



PH.D.-AFHANDLING

SIMON SKOVGAARD JENSEN

Reducing Inequality through Discipline



AARHUS
UNIVERSITET

DPU - DANMARKS INSTITUT FOR PÆDAGOGIK OG UDDANNELSE

Reducing Inequality through Discipline

Simon Skovgaard Jensen

Reducing Inequality through Discipline (Reduktion af Ulighed gennem Disciplin [Danish Title])
Simon Skovgaard Jensen.

Ph.D.-dissertation handed in at the Danish School of Education (DPU), Aarhus University.

Main-supervisor is David Reimer, and co-supervisors are Felix Weiss and Mikael Birkelund Jensen-Johansen.

The Ph.D.-scholarship was founded by VIA University College Holstebro, Holstebro Municipality, and Aarhus University, and was made as a collaboration between DPU and the Method Center for Welfare VIA University College Holstebro.

Foreword

This Ph.D.-project was initiated as a project to evaluate the effect of the Danish adoption of the school-programme ‘*School-Wide Positive Behaviour Support*’ (SWPBS), which is intended to reduce externalizing and disruptive behaviour in primary and lower secondary education. The programme was developed in the United States and has made its way to Denmark through Norway in 2008. In Denmark, the programme is known as ‘*Positiv Adfærd i Læring og Samspil*’ (PALS), and at least 54 schools have used the programme since 2008. When introduced in Denmark, the programme was presented as an evidence-based intervention. While such evidence exists in the US and to some extent Norway, prior research has not found any effect of the programme in Denmark. This surprising inconsistency was the initial motivation underlying the project: Is it possible that a school programme, whose effectiveness has been demonstrated in both the US and Norway is not effective in Denmark? Moreover, the project’s goal was to address the programme through a sociological-lens, in particular, examining to what extent socioeconomic status determines whether children benefit from the programme.

The dissertation is based on three articles and is structured as follows. An introduction presents the methodological and theoretical underpinnings of the dissertation and describes how the three articles related to each other. The introduction is followed by three chapters, which contain the articles.

Summary of results

In the following, I summarize the findings of the three articles. The first two articles address questions related to SWPBS directly, while the third article addresses a relationship assumed to exist in the programme, when *classroom disciplinary climate* improves, students’ academic achievement also improve.

Article 1: In the first article, “Reducing Inequality through Discipline: Evaluating the Danish adoption of School-Wide Positive Behaviour Support”, I used the Danish student wellbeing survey to test whether

SWPBS was associated with classroom disciplinary climate, academic self-efficacy, the learning environment, and social wellbeing. Motivated by Bourdieu (1977)'s theory of cultural reproduction and a development of Bowles and Gintis (1976)'s theory of the correspondence principle, I tested whether students of different socioeconomic status benefitted equally from the programme. I found that SWPBS was associated with improved classroom disciplinary climate and academic self-efficacy and that the programme benefits students of different socioeconomic status similarly.

Article 2: The second article, "Effects of School-Wide Positive Behaviour Support in Denmark: Results from the Danish National Register-data", utilised the Danish Register-data to test the effect of the programme using a difference-in-differences design. The article tested the effect on the outcomes: academic achievement, enrolment in upper secondary education, unemployment, and crime. The results indicated that in the second and third year of implementation, the programme increased academic achievement, but the effect faded out after three years of implementation. No effects were indicated for the remaining outcomes.

Article 3: The last article "Does Classroom Disciplinary Climate really Affect Academic Achievement, and does it vary across socioeconomic status?: New Evidence from Panel Data", was made in collaboration with my supervisor David Reimer. The article also used the Danish student wellbeing survey as well as students' tests-scores. The article investigated the causal relationship between classroom disciplinary climate and academic achievement. Moreover, the article addressed whether students of different socioeconomic status benefitted equally from classroom disciplinary climate. The study found that classroom disciplinary climate had a small effect on academic achievement and that students of lower socioeconomic status benefitted relatively more from a positive classroom disciplinary climate than high socioeconomic status students did.

Overall, the results of the dissertation show some potential of the SWPBS-programme, and that it could work in Denmark. Furthermore, the results suggest that SWPBS works similarly for students of different socioeconomic status. Moreover, the results confirmed that there is a causal relationship between *classroom disciplinary climate* and academic achievement, as assumed in SWPBS. The positive relationship between the classroom disciplinary climate and academic achievement seems to be stronger for students of lower socioeconomic status.

Dansk Resume [Danish Summary]

I denne ph.d.-afhandling har jeg undersøgt effekten af skole-programmet 'Positiv Adfærd i Læring og Samspil' (PALS). PALS er en skoleomfattende indsats, som er tilsigtet at mindske udadreagerende og forstyrrende adfærd i folkeskolen. PALS stammer oprindeligt fra USA, hvor programmet er kendt som 'School Wide Positive Behavior Support' (SWPBS). Programmet kom til Danmark i 2008 via Norge, og er sidenhen blevet brugt på mindst 54 skoler. Udover at undersøge effekten af programmet, har mit ønske også været at belyse PALS fra en sociologisk vinkel, specielt med henblik på at forstå, hvordan programmet potentielt kan mindske social ulighed i skolepræstationer.

Afhandlingen er artikel-baseret, og udgøres af tre artikler. De to første artikler fokuserer på skole-programmet PALS og dets effekter. Den tredje artikel undersøger effekten af det *disciplinære klima i klasseværelset* på faglige præstationer. I PALS-programmet er det antaget, at en sådan sammenhæng findes, og motivationen for artiklen var at undersøge om denne antagelse var korrekt. I det følgende præsenterer jeg de overordnede fund fra de tre artikler.

Artikel 1: I den første artikel "Reducing Inequality through Discipline: Evaluating the Danish adoption of School-Wide Positive Behaviour Support" brugte jeg de nationale trivselsundersøgelser til at undersøge, hvorvidt PALS har en sammenhæng med det disciplinære klima i klasseværelset, elevernes tro på egne akademiske evner, læringsmiljøet, og elevernes sociale trivsel. På baggrund af Bourdieu (1977)'s teori om kulturel reproduktion og en nylig udvikling af Bowles og Gintis (1976)'s

teori om korrespondance princippet, testede jeg, hvorvidt studerende af forskellige socioøkonomisk status havde ensartet gavn af at gå på en PALS-skole. Jeg fandt, at PALS var associerede med et forbedret disciplinært klima i klasseværelset og elevernes tro på egne akademiske evner. Endvidere indikerede resultaterne, at PALS gav alle elever uafhængigt af deres socioøkonomiske status.

Artikel 2: Den anden artikel ”Effects of School-Wide Positive Behaviour Support in Denmark: Results from the Danish National Register-data”, anvendte de danske Register-data til at undersøge effekten af PALS med et ’forskelle-i-forskelle’ design. Artiklen testede effekten af programmet på faglige præstationer, at begynde på en ungdomsuddannelse, arbejdsløshed, og kriminalitet. Resultaterne indikerede, at programmet forbedrede de faglige præstationer i det andet og tredje implementeringsår, men herefter forsvandt effekten. Jeg fandt ingen effekter på de andre mål.

Artikel 3: Den sidste artikel ”Does Classroom Disciplinary Climate really Affect Academic Achievement, and does it vary across socioeconomic status?: New Evidence from Panel Data”, er lavede sammen med min hovedvejleder David Reimer. Artiklen brugte også de danske trivselsundersøgelser samt de nationale test i folkeskolen. Artiklen undersøgte årsagssammenhængen imellem det disciplinære klima i klasseværelset og faglige præstationer. Herudover, undersøgte artiklen, hvorvidt studerende af forskellige socioøkonomisk status har samme gavn af det disciplinære klima i klasseværelset. Artiklen fandt, at det disciplinære klima i klasseværelset havde en lille effekt på faglige præstationer. Endvidere fandt studiet, at studerende af forældre med lav socioøkonomiske status havde større gavn af et positivt disciplinært klima i klasseværelset, sammenlignet med studerende af høj socioøkonomisk status.

Overordnet indikerede resultaterne, at PALS har et vist potentiale i Danmark, og det til en vis grad kan producere positive resultater i Danmark. Resultaterne pegede desuden på, at PALS påvirker børn af

forskellig socioøkonomisk status ensartet. Herudover viste resultaterne, at den antagne kausale sammenhæng imellem det *disciplinære klima i klasseværelset* og faglige præstationer i PALS-programmet findes. Den positive sammenhæng imellem det disciplinære klima i klasseværelset og faglige præstationer så samtidig ud til at være stærkere for børn af lav socioøkonomisk status.

Table of content

Foreword	2
Chapter 1	9
1.1	<i>Introduction</i> 10
1.2	<i>School-Wide Positive Behaviour Support</i> 13
1.2.1	Introduction and presentation of SWPBS 13
1.2.2	SWPBS within a Danish context 17
1.2.3	Review of SWPBS..... 21
1.2.4	Creating persistent change – the challenge of behavioural programmes. 31
1.3	<i>Theory</i> 35
1.3.1	Classroom Disciplinary Climate 35
1.3.2	Socioeconomic Status 36
1.3.3	Summary of hypotheses..... 44
1.4	<i>Method</i> 46
1.4.1	The Potential Outcomes Framework..... 46
1.4.2	Intent-to-treat and as-treated 51
1.4.3	Statistical Power 56
1.4.4	Mechanisms 57
1.5	<i>Conclusion and Discussion</i> 61
1.5.1	Results for SWPBS..... 61
1.5.2	Results for classroom disciplinary climate 62
1.5.3	Contextualizing and benchmarking the estimates..... 62
1.5.4	Socioeconomic Status and Discipline 66
1.5.5	Unintended and long term effects 67
1.5.6	Are SWPBS and classroom disciplinary climate the solution? 68
Chapter 2.....	89
	The article "Reducing Inequality through Discipline: Evaluating the Danish adoption of School-Wide Positive Behaviour Support"
Chapter 3.....	137
	The article "Effects of School-Wide Positive Behaviour Support in Denmark: Results from the Danish National Register-data"

Chapter 4..... 171

The article "Does Classroom Disciplinary Climate really Affect Academic Achievement, and does it vary across socioeconomic status?: New Evidence from Panel Data"

Chapter 1

1.1 Introduction

“It is a catastrophe that we, as a society, fail to help the weakest. It has been a political goal for 10-15 years to ensure that youth leave compulsory school, and are capable of reading, calculating and functioning in society. [own translation]” – Pernille Rosenkrantz-Theil, Danish Minister of Education, January 2020 (Hardis 2020).

The “catastrophe” is that despite implementing various school reforms, programmes and interventions to make all students benefit equally from schooling, there is still up to 15% students, who leave compulsory education without having obtained sufficient reading and math skills (Altinget 2013; Nielsen et al. 2020a; Pihl and Salmon 2018). The students lesser reading and math skills make them less likely to progress from lower secondary education, maintain a job, and take part in society. A multitude of factors contributes to the fact that students do not benefit equally from schools, and *problem behaviour*, such as externalizing and disruptive behaviour, in schools is one of them.

Research has shown that students who benefit less from schooling are more likely to come from families with low income and lower educational attainment (Bourdieu 1977; Bowles and Gintis 1976; Dumont and Ready 2020; Raudenbush and Eschmann 2015). However, the roles of schools in either reproducing or reducing inequality in school outcomes is an ongoing discussion in the sociology of education (Downey and Condron 2016; Downey, Workman, and von Hippel 2019; Dumont and Ready 2020; Hanselman 2018; Jennings et al. 2015; Raudenbush and Eschmann 2015). Even before school starts, students of lower socioeconomic status are more likely to have lower social and behavioural skills and these differences persist after the students enter school (Deding, Lausten, and Andersen 2007; DiPrete and Jennings 2012; Downey et al. 2019; Duncan and Magnuson 2011).

As a result of their more limited social and behavioural skills, these students are more likely to display problem behaviour, which both affects the students themselves, but also their peers negatively through bullying and by disrupting class. Students who show problem behaviour are more likely to be socially excluded and have lower academic achievement (Duncan and Magnuson 2011). These initial disadvantages can be the

start of a life-course of cumulative disadvantage (Bask and Bask 2015; DiPrete and Eirich 2006). Problem behaviour in childhood and school is associated with negative outcomes later in life, such as increased criminal activity during adolescence (Broidy et al. 2003; Currie 2009; Nagin and Tremblay 2005), lower educational attainment, income and the individual's position on the labour market (Anderson 2018; Andreasen and Lausten 2019; Currie 2009; Veldman et al. 2015).

The negative outcomes of problem behaviour suggest that a reduction in problem behaviour in schools would reduce the number of students who do not have sufficient reading and math skills when they leave compulsory education. Furthermore, it should increase the number of students, who are able to take part in society, by increasing enrolment in upper secondary education, and the students' ability to maintain a job. The students in question – in particular those from families of lower socioeconomic status – would benefit by becoming less prone to embark on a negative life-course of cumulative disadvantage.

In the present dissertation, I have studied a school programme, which intends to reduce problem behaviour in school. The programme is called School-Wide Positive Behaviour Support (SWPBS) and was developed in the United States. In 2008, the programme made its way to Denmark after having been adopted in Norway. Research from the US has shown that the programme can reduce problem behaviour and improve academic achievement (Lee and Gage 2020). The findings for problem behaviour have, to some extent, been replicated in Norway (Sørli and Ogden 2015). Surprisingly, no corresponding effect has been found in Denmark (Rasmussen and Olsen 2012; Skov, Jensen, and Christoffersen 2017).

In this dissertation, I followed up on this apparent null-effect in the Danish context. Therefore, I examined whether the programme affected the *classroom disciplinary climate*, which is constituted by both the students' behaviour and the teacher's ability to manage student behaviour. Furthermore, I tested if the programme affected academic achievement due to the positive effects found in the US. Moreover, I tested if the programme had a persistent effect on the students after they leave compulsory education, addressing the outcomes enrolment in upper

secondary education, unemployment and criminal activity. Hence, I sought to answer whether and to what extent the programme improved the students' ability to take part in society after completing lower secondary school. The empirical work also tested whether the programme affected students differently based on their socioeconomic status. I applied different sociological theories to understand such differential effects.

