programme is to be used again there is a need for thorough testing and revision, and sufficient time needs to be given to consider programme adoption in schools.

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