While the work presented in this dissertation mainly focuses on the SWPBS-programme, I also investigated a concept closely related to problem behaviour, the so-called *classroom disciplinary climate*. A core premise of the SWPBS-programme is that problem behaviour affects the classroom disciplinary climate negatively, which in turn reduces the academic achievement of all students by reducing the time spent on learning activities. According to this logic, an improvement in the classroom disciplinary climate should result in improved academic achievement among all students. I, therefore, tested whether this causal relationship existed and to what extent the relationship depended on the individual student's socioeconomic status.

This introductory chapter is organized as follows: First, I introduce the SWPBS-programme. In the subsequent section, I present the theoretical framework of the dissertation, with a particular emphasis on how SWPBS and classroom disciplinary climate can reduce or reproduce social inequalities in education. Afterwards, I discuss the assumptions and methodological challenges related to identifying causal effects in school research. Finally, I conclude and discuss the implications of my findings.

1.2 School-Wide Positive Behaviour Support

I start the section by presenting the core components of School-Wide Positive Behaviour Support (SWPBS), and the expected outcomes according to the programme manual. I then present a discussion on whether SWPBS constitutes the same change in Denmark as it does in the US. Hereafter, I describe the implementation of the programme in Denmark. Then follows a review of previous effect studies of SWPBS. Finally, I present a general criticism of programmes such as SWPBS and discuss potential unintended and long-term effects of the programme.

1.2.1 Introduction and presentation of SWPBS

School-Wide Positive Behavior Support (SWPBS) is a school-wide programme that intends to create a positive, inclusive, and proactive school-culture with respect to student behaviour. The programme intends to develop both the social and academic competencies of students (Socialstyrelsen 2010:36). SWPBS was developed in the US and was later on adopted in Norway. From Norway, the programme made its way to Denmark in 2008/2009, and 11 pilot-schools started the implementation of the programme. At least 54 schools have since then implemented the programme in Denmark. In Denmark – and Norway – the programme is known as '*Positiv Adfærd i Læring og Samspil*' (PALS).

The programme is a multi-tiered framework, which means that different interventions are employed based on the individual student's situation. The first tier is a universal tier intended to affect all students. It aims to reduce and prevent problem behaviour, as well as to establish a framework within which the remaining tiers can work. The second tier is developed for students, who are at-risk of developing problem behaviour, while the third tier of the programme is intended for students already exhibiting problem behaviour (Socialstyrelsen 2010:29-41). Based on the multi-tiered framework, the programmes use different tools based on the particular situation of the individual students. Each school has some discretion in selecting the specific second and third-tier interventions. In the dissertation, I focus on the overall programme and the first tier components of the programme, as there was no available information on

either school or individual student participation in the second and third-tier interventions.

1.2.1.1 Core Components

My summary of the programme primarily builds upon the Danish description of the programme (Socialstyrelsen 2010) and to some extent the Norwegian (Arnesen et al. 2014; Ogden, Sørli, and Arnesen 2008). The core components of the programme's tier-1 are (1) Defining values, rules and expectations for good behaviour (2) Teach these expectations to the students (3) Create a reward system, under which students receive reward cards when they exhibit behaviour that is in line with the behavioural expectations (4) Establish a system of reactions when students violate the rules (5) Create a data-monitoring system for student infractions and behaviour to support teacher efforts. Research indicates that of these five components, 2, 3 and 4, are the most important for the programme to be effective (Molloy et al. 2013). The programme is expected to have an implementation period of three years, but studies have indicated that it often takes longer to achieve successful implementation (Flannery et al. 2014; Rasmussen and Olsen 2012:25-26).

1.2.1.1.1 Defining values, rules and expectations

The programme prescribes that the teachers and staff at the school define 3-5 core values of the school. While the programme emphasizes that the staff at each school are free to define their values in order to create ownership, most schools use the values suggested by the Danish-SWPBS manual: Show solicitude, take responsibility and show respect (Socialstyrelsen 2010:69). Based on these values, the staff agree on a set of rules, which are in line with these values. In defining the specific rules, it is recommended to include the students and give them a feeling of positive involvement (ibid. 69-70). In making the rules and clarifying the expectations for good behaviour, the staff are encouraged to ask themselves "how does problem behaviour look according to us?" (ibid. 169).

The manual also suggests a definition of problem behaviour, which divides it into less severe and more severe problem behaviour. Less severe problem behaviour is defined as “behaviour that does not honour the school values about respect, caring and responsibility” (ibid. 168). Examples of this line of behaviour are an unacceptable use of language, not following instructions, disruptive behaviour, being late for class, and bickering. Severe problem behaviour is described as having a higher frequency and intensity and might be harmful to other students. Specific examples of this type of behaviour are bullying, vandalism, fighting and violent behaviour (ibid. 168).

1.2.1.1.2 Communicating the behaviours

The communication of the values and expectations for behaviours is integrated into regular teaching. The teaching of behaviours includes teaching plans on how to disseminate these rules and expectations to the students (ibid. 69-71), such as suggestions for role-playing examples of good and bad behaviour (ibid. 34, 71-83). The students are included in developing posters, which shows the values and expectations for behaviours in the classroom. Moreover, the students help develop the reward cards used in the programme, which also show the values of the school (ibid 71-83).

1.2.1.1.3 The reward and violation system

With the programme, the staff is intended to create a shared understanding about what constitutes problem behaviour, what appropriate reactions to specific behaviours look like, when behaviour deserves praise, and when it should have disciplinary consequences. The intention is to create a more standardized reaction to student behaviour.

An assumption in the programme is that students want the teacher’s attention, but good behaviour is often taken for granted and therefore overlooked. If problem behaviour receives a disproportionate amount of attention, it creates a motivation for students to engage in more problem behaviour. Therefore, the programme recommends that teachers encourage and acknowledge appropriate behaviour and that teachers try to have five positive interactions with the students for each negative

interaction. The programme also emphasizes the use of praise and the use of reward cards when students show behaviour in line with the school's core values. The programme recommends that the use of reward cards is linked to positive outcomes, such as permission to play a game of softball or have a story read. These rewards should be given at the school or class level (ibid. 101-113).

The primary focus of the programme is to have more positive interactions with the students. However, the development of precise and predictable consequences for rule violations is also a cornerstone of the programme. While the staff is encouraged to develop school-specific sanctions, the programme also suggests sanctions such as planned ignoring, giving time-outs, and removal of benefits such as computer time and recess (ibid. 166-184).

1.2.1.1.4 Data monitoring

The last core component of the programme is the collection and use of data to monitor negative events across classrooms and the students' development of problem behaviour. The data monitoring is intended to support decision-making about allocating students to the correct tier of the programme and support the ongoing implementation of the model. To support this data collection, SWPBS has a web-based solution called the School-Wide Information System (SWIS), which helps structure and visualize the collected data. In addition to collecting data on student behaviour, the staff also perform a self-evaluation on their progress with implementing the programme (ibid. 260-275)¹.

1.2.1.2 *Expected outcomes of the programme*

In the short-term, the programme intends to reduce both less severe problem behaviour such as disruptive behaviour, as well as severe problem behaviour such as bullying. This reduction of problem behaviour should happen in parallel to the students developing critical social skills such as cooperation, self-confidence, responsibility, empathy, and self-control (ibid. 70-71). The reduction of problem behaviour is expected to

¹ I was not able to obtain access to this data, which I elaborate upon in section 1.2.2.2

turn into improved academic achievement, as it increases the behavioural engagement of the students, which will create more time for existing curriculum to work, and more time on learning task (Arnesen et al. 2014; Horner, Sugai, and Anderson 2010; Socialstyrelsen 2010:12, 110).

In addition to affecting problem behaviour and improving academic achievement, the programme is also expected to have long-term effects. Following a life-course perspective, the core argument in the Danish SWPBS-manual is that the reduction of problem behaviour can break a negative spiral of cumulative disadvantage for the students. The negative spiral might start with less severe problem behaviour in school, but over time turns into truancy, bullying, and early involvement with drugs and alcohol, eventually resulting in lower levels of education, dependency on social benefits, and criminal behaviour (Socialstyrelsen 2010:21-24). While this life-course perspective is a possible explanation of how SWPBS can have a more long-term effect, I present other potential mechanisms in section 1.2.4.1. The expected outcomes have been crucial in deciding on the outcomes considered in the study of SWPBS in chapter 2 and 3

1.2.2 SWPBS within a Danish context

In this section, I try to address what the core components in SWPBS add to standard school practice in Denmark and the change the programme creates compared to a conventional Danish primary and lower secondary school.

All schools in Denmark have to define their core values related to behaviour and bullying (Børne- og Undervisningsministeriet 2019, §44, stk. 4). As such, the main difference is that the SWPBS-programme brings a more structured approach to the value definition process, as the staff at the SWPBS-schools not only define them but also specify the behaviours and rules that are in line with these values. An objective in SWPBS is to make the abstract values into actual practice and create clear expectations for behaviour that students can understand (Socialstyrelsen 2010:68).

An essential goal of the SWPBS programme is to create a more standardized reaction to students' behaviour, concerning both problem

behaviour and appropriate behaviour. Such standardization is very different from the typical Danish primary school, in which teachers are granted ‘freedom of method’, which means that teachers have a right to teach in a way they find useful (Deding and Høj 2015; Pontoppidan et al. 2018). Creating a more standardized reaction to student behaviour is a change away from this *individualized* approach to teaching toward a more *standardized* approach.

Compared to schools in other countries, Danish schools are often described as relatively unstructured, having less orderly classrooms, and less focus on controlling student behaviour (Wubbels 2011). The standardization introduced by SWPBS also entails a more structured approach towards discipline and student behaviour, which puts a greater emphasis on controlling student behaviour and creating a more structured environment.

To summarize, I interpret SWPBS to be a change towards a more structured and standardized school approach concerning discipline and students behaviour. Research from the US has shown that the essential components for the programme to work, is the teaching and communication of correct behaviour, in combination with the reward and violation system (Molloy et al. 2013). These three components are also the ones that I interpret as the components most likely to create a change in Denmark

1.2.2.1 Does SWPBS create the same change in Denmark as it does in the US?

In the above section, I have outlined what I believe SWPBS adds to the Danish school practice, and what change this constitutes. In the following, I discuss whether the programme can be expected to lead to the same change in Denmark as it does in the US. In the US, the programme has been shown to reduce problem behaviour effectively. However, if the programme does not create the same change in the two countries, this evidence might be of lesser value for the Danish context. In the following, I highlight two central differences that relate to the potential effectiveness of the programme.

The first difference is that zero-tolerance policies and the use of disciplinary sanctions to control student behaviour are much more common in the US than in Denmark, with some states even still allowing the use of corporal punishment (Arum and Velez 2012:290; Gershoff and Font 2016). The change towards more positive interactions with students and the reduced use of punishment might constitute a more substantial change in the US compared to Denmark.

The second difference is that teachers in the US to a much larger extent, only are responsible for the academic proficiency of the students. In contrast, the Danish school teachers also are responsible for the social and personal development of students (Børne- og Undervisningsministeriet 2019, §1). The primary focus on academics in the US have even been mentioned as an implementation challenge for the programme, as the teachers are less likely to consider themselves responsible or as having time to address the social and personal development of students (Tyre and Feuerborn 2017). In the US, the programme could create a change towards having a stronger emphasis on improving the social and personal development of students compared to Denmark. In contrast, the programme, as mentioned, in Denmark, is primarily a change towards a more structured and standardized school approach towards discipline and student behaviour.

The difference between the Danish and US school context might influence the effect the programme has in the two countries, which might reduce the relevance of the US evidence for the programme for the Danish context.

1.2.2.2 Implementation and status of SWPBS in Denmark

A high level of implementation fidelity is crucial for school-programme, such as SWPBS to have an impact. In this section, I first describe some general criteria for implementing SWPBS at a school in Denmark and then move onto to giving an overall picture of the implementation of SWPBS in Denmark. As mentioned, collecting data on implementation is part of the SWPBS-programme. Gaining access to this data was not possible for me, and in general, the data and information on implementation have been sparse.

Some factors had to be in place for a school to start working with SWPBS in Denmark. First, the municipality had to be willing to use the programme. Secondly, the municipality had to be using a family intervention such as the Parent Management Training – Oregon programme to be considered for the use of SWPBS. Thirdly, the Department of Education and the Department for Children and Families at the municipality had to initiate a collaboration, as the programme both relates to education and social issues. Last, 80 % of the staff at the schools had to indicate that they were committed to implementing the programme.

Overall, the information on the implementation of SWPBS in Denmark was sparse, but some studies have addressed it. The first evaluation of SWPBS in Denmark had access to the implementation-data; their findings indicated that the level of implementation increased every year, but none of the schools had completed implementation after three years. However, there was much heterogeneity in the level of implementation as two schools had reached a somewhat successful level of implementation after three years, while the remaining schools had not. The evaluation only considered the 11 pilot-schools in Denmark (Rasmussen and Olsen 2012:43-54). A qualitative study found that SWPBS at two different schools were implemented quite differently; one school seemed to follow the programme quite rigorously, while another used the programme as part of their general toolbox when they considered it necessary (Buus et al. 2012:38-56). Others found that after a short period, teachers stopped handing out the reward-cards devaluing the purpose of the cards (Andersen et al. 2011). These initial studies of SWPBS indicated challenges with implementing the programme. The studies only considered some of the early implementers of SWPBS, and no additional information was found on the implementation-status of SWPBS in Denmark. Schools that started the programme later might have had greater success, as they could utilize some of the experiences gained by earlier implementers.

From conversations I have had with school principals, teachers, officials from the municipalities, the National Board of Health and other researchers, a similar picture was painted, with very varied levels of

implementation at the schools. From these conversations, I learned that there were still schools that followed the core component of the programme quite rigorously. Other schools used it as an educational tool for newly graduated teachers, who had limited classroom management experience. Some school no longer used the data-monitoring component. Many schools no longer used reward cards but still followed some of the principles about less abstract values, and the more standardized and structured approach towards student behaviour.

Overall, the picture gained of the implementation of SWPBS was that the implementation varied considerably between schools, and while some schools still used the programme as intended, others had made local adjustments to the programme, and some schools did not succeed in implementing the programme.

1.2.3 Review of SWPBS

In this section, I present my review of the previous effect research into SWPBS. Furthermore, I highlight areas, which the research into SWPBS has paid less attention to, and I present how the empirical works presented in chapter 2 and 3 contributes to this line of research.

A couple of reviews on SWPBS have been published addressing the effectiveness of the programme in the US, with opposing conclusions as to whether SWPBS can be considered effective in reducing problem behaviour, and improving academic achievement in schools (Chitiyo, May, and Chitiyo 2012; Gage et al. 2015; Gage, Whitford, and Katsiyannis 2018; Horner et al. 2010; Mitchell, Hatton, and Lewis 2018; Noltemeyer et al. 2018). The most recent review of SWPBS included both published and unpublished studies in a meta-analysis of the effect and concluded that the programme successfully reduces problem behaviour, and improves academic achievement (Lee & Gage, 2020). The review included one non-US study from Norway (Sørli and Ogden 2015). According to Lee & Gage, (2020), the mixed findings of prior reviews and meta-analysis were primarily a result of a limited amount of studies using rigorous designs to study the effect, as well as a prevalence of qualitative studies within the field, resulting in low power for the meta-analysis. The effect of SWPBS is well established in the US, but

research addressing the effect outside the US is limited, and there has recently been made a call for more research considering the effect of the programme internationally, and how it works for different population-groups (Lee and Gage 2020; Noltemeyer et al. 2018).

Table 1 presents my review of the literature, while not as rigorous as the review by Lee & Gage (2020); I included it to highlight some additional factors within the literature that I believe warrants more attention. The review also includes studies from Norway and Denmark that were not included in previous reviews. These studies are especially important for this dissertation, as the Norwegian school-context is more comparable to the Danish school-context. I focused on studies conducted in primary and lower secondary schools, and only included studies, which had at least a control group, and used outcome measurement addressing the effect for students. Studies, which used SWPBS school with low fidelity or other SWPBS-schools as controls were excluded, as well as studies that considered outcomes such as teachers' self-efficacy, well-being, and the organizational health of the school (Bradshaw et al. 2008; Ross, Romer, and Horner 2012; Sørli, Ogden, and Røyhus Olseth 2016).

The review only highlights research from the US, Norway, and Denmark, but there is also research being conducted in other countries such as the Netherlands (Nelen et al. 2019; Wienen et al. 2018), Finland (Närhi et al. 2015), South Korea (Park, Lee, and Kim 2019), and Taiwan (Wu et al. 2019). The research from these countries primarily focuses on implementation-related questions and not the effect of the programme.

Consistent with Lee and Gage (2020), my review showed that SWPBS had a positive effect on behaviour related outcomes in the US, but the effect on academic achievement was more mixed, as only a few studies found an effect. The Norwegian studies also indicated a reduction of behavioural problems, while prior Danish studies have not found an effect on either problem behaviour or academic achievement. A central point from the review is that fidelity was essential for the programme to be effective.

Table 1. Review of SWPBS effect literature

Study	Design	Outcomes	Results	Country
(Pas, Ryoo, et al. 2019)	QE: Weighting (PSM). No pre-test.	Suspensions, truancy, test-score. ^{SL, A}	+	USA – Maryland
(Gage, Grasley-Boy, Peshak George, et al. 2019)	QE: Matching ^R No pre-test	Corporal punishment, suspensions, referral to law enforcement, school-related arrest. ^{SL, A}	+: Suspensions, suspensions ^{Black, disabilities}	USA – Florida
(Gage, Grasley-Boy, Lombardo, et al. 2019)	QE: Matching ^R No pre-test.	Suspensions, expulsions. ^{SL, A}	+: Suspensions ^{HF}	USA – California
(Grasley-Boy, Gage, and Lombardo 2019)	QE: Matching ^R No pre-test.	Suspensions, expulsions, referrals to alternative schools for disciplinary reasons, referrals to law enforcement, school-related arrests. ^{SL, A}	+: Suspensions, referrals to alternative school ^{Disabilities} .	USA – California

Study	Design	Outcomes	Results	Country
(Borgen et al. 2019)	QE: Difference-in-Differences.	Classroom noise, bullying, wellbeing. ^S Test-score, Special education, ^A Share of students receiving most of their instruction outside the classroom. ^{SL, A}	+: Classroom Noise Year 2 to 5 at p<0.10.	Norway
(Ryoo et al. 2018)	QE: Matching. No pretest.	Test-score, suspensions. ^{SL, A}	Ns	USA – Minnesota
(Gage, Lee, et al. 2018)	QE: Matching. ^R	Behavioural incidents, suspensions. ^{SL, A}	+: Behavioral incidents, suspensions.	USA – Georgia
(Sørli et al. 2018)	QE: Non-equivalent comparison group design	Externalizing problem behaviour. ^T	+: Problem behaviour ^{A+risk}	Norway
(Gage, Rose, and Kramer 2019)	QE: Matching ^R No-pretest.	Bullying ^S	Ns	USA – Georgia

Study	Design	Outcomes	Results	Country
(Gage et al. 2017)	QE: No action to improve control. ^R No pre-test.	Test-scores ^{SL,A}	+	USA – Florida.
(Skov et al. 2017)	QE: Difference-in-differences.	Absence, final exam grades, test-scores ^A	Ns	Denmark
(Madigan et al. 2016)	QE: Matching ^R	Test-scores ^{SL}	+ HF	USA – Kentucky
(Sørliie and Ogdén 2015)	QE: Non-equivalent comparison group design	Problem behaviour inside and outside of classroom, learning climate ^T Student relation, student-teacher relations ^S	+: Problem behaviour common areas, classroom-learning climate ^T , Problem behaviour in classroom ^{HF, T} , Student relations ^{HF, S}	Norway
(Bradshaw et al. 2015)	RCT(2)	ODR, receive counselling services, special education, grade retention ^A	+: ODR, counselling services, special education, grade retention ^{At-risk}	USA – Maryland

Study	Design	Outcomes	Results	Country
(Gage et al. 2015)	QE: Matching.	Test-scores ^{SL}	All schools had high fidelity. Ns	USA – Connecticut
(Rasmussen and Olsen 2012)	QE: Difference in differences.	Special education, final exam, non-allowed absence ^A	Ns	Denmark
(Bradshaw et al. 2012)	RCT(2)	Aggressive and disruptive behaviour, concentration problems, prosocial behaviours, emotion regulation. ^T	+: Disruptive behaviour, concentration problems, prosocial behaviour, emotion regulation, ODR	USA – Maryland.
(Waasdorp et al. 2012)	RCT(2)	ODR ^A Bullying, peer rejection ^T	ODR ^{Girls} , Emotion regulation ^{Lower grades} . All schools had high fidelity. +: Bullying, peer rejection. Peer rejection ^{Lower cohorts}	USA – Maryland.

Study	Design	Outcomes	Results	Country
(Bradshaw, Mitchell, and Leaf 2010)	RCT(2)	ODR ^A Suspensions, test-scores ^{A, SL}	+: Suspensions, ODR ^{No control group} . All schools had high fidelity.	USA – Maryland
(Homer et al. 2009)	RCT(1)	Test-scores, school safety, ODR ^{A, SL}	+: School safety, ODR ^{No control group}	USA – Hawaii and Illinois
(Sørli and Ogdén 2007)	QE: Matching ¹ Pre-test.	Problem behaviour, teacher collective efficacy, ^T social competence, learning environment ^{S, T}	+: Problem behaviour in and outside classroom, social competence ^{T, Immigrants} Higher fidelity leads to stronger effects.	Norway
(Ogdén, Sørli, and Hagen 2007)	QE: Matching ¹ Pre-test.	Problem behaviour, academic competence, teacher collective efficacy, ^T social	+: Internalizing behaviour ^{immigrant} , social competence ^{immigrant, T} ,	Norway

Study	Design	Outcomes	Results	Country
(Nelson, Martella, and Marchand-Martella 2002)	QE: Non-randomized control. Pre-test post-test.	competence, learning environment ^{S, T} School climate ^S , social competence ^S , consumer satisfaction ^T , suspensions, emergency removals, ODR, test-scores ^A .	+ : Suspensions, emergency removals, ODRs, test-scores	USA – Washington

Note. ^R: Removes schools, which had fidelity below 70 % of the treatment. QE: Quasi-experimental research design.

+ : Positive Effect; - : Negative effect; Ns: Insignificant.

^A: Administrative-data. ^S: Student-reported data. ^T: Teacher-reported. ^{SL}: School-level data.

^{HF}: Only significant for high fidelity schools. ^{AHF}: All treatment schools have high fidelity. Disabilities: Only effective for students with disabilities. Black: Only effective for black students. At-risk: Only effective for at-risk students. Immigrant: Only effective for immigrant students.

The review also showed that while SWPBS had an overall effect on behaviour, it was more effective with different at-risk groups such as minorities, disabled students, and students, who were rated by their teachers as displaying an elevated pattern of behavioural and socio-emotional problems (Bradshaw, Waasdorp, and Leaf 2015; Gage, Grasley-Boy, Peshak George, et al. 2019; Sørliie et al. 2018; Sørliie and Ogden 2007). Additionally, the programme had been indicated to work better for students exposed at an early age (Bradshaw, Waasdorp, and Leaf 2012; Waasdorp, Bradshaw, and Leaf 2012). In the following, I address some areas, which the review made apparent were under-researched with respect to SWPBS, and how the dissertation contributes to these areas.

Most of the studies that identified an effect of SWPBS was conducted as RCTs or in similar controlled environments. Only, in recent time has there been an increase in studies considering the effect outside this controlled environment. These studies help answer questions about what effects of the programme can be expected when disseminating the programme to more schools. These type of studies are limited, and more knowledge is needed about the effectiveness of SWPBS in this more natural context (Pas, Ryoo, et al. 2019). The implementation of SWPBS in Denmark was not conducted within such a controlled environment.

Much of the research presented in the review from the US relied on administrative-data on school suspensions and office discipline referrals (ODR) as measures of students' problem behaviour. A limitation of these outcome-measures is that they also relate to compliance with the programme, if the teachers should focus on positive interactions with the students, they should also be less prone to use suspensions and ODRs to correct behaviour. Some of the effects found for SWPBS might not be real effects but could indicate that schools with high compliance change their practices concerning the use of suspensions and ODRs. If I only count the studies that are not based on this sort of administrative data, only ten studies are left; some of the remaining ten studies are based on the same data and address similar outcomes. If I also remove those studies, the total number of studies is reduced to seven. Three of the remaining US-studies used teacher reports of students behavioural

problems and found a positive effect (Bradshaw et al. 2012; Nelson et al. 2002; Waasdorp et al. 2012). One US study used students' self-report of bullying and found no effect (Gage, Rose, et al. 2019). The remaining three studies are from Norway, and also made use of teacher reports of problem behaviour, the learning environment, and social competence, as well as student reports of classroom noise, bullying, social competence, the learning environment, and perception of the psychosocial learning condition in class (Borgen et al. 2019; Sørli and Ogden 2007, 2015). Except for an indicated reduction in student reports of classroom noise (Borgen et al. 2019), and an improvement in student reports of students' relations (Sørli and Ogden 2015), the Norwegian studies only found an effect on the teacher-reported outcomes. This discrepancy between student and teacher reports is problematic. Such discrepancies have been found in evaluations of similar school programmes and might be due to the teachers being aware of the intended outcome of the programme, which leads them to look for the success of the programme (Korpershoek et al. 2016). On this basis, a more student-centred perspective seems wanted, as only a few studies have included such as a perspective, and limited effects have been found in studies using students' reports.

To summarize the review found that while SWPBS has shown to be effective in the US and Norway, no effect has been established in Denmark, and there is, in general, limited international effect research. Much of the effect research into SWPBS is based on RCTs or in similar structured settings, and there is a need for more research considering the effect in a more natural environment. Research has primarily used administrative-data and teacher reports as outcomes, and a more student-centred perspective seems wanting. Last, there has been a call for more research considering the effect internationally and across different population groups.

Chapter 2 and 3 contribute to these areas, as both chapters followed up on the null-effect in Denmark, as well as contributes to the limited international effect research. The two chapters studied SWPBS outside the confines of an RCT, as the Danish implementation of SWPBS, was not conducted in such setting. Chapter 2 utilized the Danish Student Wellbeing Survey, which enabled a more student-centred perspective.

Chapter 2 also tested how the programme worked for different population groups by testing the effect for students of different socioeconomic status.

1.2.4 Creating persistent change – the challenge of behavioural programmes.

While it is apparent from the review that SWPBS can be a successful approach for reducing problem behaviour, and academic achievement in school, the programme has also received some criticism for the use of positive reinforcement. The use of a token system, and the use of praise and approval to adjust student behaviour, is similar to approaches taken to classroom management in behaviourism. Moreover, lines can be drawn from the SWPBS-programme back to the ideas of operant psychology (Carr et al. 2002). The criticism of SWPBS, I present here, is not exclusively aimed at the programme, but a general criticism of the behaviouralist approach to classroom management (Landrum and Kauffman 2006), which centres around two concerns.

The primary concern is that the extensive use of extrinsic motivation, such as reward cards, but also praise and approval, will deteriorate students' intrinsic motivation and self-discipline, which can lead to long-term negative effects. The second concern questions whether initial positive effects on behaviour can persist when the incentives for them are removed (Kohn 1993, 2006). Research has indicated that while these behavioural techniques often are successful at improving behaviour in the short term, the improvements seldom persist, and cannot be generalized to other settings, when the use of the programme is completed (Landrum and Kauffman 2006). The potential negative impact of *overusing* extrinsic motivation on students' self-discipline and intrinsic motivation is an often mentioned concern by teachers using SWPBS, and a challenge for successful implementation (Feuerborn, Wallace, and Tyre 2016; Tyre and Feuerborn 2017).

The criticism raises two critical questions concerning the SWPBS-programme, first what happens to the intrinsic motivation and self-discipline of students, who attend SWPBS-schools. Secondly, even if the programme has a positive effect on problem behaviour and academic

achievement, what happens when the students leave school? Does the effect of SWPBS persist, or does it fade out over time? These questions have not been addressed in prior SWPBS-research. In chapter 3, I tried to address this question by testing the effect of SWPBS on enrolment in upper secondary education, unemployment, and crime. If the program affects these outcomes, it would be a strong indicator that the programme's effect persists even when the incentives are removed.

In chapter 2, I tested if the programme is associated with academic self-efficacy. Academic self-efficacy is an essential skill for students to develop to be successful in school, as it represents students' perception of their ability to learn and master academic subjects. It hereby constitutes a fundamental part of students' motivation for engaging in learning, as students, who do not believe they can learn or achieve in school are more likely to disengage from learning (Bandura 2000; Bandura et al. 1996). If the programme does not reduce academic self-efficacy, it should be a solid indication that it does not deteriorate the intrinsic motivation of the students, due to academic self-efficacy's close relation to intrinsic motivation.

Positive associations with academic self-efficacy might also indicate a potential long-term effect. As mentioned in the section on the expected outcomes of SWPBS (section 1.2.1.2), the programme is assumed to have long-term effects by turning students away from a negative spiral. The programme might also create a long-term effect by developing the students' non-cognitive skills such as academic self-efficacy. I elaborate on this perspective below.

1.2.4.1 Non-cognitive skills, and long-term effect

School research has in recent times started to pay increasing attention to other outcomes than test-scores, when evaluating and understanding the effects of schools and school programmes, as solely focusing on test-scores have the potential to overlook important effect (Bailey et al. 2017). Research has especially highlighted the importance of considering the effect on non-cognitive outcomes, as non-cognitive skills have a strong relationship with later life outcomes such as earnings, educational attainment, crime, and health. The impact of non-cognitive skills on later

life outcomes is comparable to that of cognitive skills (Borghans et al. 2008; Bowles and Gintis 2002; Kautz et al. 2014). Effects on non-cognitive skills can give an early indication of the more long-term potential of a school programme. The literature on non-cognitive outcomes in education does not discount the long-term potential of cognitive skills, and positive test-score results, but highlights that solely focusing on test-score will overlook important effects. Research has, for example, found that teachers, who are effective at raising test-scores, might be ineffective at reducing absence, and improving non-cognitive skills, and vice versa (Gershenson 2016; Jackson 2013).

Academic self-efficacy can likely work as an indicator for the long-term effects, as other constructs of self-efficacy have shown positive associations with educational attainment (Burger, Mortimer, and Johnson 2020; Lee and Mortimer 2009; Mortimer et al. 2017; Munk 2013). Research also found that improvements in academic self-efficacy improved academic achievement (Caprara et al. 2011; Honicke and Broadbent 2016; Lent, Brown, and Larkin 1986; Talsma et al. 2018; Zimmerman, Bandura, and Martinez-Pons 1992).

Academic self-efficacy is not traditionally considered within the non-cognitive literature, which often focuses on personality traits such as the big five: openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability. The definition of non-cognitive skills is, however, relatively broad, and in principle, entails everything that is not cognitive (Duckworth and Yeager 2015). The more general self-efficacy construct is also closely related to skills often included in this line of research, such as emotional stability, self-esteem, and locus of control (Heckman and Kautz 2012; Urzúa 2008).

Academic self-efficacy might be of particular interest within school research, as academic self-efficacy is more malleable than personality traits, making it more likely for school programmes to affect this skill (Caprara et al. 2011; Di Giunta et al. 2013). That academic self-efficacy is malleable also means it is more sensible to change, making it less robust throughout the individual's life. As such, improvements in academic self-efficacy might be less persistent than improvements in other less malleable skills. Nevertheless, I assume that by studying the

association between SWPBS and academic self-efficacy in chapter 2, I do not only get a better understanding of the short-term potential of the programme, but also an indication of the long-term potential.

The text above implicitly suggests that SWPBS should only be considered a success if it has long-term effects on students. Arguably, a reduction in problem behaviour in itself would be a success, as long as it does not negatively affect other factors. Such a reduction would likely improve student wellbeing and student satisfaction, as well as reduce bullying, which are desirable outcomes.

Nevertheless, as it was apparent from the quote by the Minister of Education at the start of the introduction, the goal from a policy perspective is often to create long-term changes, to have fewer students, who fall outside society, and are unable to take part in society. Creating such changes is a challenge for many school-programmes. Often school programmes show initial positive effects, but over time they fade out and do not have enduring impacts on the students' life (Bailey et al. 2017). For this reason, chapter 2 and 3 focus on long-term outcomes or outcomes where we can expect that an effect will eventually turn into long-term change.

1.3 Theory

In this section, I present how SWPBS and classroom disciplinary climate can be viewed through a sociological lens. I start the section by introducing how classroom disciplinary climate is understood within the present dissertation, as it an important outcome of the SWPBS-programme, and the primary variable of interest in chapter 4.

Afterwards, follows a section on how SWPBS and classroom disciplinary climate might be expected to affect students differently based on their socioeconomic status. I draw on Bourdieu (1977)'s theory of cultural reproduction, and an extension hereof in the form of Lareau, (2011)'s concept of concerted cultivation. I also use Golann, (2015)'s concept of the worker-learner, which is a development of Bowles & Gintis, (1976)'s correspondence principle.

1.3.1 Classroom Disciplinary Climate

Classroom disciplinary climate is not merely a tool to increase time on task, by achieving classroom order, but also a tool for the socialization of students, and is essential for how schools and teachers shape students' attitudes and dispositions (Arum, Ford, and Velez 2012). A positive classroom disciplinary climate is not characterized by the total absence of disorder and disruptive behaviour, as some disruptive behaviour can be important for shaping students' attitudes and self-esteem (Granström 2006). Classroom disciplinary climate can be conceptualized as a product of actions taken by the teachers and the students, and includes teachers', and students' behaviour, classroom rules, and how teachers address disciplinary problems (Arum et al. 2012; Cheema and Kitsantas 2014).

The teacher contribution to the classroom disciplinary climate can be interpreted as a product of their classroom management practice. Classroom management is not only teachers can take to ensure order and maximize effective time use in lessons, but it is also a tool for teachers to enhance students' social skills (Evertson and Weinstein 2006). Among other things, SWPBS is a classroom management programme.

On the student side of classroom disciplinary climate, a positive or negative classroom disciplinary climate can be interpreted as a product of student behaviour. Many factors influence the behaviour of students, such

as gender, socioeconomic status, student composition, and peer environment. Schools with a large share of boys or students of lower socioeconomic status, for example, have more negative disciplinary climates (Ma and Willms 2004; OECD 2019:70-73). Furthermore, students of lower socioeconomic status, boys, and minority students are more likely to show problem behaviour (Deding et al. 2007; DiPrete and Jennings 2012; Downey et al. 2019; Duncan and Magnuson 2011). Students exhibiting problem behaviour create a dual challenge, as they both decrease the academic achievement of their peers and themselves (Carrell and Hoekstra 2010; Figlio 2007; Kinsler 2013), but also potentially increase the misbehaviours of their peers (Carrell and Hoekstra 2010; Figlio 2007; Thomas et al. 2006). However, it does only take one student to disrupt the whole classroom, resulting in reduced learning for all other students in the classroom (Lazear 2001). Therefore, the classroom disciplinary climate is sensitive to the behaviour of a few students.

As numerous factors contribute to the classroom disciplinary climate, isolating the effect of classroom disciplinary climate on for example academic achievement, is challenging, as the estimate will likely be biased from one or more of these factors. In chapter 4, efforts were made to reduce these biases and improve previous research with respect to causal inference.

1.3.2 Socioeconomic Status

In the following, I present three hypotheses for how the effect of *SWPBS* and *classroom disciplinary climate* can depend on the SES of the students. The first hypothesis builds upon Bourdieu (1977)'s theory of *cultural reproduction*, which I use to suggest that *SWPBS* can reduce social inequalities in students' school success. The second hypothesis is based on Lareau (2011)'s concept of *concerted cultivation*, and I use this perspective to argue that *classroom disciplinary climate* can reduce social inequality. The third hypothesis is based on Golann (2015)'s concept the *worker-learner*, which is a development of Bowles & Gintis (1976)'s *correspondence principle*. The hypothesis introduces a critical perspective on discipline in schools with respect to social inequality. I

use the critical perspective to suggest that *SWPBS* and an overly *disciplined classroom climate* can increase inequality.

The theories that I present in the following have a shared critical perspective on the claim that schools are meritocracies, and instead, describe how schools contribute to the reproduction of inequalities in society. From this perspective, schools are not believed to provide the skills for social mobility, but instead have a functional role of preparing students for their place in the social order, irrespective of their merits (Bourdieu 1977:507; Bowles and Gintis 1976:125-126; Lareau 2011:361-362).

1.3.2.1 Cultural Reproduction

According to Bourdieu, one's social class is defined by at least three different capitals, economic, cultural, and social capital. Bourdieu furthermore argues that society consists of different fields, which prescribe different value to the capitals of the individual. The field of education mainly attributes values to cultural capital, and it is the most important capital for educational success (Bourdieu 1986:46-48).

There is some disagreement about how cultural capital precisely should be defined. However, a popular definition is "institutionalized, i.e. widely shared, high status cultural signals (attitudes, preferences, formal knowledge, behaviours, goods and credentials) used for social and cultural exclusion" (Lamont and Lareau 1988:156). This definition composes the three subcategories of cultural capital suggested by Bourdieu, (1986), the embodied state, the objectified state, and the institutionalized state.

The embodied state of cultural capital is equivalent to the attitudes, preferences, and behaviours highlighted in the definition by Lamont & Lareau (1988), and refers to being cultivated (Bourdieu 1986:48). The objectified state refers to the consumption of cultural goods, such as paintings, and the embodied state is a prerequisite for this consumption. For example, one can use economic capital for buying a painting, but the cultural consumption of the said painting requires embodied capital (Bourdieu 1986:50). The institutionalized state is academic qualifications

(Bourdieu 1986:50-51) or following the definition by Lamont & Lareau (1988) formal knowledge and credentials.

The theory of *cultural reproduction* was developed to understand the unequal achievement of students originating from different social classes (Bourdieu 1986:47). The core argument in this theory is that the cultural capital of students, and their parents, is paramount for the student's educational success, and is of greater importance than ability or merit. Familiarity with the dominant culture as a result of this becomes a significant predictor of a student's academic accomplishments (Bourdieu 1977:494). Especially, the embodied state of cultural capital (being cultivated) plays a vital role in the reproduction of society for two reasons. First, it is less visible, which means that it is less likely to be controlled as other capitals. Second, the embodied capital cannot be bought but is accumulated over time (Bourdieu 1986:49). Differences in the cultural capital possessed by parents imply a different time for accumulation and exposure to cultural capital for children. This difference in exposure gives students of parents with higher levels of cultural capital a head start, as their exposure and acquisition of cultural capital inevitably will begin earlier (Bourdieu 1986:49).

Many scholars have criticized the theory of cultural reproduction for being unclear on how cultural capital is transferred from parents to children, and how children transform their cultural capital into academic success (Jæger and Breen 2016; Lamont and Lareau 1988; Lareau and Weininger 2003). Overall, there are two perspectives on the transformation of cultural capital into academic success, which are not necessarily mutually exclusive (Breinholt and Jæger 2020; Jæger and Breen 2016; Lareau and Weininger 2003; Mikus, Tieben, and Schober 2020). The first perspective interprets cultural capital as skills, while the second perspective sees cultural capital as having a symbolic function. From a symbolic perspective students with more cultural capital, will have attitudes and behaviours, which teachers interpret positively, eventually leading to favouritism, and academic success. From a skills perspective, students with more cultural capital will have specific skills, which will make them more likely to succeed in school, such as better

reading abilities. In the next section, I address how, following the above theory, SWPBS might be imagined to reduce inequality.

1.3.2.1.1 Creating a level playing field

An essential part of the SWPBS-programme is to make the values and rules explicit at schools. Following the theory of *cultural reproduction*, this explicitness might reduce the symbolic effect of cultural capital in the creation of inequality in school. As stated by Bourdieu, the embodied state of cultural capital is less visible, and from a symbolic understanding of cultural capital results in the high cultural capital students benefitting more from the inherent nature of the school. The high cultural capital students benefit more as they are aware of how to behave, while the low cultural capital students are not. SWPBS could create a more level playing field between students of different SES, as the low cultural capital will gain a greater understanding of how to behave. The more level playing would reduce the symbolic effect of cultural capital, by reducing the effect of the taken for granted routines of daily life (Lamont and Lareau 1988), and lead to a more similar benefit of schooling for students of different SES. Even if SWPBS reduces the symbolic effect of cultural capital, it does not reduce the skill aspect of cultural capital, such as students from academic homes having better reading abilities. (Breinholt and Jæger 2020; Jæger 2011). These differences in skills will still contribute to unequal outcomes of schooling for students of different SES.

In the next section, I present Lareau's concept of concerted cultivation, which gives one suggestion for how cultural capital is transformed from parents to children and into academic success for the children. The concept is introduced, as it contributes to understanding why a potential improvement in classroom disciplinary climate might benefit the low SES students.

1.3.2.2 *Concerted Cultivation*

Lareau (2011) presents with her concept of concerted cultivation a possible explanation for how parents transfer their cultural capital to their children, and how the children transform their cultural capital into

academic success. Lareau (2011) developed the term in her observational study of children from both middle and working-class background in the US. One of her primary findings were that there was a systematic difference in the child-rearing practice of the two social classes, with middle-class parents focusing on planned and structured development of their children, while the working-class parents had more faith in the natural development of children. Lareau refers to this more structured and organized approach of the middle-class towards child development, as *concerted cultivation* (Lareau 2011:3-5).

In her study, Lareau found that this difference in child-rearing results in the middle-class students having a sense of entitlement, making them more likely to be assertive, take the initiative, and negotiate with authority. The middle-class students were able to use these skills to their benefit in interactions with adults and teachers. On the other hand, working-class students were more likely to hold back their opinions and defer to authority. These differences in child-rearing and subsequent student behaviour result in a stratified profit of schooling, as the middle-class students are able to make the rules work in their favour (Lareau 2011:6-7).

It should be noted that Lareau (2011) does not believe the middle-class student behaviour to be objectively better than working-class behaviour. Instead, the crucial difference between the two groups is that the middle-class parents are better at adjusting their child-rearing practices to the recommendation of experts, whereby their children are more likely to show behaviour that is in line with the expected behaviour at school (Lareau 2011:4-5, 363). I, therefore, interpret this as a symbolic perspective on the transformation of cultural capital into academic success.

1.3.2.2.1 Disruption and attention

Following the perspective by Lareau, child-rearing varies with the SES of the parents, which results in differences in students' skills such as their ability to be assertive, take the initiative, and negotiate with authority. The child-rearing practices of the parents are also crucial for other skills than the ones highlighted by Lareau such as their self-regulatory skills

and academic self-efficacy (Cattelino et al. 2019; Fan and Williams 2010; Kim 2014; Sektnan et al. 2010; Usher 2009; Zimmerman et al. 1992). Low SES is associated with lower levels of self-regulatory skills (Miech, Essex, and Goldsmith 2001; Ng-Knight and Schoon 2017; OECD 2020:71-74), which could be due to these differences in child-rearing. Students with lower self-regulatory skills are more sensitive to disruptions, distractions, and a disorderly classroom. As students with lower self-regulatory are more sensitive to disruptions, a disorderly classroom will likely reduce the time spent on learning activities, which results in a reduced learning output (Duckworth and Carlson 2013). Due to their potentially lower self-regulatory skills, I assume that the low SES students will benefit more from a positive *classroom disciplinary climate* than the high SES students do. I more precisely assume that it matters more for their academic achievement, due to the reduction of distractions, which increases their time spent on learning activities.

The hypothesis might also be relevant for understanding how *SWPBS* can have a more positive effect with the low SES students since *SWPBS* should improve the classroom disciplinary climate through classroom management.

The two hypotheses, I have presented so far, both argued that *SWPBS* and *classroom disciplinary climate* would be especially beneficial for the low SES students. In the next section, I present a hypothesis on how *SWPBS* – and to some extent, the classroom disciplinary climate – can negatively affect the low SES students. The hypothesis is based upon Golann (2015)'s concept of the worker-learner, which is a development of Bowles & Gintis' correspondence principle. I start by introducing the correspondence principle, which was among the first theories to introduce non-cognitive skill into the stratification process (Bowles and Gintis 2002; Golann 2015:4).

1.3.2.3 The Correspondence Principle

In 'Schooling in Capitalist America' Bowles & Gintis, (1976) present their theory of the correspondence principle, which argues that schools mimic the environment of the workplace, and through socialization prepares the students for their position in the hierarchical structure of the

modern corporation. They argue that the structure of schools corresponds to the workplace with the school-principal as the CEO, the teachers as the managers, and the students as the workers. From their perspective, grades are equivalent to pay, and enrolment in additional education is a promotion (Bowles 1977; Bowles and Gintis 1976:131-132).

In a similar fashion to Lareau (2011), Bowles & Gintis argue that students of a working-class background are in general taught to follow the rules, be punctual, predictable and have close supervision of their actions, while the middle-class students are taught to be independent, creative and assertive. These type of skills prepares the students for the different requirements of them on the labour market (Bowles and Gintis 1976:132-140).

The primary reason for the difference in these skills is that parents teach their children different behaviours and non-cognitive skills at home, which correspond to the parents' position on the labour market. As a result of this, the parents are preparing their children to obtain a position on the labour market similar to their own, and a similar socioeconomic status (Bowles and Gintis 1976:142-143).

According to Bowles and Gintis, the school-system also contributes to the development of these different behaviours and non-cognitive skills. At school, students are immersed in a structure of rewards and sanctions, and this structure values certain traits and behaviours. Students evaluate the value prescribed to certain behaviours by the school and change their behaviour accordingly (Bowles and Gintis 2002). As students move up through the school system from primary school to upper secondary to higher education, the value prescribed to certain skills and behaviours by the school-system change. In primary school, compliance with the rules is valued, while university values the independence of the students. Promotions through the educational-system will help students obtain specific non-cognitive skills, which are fitting to the corresponding position on the labour market. Furthermore, the valued behaviour in a school depends on the socioeconomic composition of the school and the socioeconomic status of the student. Teachers will have different expectations for behaviour for students of different socioeconomic status,

hereby affecting the non-cognitive skills the students develop (Bowles 1977; Bowles and Gintis 1976:132).

1.3.2.3.1 Worker-learners

Golann (2015) developed her terminology of the worker-learner from observations and interviews at “no-excuse” schools. “No-excuse” schools is a term for a type of charter-schools that is characterized by having an extended school day and year, frequent student testing, and a school-wide and highly structured disciplinary system. The no-excuse approach has very clear expectations for student behaviour and relies on an extensive system of rewards and consequences for good and bad behaviour. Overall, the ‘no-excuse’ approach and SWPBS share a very structured and standardized approach to student behaviour. A crucial difference between the two is that the ‘no-excuse’ approach has frequent use of punishment such as suspensions, timeout, and verbal reprimands. In comparison, SWPBS tries to reduce the use of such punishments, and increase the positive interactions between student and teacher.

Golann found that the ‘no-excuses’ approach makes students adhere to authority and hold back their opinions, which initially lead to improvements on test-scores. According to Golann the intense discipline, adhering to authority, and holding back opinions, however, restricts students from learning the essential non-cognitive skill highlighted by both Bowles and Gintis (1976) and Lareau, (2011) such as being assertive, taking initiative, and negotiating with authority (Golann 2015). As noted, these skills are essential for success outside primary and lower secondary school. Golann argues that the strict disciplinary system will be especially problematic for working-class students, as they are not exposed to concerted cultivation at home. In the context of the strict disciplinary system they will also not learn these skills at school (Golann 2015). According to Golann the strict disciplinary system will produce what she calls *worker-learner* students. Students, who improve their test-scores, but it comes at the cost of restricting especially low SES students from learning essential non-cognitive skills such as being assertive and negotiate with authority.

The worker-learner perspective mimics some of the criticism of behavioural programmes presented in the section on the long-term outcomes of these sorts of programmes (section 1.2.3), such as the potential negative effect on intrinsic motivation. However, the concept of the worker-learner introduces the perspective into a frame of social inequality in school. From the earlier mentioned distinction between a symbolic and skills-based perspective on the transformation of cultural capital into education success, I interpret the concept of the worker-learner as a skills-based perspective. I do so, as the theory highlights the importance of learning specific skills, which following Bowles and Gintis are essential for the later success of the student.

1.3.2.3.1.1 Too much discipline?

As mentioned, *SWPBS* and the ‘*no-excuse*’ approach both have a highly structured disciplinary system. The major difference between the two school-programmes is that the ‘*no excuse*’ programme relies on punishment, while *SWPBS* tries to reduce punishment, and increase positive interactions between students and teachers. The similarity with a very structured approach to students’ behaviour, could mean that the *SWPBS*-programme also produces *worker-learners*.

From the perspective of the *worker-learner*, *SWPBS* will have a positive impact on students’ test-score. However, this positive effect will come at the cost of the students not developing non-cognitive skills, which are essential for the success in higher education and on the labour market. The concept of the *worker-learner* is primarily relevant to understand the potential negative effect of *SWPBS*. However, it might also apply to *classroom disciplinary climate*, when a positive classroom climate is a result of an overly disciplined classroom.

1.3.3 Summary of hypotheses

As noted, the theoretical concepts that were presented have a shared critical understanding of the roles of schools in the creation of inequality. I deviated to some extent from the original thoughts of Bourdieu, as I used the theory of cultural reproduction as a framework to suggest that *SWPBS* could reduce social inequality. The potential of schools to reduce

social inequality is in line with more recent thinking in sociology of education, which suggests that schools are refractors of inequality, and have the potential to both reduce and increase inequality (Downey and Condron 2016; Raudenbush and Eschmann 2015).

To summarize, I have presented three different hypotheses for how either *SWPBS* or *classroom disciplinary climate* can contribute to the reduction or the reproduction of social inequality in school. The first hypotheses focused on the goal of *SWPBS* to make values and rules explicit at school and argued based on the theory of *cultural reproduction* that this would create a more level playing field between different SES groups. The hypothesis suggests that *SWPBS* will be especially beneficial for low SES students.

The second hypothesis was based on the concept of *concerted cultivation*. With this hypothesis, I argued that a positive *classroom disciplinary climate* should matter more for the school success of low SES students since they are more likely to be sensitive to disruptions and distractions in class. While the hypothesis focused on classroom disciplinary climate, it can also help explain how *SWPBS* affects low SES students, as the programme should improve classroom disciplinary climate.

The third hypothesis focused on the potential negative outcomes of a strict disciplinary system following the concept of the *worker-learner*. The hypothesis suggested that *SWPBS* will have a positive effect on academic achievement, but also negatively impact the low SES students' non-cognitive skills. It possible that this hypothesis is also relevant for *classroom disciplinary climate* if it a product of an overly strict disciplinary climate.

Chapter 2 and 4 tested these hypotheses. Chapter 2 focused on the first and third hypotheses. In chapter 2, it was addressed whether *SWPBS* was associated with improvements in classroom disciplinary climate, academic self-efficacy, social well-being, and the learning environment. Furthermore, it was addressed whether students were affected differently by the programme based on their SES. Chapter 4 addressed the second hypothesis and tested the effect of *classroom disciplinary climate* on academic achievement, and if the effect depended on SES.

1.4 Method

In the subsequent section, I present the methodological underpinnings of the dissertation. The primary goal of the empirical work presented in chapters 2-4 has been to estimate the causal effect of either SWPBS or classroom disciplinary climate on different outcomes. Therefore, I start the section by introducing the framework used to understand causality – the potential outcomes framework – including the assumptions necessary to justify causal inference. In this context, I also address whether the statistical methods used in each chapter can establish causality for the specific studies. Subsequently, I address a specific challenge of experimental research that subjects assigned to treatment do not necessarily receive the treatment. Afterwards, I present an additional challenge of low statistical power. Finally, I present an additional perspective on causality, in the form of the critical evaluation framework, which highlights the importance of considering generative mechanisms, and prescribes a search for causal depth in the study of causality.

1.4.1 The Potential Outcomes Framework

The potential outcomes framework – also known as the Rubin’s Causal Model (RCM) (Holland 1986; Rubin 1974) – addresses a core challenge in studying causality; we cannot observe an individual as receiving the treatment and being in the control group at the same time. Following the framework, to make causal inference, more than one individual is needed so that the individuals can be assigned to either a treatment or a control group. Before assignment, the individuals must be equal in their expected outcomes, so if the individuals had changed place, the same outcome had been produced (Murnane and Willett 2011:44).

After treatment, only the individual’s realized outcome is observed, whereas there is a potential outcome, which is not observed. The control-group works as a counterfactual that shows the potential outcome had the treatment-group not received the treatment. If the assignment to treatment is denoted as W , with the control being $W=0$, and the treatment $W=1$, β the treatment effect, and Y the observed outcome, the potential outcome framework can be formally written as:

$$Y = Y_0(1 - W) + Y_1W = Y_0 + \beta W = \begin{cases} Y_1 = Y_0 + \beta & \text{if } W = 1 \\ Y_0 & \text{if } W = 0 \end{cases}$$

The model shows that the outcome for each individual is only observed under one of the two possible conditions, treated or non-treated. As one never observes an individual simultaneously in the treatment and control group, one cannot estimate the effect for the individual. Instead, one is only able to find the average treatment effect for a group of treated individuals (Imbens and Rubin 2015:4-9; Murnane and Willett 2011:41-45).

To achieve having a control-group and treated-group, which are equal in their expected outcome, one needs randomization into the treatment and control group. In practice, this condition for causality is satisfied in properly applied Randomized Controlled Trials (RCTs). The randomization guarantees the equal composition of the treatment and counterfactual group. Due to the equal composition, the treatment and control group can be assumed to have had the same potential outcome prior to treatment, because all characteristics, which may affect the outcome are balanced between the two groups (Murnane and Willett 2011:41-45). None of the empirical work in the dissertation is based on an RCT, and the studies face the classical problem of omitted variable bias. The problem can be summarized as:

$$\hat{\beta} = \beta + [\textit{Effect of the omitted}] \\ \times [\textit{Regression of the omitted on the included}]$$

Where the estimate of the effect ($\hat{\beta}$) will not only contain the true effect (β), but also the effect of the omitted variables. To create a proper counter-factual, one must consider why some units received the treatment rather than others, and correct for this selection-bias (Imbens and Rubin 2015:13-14). In the context of SWPBS, one could, for example, imagine a scenario where the programme was more likely to be used at schools with a larger share of low SES students. The lower SES students are more likely to have lower academic achievement (Reimer, Jensen, and Kjeldsen 2018). If I do not correct for the larger share of low SES

students, the estimates will suffer from omitted variable bias. In the context of the example, I would then wrongfully conclude that SWPBS has a negative effect on academic achievement. In the following section, I present to what extent the methods used in the three chapters succeed in reducing omitted variable bias.

1.4.1.1 Reducing omitted variable bias

In the empirical part of the dissertation (chapters 2-4), I used different statistical methods to reduce omitted variable bias. In all analyses, I used linear regression to control for several variables, which could have biased the findings such as socioeconomic status, school size, and country of origin. In each chapter, I used additional methods and research designs to increase the likelihood of having equal groups in the control and treatment group. Below, I focus on to what extent the chapter succeed in establishing a valid counter-factual for the treatment-group.

In chapter 3, I employed a *difference in differences* design to test the effect of SWPBS on students' grade point average (GPA), enrolment in upper secondary education, unemployment, and criminal activity. The difference in differences design can produce a valid estimate of the effect if the SWPBS-school and the control-schools prior to implementation were following parallel trends on the outcomes. For most of the outcomes considered, the chapter found that the schools were on parallel trends.

In addition, I used a method called *fixed effects* at the school level. The school-fixed effects model controls for time-constant factors at the school level, such as school quality and size. If the omitted variables were all time-constant schools factor, the school-fixed effect would produce the true effect, following the equation above. However, it is highly implausible that all omitted variables are time-constant school-level factors. Students' socioeconomic status, innate ability and motivation are also likely to affect academic achievement. If these factors are not evenly distributed among the students, who attend the SWPBS schools and the control schools, they will bias the estimates unless appropriate controls are introduced. Nevertheless, the school-fixed effects model does reduce some of the omitted variable bias. Overall, the combination of difference-in-differences with school fixed effects should

create a solid foundation for producing a valid estimate for the effect of SWPBS. However, due to some methodological issues in the chapter, it cannot produce conclusive evidence and does only provide indications.

Chapter 2 tested the association between SWPBS and classroom disciplinary climate, academic self-efficacy, social wellbeing, and the learning environment. The chapter used *matching*, which is a method that mimics the RCT by creating a control group, which on observables is similar to the SWPBS-schools. If the factors most important for the selection into treatment are identified, this method can produce a valid estimate of the effect. However, as with linear regression, this method is sensitive to omitted variable bias, which is untestable. The validity of this method depends on *face-validity*, e.g. do we believe that I had corrected for all relevant variables? Since I cannot guarantee that I had controlled for all relevant factors, the results of chapter 2 do not warrant a causal interpretation. Instead, the chapter only provides indications of the potential of the SWPBS-programme.

Finally, in chapter 4, I tested the effect of *classroom disciplinary climate* on academic achievement. In the analyses, I used a fixed-effects model, but on both the school and individual-level, controlling for both time-constant factors on the school and individual level. Examples of individual time-constant factors are socioeconomic status, gender, and country of origin. The school- and individual-level fixed effects create a strong foundation for finding the causal effect of classroom disciplinary climate. However, the results in chapter 4 are still sensitive to unobserved time-varying variables.

1.4.1.2 *Stable Treatments*

A second assumption for causal inference in RCM is the ‘*Stable Unit Treatment Value Assumption*’ (SUTVA), which assumes that the assignment to treatment in itself does not affect the outcome and that the assignment of one individual to treatment does not affect another individual (Imbens and Rubin 2015:9). In the context of schools, this assumption is usually broken, due to peer effects, and treated- and non-treated children interacting with each other (Morgan 2001; Rubin 1990). With SWPBS, the treatment is administered at the school level, and the

interactions of peers should therefore not bias the estimate, as all students receive the treatment. As noted, by Morgan (2001), a necessary assumption when studying school effects is that the programme does not cause a surge in students attending the SWPBS-schools, as a significant increase in student population could change the effect of the programme. An increase in student population would likely change the effect due to capacity constraints, but also due to a change in peer effects, and potential changes in student composition (Morgan 2001:350). As these factors, also influence student outcomes such changes would affect the treatment effect of SWPBS. The treatment effect of SWPBS is, therefore, subject to the constraint that the proportion and composition of students at the SWPBS-schools are somewhat constant, and does not change due to the implementation of the programme. If the implementation of SWPBS led to a change in the student population, it would be unclear if the effect of ineffectiveness of the programme was due to these changes or the programme. The estimates in chapter 2 and 3 are therefore subject to the constraint that the proportion and composition of students attending SWPBS schools is relatively constant.

In chapter 4, the effect of classroom disciplinary climate on academic achievement was addressed. As the ‘treatment’ happened at the class-level, SUTVA is likely broken, due to peer interactions during recess. The ‘assignment’ of some students to a class of low classroom disciplinary climate might affect students in a class with a positive climate, as the disruption is brought into recess and potentially into the positive disciplinary climate class. As with SWPBS, I also need to assume relatively stable classroom sizes and compositions.

SUTVA relates partly to the discussion of whether our estimate of the effect is *externally valid*, e.g. how stable are the effect, and to what extent do they depend on the population. Put differently SUTVA relates to whether the results generalize to other settings than the one researched. The question of random assignment relates more to the internal validity of the study, e.g. do we find a causal relationship. The goal with the statistical-method used in the three chapters is to increase the internal validity, and it begs the question if, for example, the effects of SWPBS

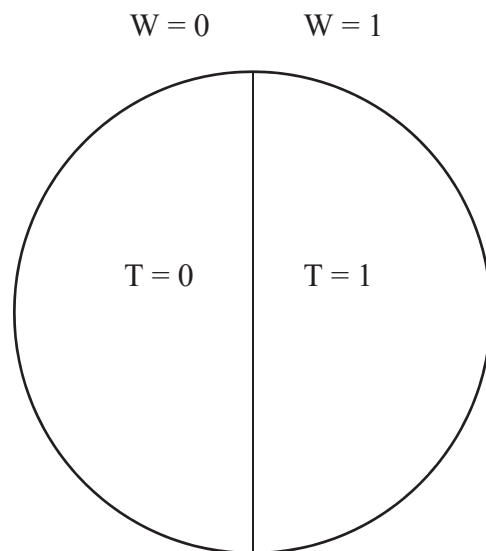
would be reproducible if implemented at other schools – especially schools of different student compositions and size.

I have now presented the primary assumptions for causal inference within the potential outcome framework. In the next section, I address an additional challenge, which relates to the fact that one cannot assume that *assignment* to the treatment-groups also means that this group receives the *treatment* as intended.

1.4.2 Intent-to-treat and as-treated

In an ideal world, the assignment status (W) of an individual would be equal to their treatment (T). This ideal relation between assignment and treatment is depicted below in Figure 1. However, in the real world, you are more likely to have four groups of people: compliers with the assignment, never-takes treatment, always-takes treatment and defiers of assignment (Imbens and Rubin 2015:540-545).

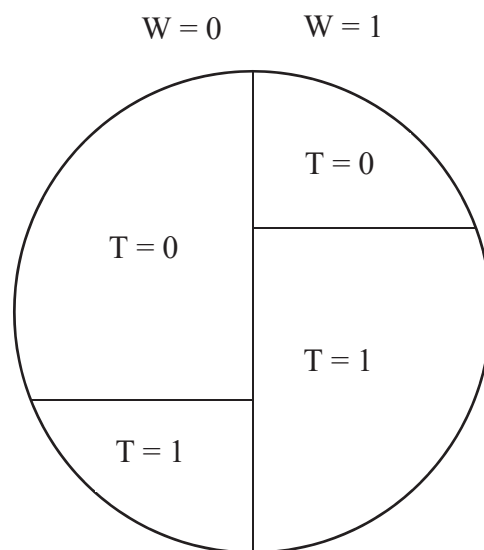
Figure 1. Ideal world relation between assignment and treatment



Note. Relation between assignment and actual treatment, W = assignment status, T = treatment status. The circle represent the sample of the population.

If I account for these four types of individuals, a more realistic depiction of the relation between assignment and treatment would be as the one presented in Figure 2. The figure shows that some individuals will have a different treatment status than their assignment status (Nagengast et al. 2018). If we use SWPBS as an example, some teachers will likely not comply with the manual, and especially behind the closed door of the classroom will return to their regular practice. Students of those teachers will be assigned to the SWPBS-treatment, but do not receive it in full. On the other hand, some students are not assigned to the treatment but still receive it, as some teachers might read or hear about the programme, and start using it themselves. Additionally, school principals and teachers can change their job from an SWPBS-school to another, and bring the ideas with them.

Figure 2. Real-world relation between assignment and treatment



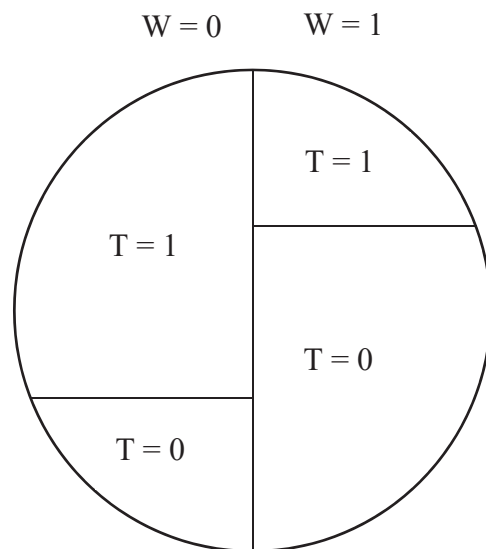
Note. Relation between assignment and actual treatment, W = assignment status, T = treatment status. The circle represent the sample of the population.

In a situation such as the one depicted in Figure 2, it is often sensible to estimate what is known as the intent-to-treat, where the

treatment status is ignored, and the two groups are analysed based on their assignment status. A strength of this approach is that it keeps the internal validity from the random assignment, and produces a ‘natural’ estimate of the effect since similar non-compliance problems will exist if, for example, SWPBS were to be implemented at other schools.

A challenge for the intent-to-treat is that it relies on a rather large level of compliance, or in the context of a school-programme such as SWPBS high levels of implementation fidelity. If there is low implementation fidelity, such as Figure 3 illustrates the intent-to-treat might not be able to detect an effect. A challenge in this scenario is that a programme might have an effect, but due to low levels of implementation fidelity, this effect will go unidentified. The low level of implementation can then lead to the wrongful conclusion that the programme is ineffective when, in reality, the null-effect was due to implementation problems.

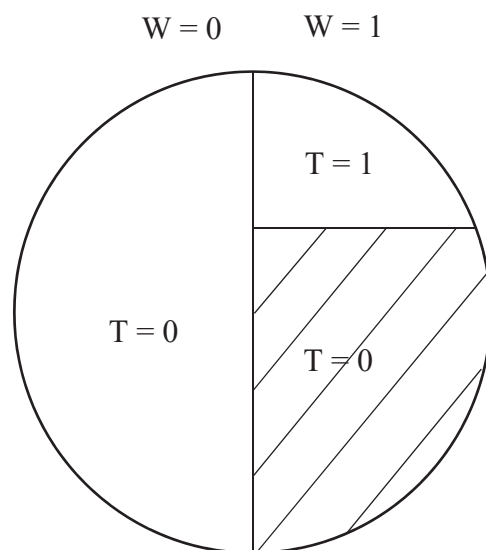
Figure 3. Low compliance with assignment-status



Note. Relation between assignment and actual treatment, W = assignment status, T = treatment status. The circle represent the sample of the population.

In this context, it can be relevant to estimate a per-protocol or as-treated analysis (Gupta 2011; Nagengast et al. 2018; Sainani 2010). In the per-protocol analysis, you only keep the individuals where $W=T$, the individuals that complied with their assignment. In the context of the study of SWPBS, a per-protocol analysis was not possible, as it was unobserved; whether some teachers or schools unofficially started using the programme. Instead, I took an as-treated approach, where the treatment effect of the treated is estimated, depicted in Figure 4. In the as-treated analysis, the low implementing schools are removed from the treated group. The control-schools are set to be equal to their assignment status, as any unofficial use is unobserved.

Figure 4. As-treated analysis



Note. Relation between assignment and actual treatment, $W =$ assignment, $T =$ treatment status. The circle represent the sample of the population.

Both the as-treated analysis and the per-protocol analysis produces a perfect-conditions estimate of the effect since the analysis excludes schools that do not succeed with their implementation. Therefore, the estimates from the as-treated analysis only tell something about the

effect, under the condition that the implementation succeeds. In addition, the as-treated analysis increases the problem of selection bias, as the schools that succeed with the implementation might differ from the unsuccessful schools. However, the as-treated analysis contributes to answering whether a potential null-effect in the intent-to-treat was due to implementation errors or theoretical errors of the programme. If the as-treated analysis also produces a null-effect, it is a strong indication that the programme is ineffective. On the other hand, if it finds an effect, it suggests that the programme is effective, but faced implementation problems.

As noted, I was not able to obtain the implementation-data collected at the schools (section 1.2.2.2). Hence, an as-treated analysis could not be performed. I tried to approximate an as-treated analysis by only including schools that were still using the programme in 2017/2018. I assumed that the schools that continued using the programme were more likely to have had successful implementation. Moreover, schools that had not completed the three-year implementation period were excluded. This as-treated estimate was only a proxy, as the actual implementation was unobserved. It is therefore not guaranteed that I identified the schools, which were successful at implementing the programme, and this proxy as-treated definition might still have entailed schools with implementation challenges. However, high levels of fidelity are a condition for the programme to be successful, as mentioned in the review of SWPBS (section 1.2.3). Potential null or small effects of the programme can hereby be due to both implementation challenges or the ineffectiveness of the programme.

The findings for SWPBS should be interpreted in light of the fact that many schools faced challenges in the implementation of the programme, as described in the section on the implementation of the programme in Denmark (section 1.2.2.2). While this a clear limitation of the work, the average treatment effect from the intent-to-treat is still a relevant estimate, as it provides an estimate of the effect, which accounts for low-implementing schools. Low-implementing schools are almost inevitable when implementing school-programmes, and the intent-to-

treat, therefore, produces a more realistic estimate of the effect for SWPBS, if SWPBS were to be implemented at other schools.

1.4.3 Statistical Power

In the above section, I have outlined a problem experimental research face, when working with humans, which is that the assignment to treatment does not equal that the subject receives the treatment. In this section, I describe an additional challenge of causal research, which relates to the probability of producing either a false positive or a false negative in the statistical analysis.

The probability for producing false positives and negatives depends a lot on the statistical power of a study (Murnane and Willett 2011:92-95). The statistical power of a study primarily relies on the sample size and the number of treated individuals. An essential factor for the statistical power of a study is whether the treatment is assigned at a certain level such as the municipality, school or classroom. If for example the treatment is assigned on the school-level, the students within the treatment schools will have some shared unobserved experience at the schools, and unobserved factors for one student can therefore not be assumed to be independent of that of another student within the same school (Abadie et al. 2017; Murnane and Willett 2011:111-112). In this context, the statistical power relies more upon the number of the schools than the total number of students, due to the fact that the students are clustered together at the same schools (Murnane and Willett 2011:123-125).

If a study has low statistical power, there is an increased chance of having both false positives and false negatives, also referred to as type I and type II errors respectively. In practice, the low statistical power decreases the precision of the statistical models, resulting in larger standard errors for the estimates.

The statistical power aspect is especially relevant for chapter 2 and chapter 3, which both focuses on SWPBS. Both chapters are based on large data sets containing information on all students in public school in Denmark. Nonetheless, the studies had low statistical power, as the treatment was clustered at a few schools. In chapter 2, the study included

between 31 to 33 treatment schools, while chapter 3 included between 16 to 29 treatment schools. The low statistical power of these studies means that small effects of the programme will be undetectable, leaving true effect unidentified (Murnane and Willett 2011:122-127).

Furthermore, the low statistical power and the larger standard errors also increase the chance that the statistically significant estimates are false positives. The larger standard errors mean that for an estimate to become statistically significant, it must be of a certain size, increasing the likelihood that statistically significant estimates are overestimations (Vasishth et al. 2018). The low statistical power is a significant limitation of both chapter 2 and chapter 3 since it increases the possibility that the results are either false positives or false negatives.

1.4.4 Mechanisms

While the empirical work primarily focuses on establishing causality within the potential outcomes framework, the project also draws inspiration from the realistic evaluation framework. This perspective is not made explicit in the three empirical chapters of this dissertation but has been a guiding principle in my approach towards the empirical work. At the core of realist evaluation are the configuration Context + Mechanism = Outcome (CMO) and the question of “what works for whom under which conditions – and why?” (Pawson 2013:15). The CMO-configuration highlights that I might find an effect of X on Y, but one – or more – mechanisms created this effect, and this mechanism will only work under certain conditions. To truly understand causal relationships, the realist evaluation perspective argues that both the context and the mechanism that created the causal relationship must be established (Pawson 2013:21-28). The concept of generative mechanisms is widely used in the social sciences and is also central to critical realism and analytical sociology (Morgan and Winship 2015:338-343). In my understanding of generative mechanisms, I draw on perspectives from analytical sociology.

‘Generative mechanisms’ refers to the perspective that research should search for causal depth, and not only investigate the cause of an outcome, but how the cause brings about its effect, ultimately

understanding the cogs and wheels that bring about the outcome. Ideally, the mechanism is identified, and it should at least be suggested (Hedström and Bearman 2011).

Whether one has achieved sufficient causal depth, is not always straightforward. One rule of thumb is that sufficient causal depth has been reached, when the scientist or scientific field agrees that the causal explanation has bottomed out, meaning that the description of additional mechanisms would be considered irrelevant (Machamer, Darden, and Craver 2000).

According to this standard, the empirical work presented later did not reach sufficient causal depth. Using the work on SWPBS as an example, only the overall effect of the programme was identified. However, the programme consists of several sub-elements, which might contribute to the causal effect in different ways, and have their unique causal effect. Not accounting for the sub-elements of the programme does not mean that the results produced in the chapters cannot be considered causal, only that a sufficiently deep explanation did not accompany the causal effect. Therefore, additional research is needed to fully explore the mechanisms of the programme (Morgan and Winship 2015:351-352).

An additional example of the empirical work not reaching sufficient causal depth is the work in chapter 4, which addressed the effect of classroom disciplinary climate on academic achievement. As presented in the theoretical section on classroom disciplinary climate (1.3.1), it can affect academic achievement both through increased time on task, but also by the development of social skills. In the chapter, I am not able to address whether the effect was due to increased time on task, the development of social skills or both, leaving the generative mechanism unidentified. In addition, the reasons that have led to a positive classroom disciplinary climate likely plays a significant role in the outcome produced. The same level of classroom disciplinary climate might have a different effect depending on *how* it was produced. In the extremes, one can imagine a “positive” classroom disciplinary climate, but it is achieved through corporal punishment, which I do not believe would produce as positive outcomes, as if it was produced through for example a more interpersonal approach. The effect of classroom

disciplinary climate not only relates to *whether* there is classroom order but also to *how* it is produced (Evertson and Weinstein 2006).

The three chapters were at least to some extent, able to approximate a causal effect of either *SWPBS* or *classroom disciplinary climate*. However, the chapters did not reach sufficient causal depth, as the chapters were not able to establish the generative mechanisms and understand the context that brings about the outcomes. With the theories presented earlier (section 1.3), an effort was made to at least suggest the potential mechanisms. The next section clarifies the definition of “context” within the CMO-configuration of realistic evaluation and proceeds to give a few examples of the role of context in the present dissertation.

1.4.4.1 Context and causality

The definition of “context” given in realist evaluation is quite broad. It entails both the characteristics of the individuals, their interrelationships, the institutional context such as rules and norms, and the surrounding infrastructure understood as the broader social, economic, and cultural setting (Pawson 2013:37). Arguably, the realist evaluation moves *SUTVA* from being an assumption for causality to be a part of the causal analysis. Instead of assuming that the programme will only be effective for a specific student population, the realist evaluator would investigate how the programme works with a different student population, narrowing down the contextual factors that are the premise for the causal effect.

Earlier, I discussed whether *SWPBS* constitutes the same change compared to conventional schools in Denmark and the US, respectively (section 1.2.2.1). The discussion addressed whether the contextual differences in the institutional and surrounding infrastructure were too substantial for the effects found in the US to be reproduced in Denmark. This discussion is one example of the importance of considering the context in the study of causal relationships. Another example is the fact that the programme was only implemented in specific Danish municipalities that were already using certain other programmes (see section 1.2.2.2), which begs the question if the results are valid for other municipalities.

An additional contextual factor worth highlighting relating to the study of SWPBS is that a large school-reform was implemented in 2014/2015 in Denmark. As mentioned, the first SWPBS schools started implementation in 2008, and the reform might have affected the results of the analyses in chapter 2 and 3. A primary object of the reform was to increase the number of school hours on a school day. As the reform was nation-wide, it should affect the schools in both the treatment and the control similarly, and therefore should not bias the estimates. However, the reform also allocated 1 billion Danish Crowns for the retraining of teachers with the training in classroom management practices as a priority (Altinget 2013:18). A recent evaluation of the reform showed that this investment might have paid off, as there has been an increase of 6 % in the students' experience of the teachers' ability to maintain order in the classroom from 2014 to 2018 (Nielsen et al. 2020b).

I can only speculate, but this general investment could either have reduced or increased the effectiveness of SWPBS. On the one hand, SWPBS creates a framework within which other interventions can work, which might have made the investment more effective. Additionally, the fact that the schools were already working with classroom management might have made them more receptive for training in classroom management.

On the other hand, it could also have reduced the effect of SWPBS. The municipalities might have allocated the resources to other schools, as the SWPBS-schools were already working with the issue. The resources might have been distributed equally, but might not have been as effective at the SWPBS schools, as the teachers did not benefit additional from extra training. Were the control schools raised to a level similar to the SWPBS-schools, the effect of SWPBS would have decreased. These are only speculations, but worth having in mind when reading the conclusion in the next section. These speculations highlight that more knowledge about the implementation, and day-to-day at the schools, would have strengthened the conclusion of the dissertation.

1.5 Conclusion and Discussion

In this section, I present the results of the dissertation and provide a general conclusion. I start by summarizing the overall findings of the dissertation. I then address the effect sizes found for SWPBS and classroom disciplinary climate to determine the social significance of the findings and benchmark them against previous findings for SWPBS as well as other school interventions. Hereafter, I shortly discuss what the results tell us concerning the role of classroom disciplinary climate and SWPBS in reducing or reproducing social inequalities. Afterwards, follows a discussion of the results with respect to the long-term potential of the programme, and the potential unintended effects of a behavioural programme such as SWPBS. I end the section, by returning to the claim made in the introduction that *SWPBS* and a positive *classroom disciplinary climate* could be a solution to the problem that too many students – especially of lower SES – leave compulsory education without sufficient reading and math skills, and the ability to take part in society.

1.5.1 Results for SWPBS

In the second chapter, I found that SWPBS at the proxy as-treated schools was associated with an improvement in the classroom disciplinary climate and the academic self-efficacy of the students. Furthermore, I found that the association did not depend on socioeconomic status, which indicated that the programme benefitted all students irrespective of their socioeconomic status. The chapter is not able to establish whether these findings are causal

In the third chapter, I tested the programme's effect on academic achievement, enrolment in upper secondary education, unemployment, and crime. The results of the chapter indicated an increase in academic achievement in the third year of implementation for the intent-to-treat definition of the SWPBS-schools. With the proxy as-treated definition, the results showed an increase in the second and third year of implementation. The results in chapter 3 indicated an effect on academic achievement, but the chapter does not provide conclusive evidence for the improvement, and the estimates for academic achievement might have been an overestimation. The reasons for the ambiguousness

regarding the effect of SWPBS on academic achievement is elaborated upon in chapter 3.

1.5.2 Results for classroom disciplinary climate

In the fourth chapter, co-authored with David Reimer, we addressed the effect of classroom disciplinary climate on academic achievement. We found that classroom disciplinary climate affected academic achievement. In addition, we also found that classroom disciplinary climate mattered more for the academic success of low SES students than it did for high SES students. The stronger effect for the low SES students suggests that a positive classroom disciplinary climate can especially help the students, who need it the most. The results prove that the mechanism suggested by school-programmes such as *SWPBS* for improving academic achievement exists. However, the potential of this mechanism is somewhat limited, as the effect of classroom disciplinary climate on academic achievement was small. The section below elaborates on the effect sizes of the findings.

1.5.3 Contextualizing and benchmarking the estimates

In this section, I go beyond just addressing whether the findings are statistically significant and instead focus on whether the effects for SWPBS and classroom disciplinary climate are of social significance (Bernardi, Chakhaia, and Leopold 2017; Lipsey et al. 2012). To compare the effects sizes, I use set thresholds for whether an effect is small, medium or large (Kraft 2020). Moreover, I compare the effect size for SWPBS with the recent meta-analysis of SWPBS by Lee and Gage (2020), and a meta-analysis of classroom management programmes that support and facilitate academic and social-emotional learning such as SWPBS (Korpershoek et al. 2016).

I adopt the benchmarks for effect sizes for the causal effect of educational interventions on academic achievement for PreK-12 suggested by Kraft (2020), where an effect of 0.05 standard deviation (SD) is small, 0.05 to 0.20 SD is medium, and 0.20 SD and higher is large. I use these thresholds, as they have been tailored for the assessment of educational interventions in the field (Kraft 2020; Lipsey et al.

2012:4). The applicability of these benchmarks is limited to the effect on academic achievement (Kraft 2020).

Table 2 summarizes the effect sizes of my findings, as well as the effect sizes interpretation according to (Kraft 2020). Furthermore, the table shows the effect sizes found in the two meta-analyses. The results for the effect of *SWPBS* on academic achievement are from chapter 3. The table shows that the effect size for SWPBS on academic achievement is medium according to the threshold set by Kraft (2020) and that the effect size found for SWPBS in chapter 3 is comparable to the effect size found in the meta-analysis of SWPBS. Furthermore, the effect size I found for SWPBS is slightly below that of other classroom management programmes, suggesting that SWPBS affects academic achievement less than other programmes.

Table 2 also reports the effect size for the results of chapter 2, where I found a statistically significant association between SWPBS and the outcomes classroom disciplinary climate and academic achievement. The thresholds set by Kraft (2020) are not applicable in this context, as they were only developed for academic achievement as an outcome. I can still compare the results with the two meta-analyses. The effect size found for SWPBS on classroom disciplinary climate in chapter 2 is slightly below that found in the meta-analysis of SWPBS, and the meta-analysis of classroom management programmes, but the effect size is yet still within a similar order of magnitude. It should be noted that the two meta-analyses did not specifically consider classroom disciplinary climate as an outcome, but behaviour outcomes more generally (Korpershoek et al. 2016; Lee and Gage 2020).

Outcomes similar to academic self-efficacy was only considered in the classroom management meta-analysis, with a motivational outcomes category (Korpershoek et al. 2016). As I argued in the section on creating persistent change (section 1.2.3), academic self-efficacy relates to the student's motivation. The effect size found for SWPBS on academic self-efficacy in chapter 2 is slightly smaller than that found in the meta-analysis. It should be noted that the result for motivation from the meta-analysis was not statistically significant.

Table 2. Effect sizes for SWPBS and Classroom Disciplinary Climate

Independent Variable	Outcome	<i>My findings</i>			<i>Previous findings</i>	
		Effect size	Interpretation	SWPBS	Classroom Management	
<i>SWPBS</i>						
Third-year (Intent-to-treat)	Academic Achievement	0.095 SD	Medium	0.113 SD	0.17 SD	
Second-year (As-treated)	Academic Achievement	0.107 SD	Medium	0.113SD	0.17 SD	
Third-year (As-treated)	Academic Achievement	0.160 SD	Medium	0.113 SD	0.17 SD	
Overall (As-treated)	Classroom Disciplinary Climate	0.179 SD	N/A	0.257 SD	0.24 SD	
Overall (As-treated)	Academic Self-efficacy	0.063 SD	N/A	N/A	0.08 SD	
<i>Classroom Disciplinary Climate</i>						
Classroom Disciplinary Climate	Academic Achievement	0.039 SD	Small	N/A	N/A	

Note. Interpretation of the effect size is based on the threshold set by Kraft (2020). The Column ‘SWPBS’ refers to findings from the meta-analysis for SWPBS by Lee and Gage (2020). Classroom management is based on the meta-analysis of classroom management programmes by Korpershoek et al. (2016).

Table 2 also shows the effect size for *classroom disciplinary climate* on academic achievement, following the threshold set by Kraft (2020), the effect size is small. However, the reported effect size for classroom disciplinary climate on academic achievement is for a difference of one SD in classroom disciplinary climate, but the difference in classroom disciplinary climate can be larger than that. A difference of two SD in classroom disciplinary climate corresponds to an effect size of 0.078 SD, which would be interpreted as a medium effect size.

Nevertheless, I interpret the effect size as small, as it seems unlikely that the classroom disciplinary climate will improve with more than one SD.

Finally, I also want to compare the results with the effect sizes on academic achievement for school interventions, such as reducing class size, increasing instruction time or adding a co-teacher. The intention is to give a more intuitive idea of the effect size by looking at school interventions that should constitute a more straightforward change.

In Denmark, reducing the class size by 8 students has been found to increase the academic achievement of the students by 0.04 SD (Heinesen 2010). Another Danish study has indicated that increasing the weekly instruction by 1 hour from the start to the end of compulsory education increases academic achievement by 0.06 SD (Bingley et al. 2018). Adding co-teachers have been found to improve academic achievement by between 0.086 and 0.131 SD depending on whether the co-teacher has a degree or not (Andersen et al. 2020). The magnitude of the effect of improving *classroom disciplinary climate* by one SD is comparable to a significant reduction in class size, whereas the effect for *SWPBS* is similar to that of having a co-teacher.

Based on the above, I conclude that despite some of the effect sizes being small, the findings for both *SWPBS* and *classroom disciplinary climate* can be characterized as not only statistically significant but also socially significant. However, the results should be interpreted with some caution, as not all estimates were based on designs that warrant a causal interpretation. Additionally, to complete the assessment of the effectiveness of *SWPBS* and classroom disciplinary climate, the assessment should also include the cost and scalability of implementing *SWPBS* or improving classroom disciplinary climate. Without doing so,

the results are of limited policy relevance, as the likelihood of success and cost of increasing, for example, academic self-efficacy with SWPBS is somewhat unclear (Kraft 2020). Such assessments are beyond the present dissertation¹.

1.5.4 Socioeconomic Status and Discipline

In the theory section (1.3), I presented different hypotheses on how SWPBS and classroom disciplinary climate might reduce or reproduce social inequality in school success. Three hypotheses were presented. The first suggested that SWPBS would create a more level playing field between low SES and high SES students, following Bourdieu's theory of *cultural reproduction*. The second hypothesis was based on Lareau's concept of *concerted cultivation* and argued that both SWPBS and a positive classroom disciplinary climate would be beneficial for low SES students, by reducing disruption resulting in more time on task. The last hypothesis used Golann's concept of the *worker-learner*, which is a development of Bowles and Gintis theory of the correspondence principle. The hypothesis stated that SWPBS would increase academic achievement, but could also refrain low SES students from learning critical non-cognitive skills, producing worker-learner students. Furthermore, the hypothesis stated that classroom disciplinary climate could create similar negative effects.

In chapter 2, no difference in the association was found for *SWPBS* between students of different SES, and the outcomes *classroom disciplinary climate, academic self-efficacy, social well-being, and learning environment*. As no difference was found, the results lead to a rejection of the three hypotheses for SWPBS. The overall positive association with academic self-efficacy is substantial, as it would suggest that SWPBS does not produce worker-learner students.

Research from both the US and Norway have found that SWPBS worked better for students at-risk of developing problem behaviour (Bradshaw et al. 2015; Sørli et al. 2018). Even though no difference in

¹ The National Board of Health has estimated the cost of SWPBS (Socialstyrelsen 2015), but did not include essential factors such as educators opportunity cost (Kraft 2020).

the association was found for SWPBS, the results of prior research would suggest that there is some unidentified heterogeneity in my results. SES might not have been a strong enough predictor for students' who were at risk of exhibiting problem behaviour, which could explain, why chapter 2 did not find any heterogeneous effect. While I did not establish any difference in effect, it seems unlikely that all students will benefit equally from the programme, since research from both the US and Norway have found that the programme worked better students at-risk.

In chapter 4, I found that the low SES students benefitted more from a positive *classroom disciplinary climate*, which is consistent with the second hypothesis, e.g. that the low SES students benefit more from a reduction in disruptions, which increases their time spent on learning activities. The results of chapter 4 are, however, unable to address the generative mechanisms that produced these results, as neither the students' self-regulatory skills nor time on task was observed. Additionally, the chapter only considered the academic achievement of the students, as an outcome, and it cannot be rejected that classroom disciplinary climate can produce *worker-learners*, e.g. students, who improve their test-score results but do not develop non-cognitive skills such as being assertive and negotiate with authority.

1.5.5 Unintended and long term effects

Earlier, I presented a classical criticism of behavioural programmes such as SWPBS, which postulates that behavioural programmes will deteriorate intrinsic motivation and that any positive effect will disappear when the incentives for the specific behaviours are removed (section 1.2.3). I interpret the positive relationship between SWPBS and academic self-efficacy as a strong indication that SWPBS does not deteriorate intrinsic motivation due to the earlier mentioned close association between motivation and self-efficacy (section 1.2.3). Concerning the second criticism, the picture is not as clear, as no significant effect was found for SWPBS on the out-of-school outcomes enrolment in upper secondary education, unemployment, and crime. Assuming the schools implemented the programme, I see three explanations for the positive associations with classroom disciplinary climate and academic self-

efficacy not turning into positive out-of-school outcomes. First, the criticism is correct. Second, the study did not have enough statistical power to detect such an effect. Third, most of the students included in the analysis of the out-of-school outcomes had only been exposed to SWPBS in the latter years of lower secondary education. It is possible that students exposed from the start of primary school primarily drive the positive association for classroom disciplinary climate and academic self-efficacy, as studies from the US have shown that the programme worked better for students exposed at a young age (Bradshaw et al. 2012; Waasdorp et al. 2012). If this is the case, one has to wait 15 to 20 years to understand the effects of the programme, as the first “fully” effective cohort does not finish until after ten years. Considering students outcomes, which have already been established to impact outcomes such as educational attainment and income, can indicate the long-term potential of a programme. As argued in the section on non-cognitive skills (section 1.2.4.1), academic self-efficacy can work as such an indicator. The indicated improvement in academic self-efficacy is crucial as it relates to both points of critiques of SWPBS. While I have focused on academic self-efficacy, the effect on academic achievement can, of course, also give similar indications of the long-term potential (Goldhaber and Özek 2019). To summarize, the positive association between SWPBS and academic self-efficacy suggest that the classical criticism of behavioural programmes do not hold for SWPBS. Furthermore, even though no long-term effect was established, the results indicate that the programme has the potential to create persistent change.

1.5.6 Are SWPBS and classroom disciplinary climate the solution?

In the introduction, I presented the challenge of Danish schooling that up to 15% leave compulsory without sufficient reading and math skills, making them less likely to progress from lower secondary education, maintain a job, and take part in society. This group of students is more likely to come from families of lower socioeconomic status. I further presented how *problem behaviour* in school likely contributes to this issue and suggested *SWPBS* and positive *classroom disciplinary climate*

as potential solutions. In this final section, I address what evidence the dissertation provided for this claim.

The results showed that SWPBS has the potential to improve *classroom disciplinary climate*, the *academic self-efficacy*, and perhaps even the *academic achievement* of students. While international research has suggested that the programme can be more beneficial for the students that need it the most, the present dissertation does not provide such evidence. Instead, the results indicated that SWPBS worked as a common good benefitting all students. The overall positive impact means that the programme should also affect the students, who typically will leave compulsory education without the necessary skills to take part in society. The results for *SWPBS* were comparable to that of other classroom management programmes, and the effect found for SWPBS in the US.

For *classroom disciplinary climate*, the results of the dissertation showed that it improved the academic achievement of all students. The effect of classroom disciplinary climate was small, but not without social significance, and the effect size was comparable to that of reducing class size by eight students. More importantly, the classroom disciplinary climate looked to improve academic achievement for the students, who need it, the most.

The ultimate goal of school in Denmark – according to the statement by the Minister of Education in the introduction – is to provide students with the skills to take part in society when they leave compulsory education. No such evidence was provided by the results in the dissertation for SWPBS and classroom disciplinary climate, with the results even suggesting that SWPBS had no longer-term impact. However, the results indicated that *SWPBS* improved *academic self-efficacy* and maybe *academic achievement*. Furthermore, the results showed that a positive *classroom disciplinary climate* improved *academic achievement*. As discussed, these short-term improvement can work as indicators of the long-term potential of both SWPBS and classroom disciplinary climate.

In conclusion, the results of the dissertation show some promise for SWPBS and classroom disciplinary climate to improve student outcomes, and for classroom disciplinary climate to reduce the unequal benefit of

schooling for students of different SES. These results provide suggestive evidence that SWPBS and creating a positive classroom disciplinary climate can be part of the solution to the problem that too many students leave compulsory education without the necessary skills to take part in society.

References

- Abadie, Alberto, Susan Athey, Guido Imbens, and Jeffrey Wooldridge. 2017. *When Should You Adjust Standard Errors for Clustering?* (No. W24003) National Bureau of Economic Research. Cambridge, MA.
- Altinget. 2013. "Aftale Mellem Regeringen (Socialdemokraterne , Radikale Venstre Og Socialistisk Folkeparti), Venstre Og Dansk Folkeparti Om et Fagligt Løft Af Folkeskolen, 7. Juni 2013." 1–32. Retrieved August 7, 2020 (https://www.altinget.dk/misc/130607_Endelig_aftaletekst.pdf).
- Andersen, F. B., B. Ryberg, E. B. Skibsted, and D. B. Mølgaard. 2011. *Videncenternotat - Implementering Af LP Og PALS På Skoler i Herning Kommune 2009 - 2011 Pointer Og Anbefalinger*. Aarhus.
- Andersen, Simon Calmar, Louise Beuchert, Helena Skyt Nielsen, and Mette Kjærgaard Thomsen. 2020. "The Effect of Teacher's Aides in the Classroom: Evidence from a Randomized Trial." *Journal of the European Economic Association* 18(1):469–505.
- Anderson, Lewis Robert. 2018. "Adolescent Mental Health and Behavioural Problems, and Intergenerational Social Mobility: A Decomposition of Health Selection Effects." *Social Science and Medicine* 197(June 2017):153–60.
- Andreasen, Asger Graa and Mette Lausten. 2019. *Trivselsudfordringer Ved Skolestart - Et Langtidsperspektiv*. København: VIVE Det Nationale Forsknings- og Analysecenter for Velfærd.
- Arnesen, Anne, Wilhelm Meek-Hansen, Terje Ogden, and Mari-Anne Sørli. 2014. *Positiv Læringsstøtte Hele Skolen Med!* Oslo: Universitetsforlaget.
- Arum, Richard, Karly Ford, and Melissa Velez. 2012. "School Discipline, Student Achievement, and Social Inequality." Pp. 1–41 in *Improving Learning Environments*, edited by R. Arum and M. Velez. Stanford University Press.
- Arum, Richard and Melissa Velez. 2012. "Class and Racial Differences in U. S. School Disciplinary Environments." Pp. 278–330 in *Improving Learning Environments*. Stanford University Press.
- Bailey, Drew, Greg J. Duncan, Candice L. Odgers, and Winnie Yu. 2017.

- “Persistence and Fadeout in the Impacts of Child and Adolescent Interventions.” *Journal of Research on Educational Effectiveness* 10(1):7–39.
- Bandura, Albert. 2000. “Self-Efficacy: The Foundation of Agency.” Pp. 17–35 in *Control of Human Behavior, Mental Processes, and Consciousness*, edited by W. J. Perrig and A. Grob. New Jersey: Lawrence Erlbaum Associates, Publishers.
- Bandura, Albert, Claudio Barbaranelli, Gian Vittorio Caprara, and Concetta Pastorelli. 1996. “Multifaceted Impact of Self-Efficacy Beliefs on Academic Functioning.” *Child Development* 67(3):1206–22.
- Bask, Miia and Mikael Bask. 2015. “Cumulative (Dis)Advantage and the Matthew Effect in Life-Course Analysis.” *PLoS ONE* 10(11):1–14.
- Bernardi, Fabrizio, Lela Chakhaia, and Liliya Leopold. 2017. “Sing Me a Song with Social Significance’: The (Mis) Use of Statistical Significance Testing in European Sociological Research.” *European Sociological Review* 33(1):1–15.
- Bingley, Paul, Eskil Heinesen, Karl Fritjof Krassel, and Nicolai Kristensen. 2018. *The Timing of Instruction Time : Accumulated Hours , Timing and Pupil Achievement*. Working Paper. The Rockwool Foundation.
- Borgen, Nicolai T., Lars J. Kirkebøen, Terje Ogden, Oddbjørn Raaum, and Mari-Anne Sørli. 2019. “Impacts of School-wide Positive Behaviour Support: Results from National Longitudinal Register Data.” *International Journal of Psychology* ijop.12575.
- Borghans, Lex, Angela Lee Duckworth, James Joseph Heckman, Bas ter Weel, Bas ter Weel, Bas ter Weel, Bas ter Weel, Angela Lee, James Joseph, Angela Lee Duckworth, Lex Borghans, Angela Lee Duckworth, James Joseph Heckman, and Bas ter Weel. 2008. “The Economics and Psychology of Personality Traits.” *The Journal of Human Resources*. 43(4):972–1059.
- Børne- og Undervisningsministeriet. 2019. *Folkeskoleloven (LBK no 823 by 17/08/2019)*. Børne- og Undervisningsministeriet.
- Bourdieu, Pierre. 1977. “Cultural Reproduction and Social Reproduction.” Pp. 487–511 in *Power and Ideology in Education*,

- edited by J. Karabel and A. H. Halsey. New York: Oxford University Press.
- Bourdieu, Pierre. 1986. "The Forms of Capital." Pp. 241–58 in *Handbook of Theory and Research for the Sociology of Education*. Westport: Greenwood Press.
- Bowles, Samuel. and Herbert. Gintis, eds. 1976. *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life*. New York: Basic Books.
- Bowles, Samuel. 1977. "Unequal Education and the Reproduction of the Social Division of Labor." Pp. 137–52 in *Power and Ideology in Education*, edited by J. Karabel and A. H. Halsey. Oxford University Press.
- Bowles, Samuel and Herbert Gintis. 2002. "Schooling in Capitalist America Revisited." *Sociology of Education* 75(1):1.
- Bradshaw, Catherine P., Christine W. Koth, Katherine B. Bevans, Nicholas Ialongo, and Philip J. Leaf. 2008. "The Impact of School-Wide Positive Behavioral Interventions and Supports (PBIS) on the Organizational Health of Elementary Schools." *School Psychology Quarterly* 23(4):462–73.
- Bradshaw, Catherine P., Mary M. Mitchell, and Philip J. Leaf. 2010. "Examining the Effects of Schoolwide Positive Behavioral Interventions and Supports on Student Outcomes." *Journal of Positive Behavior Interventions* 12(3):133–48.
- Bradshaw, Catherine P., Tracy E. Waasdorp, and Philip J. Leaf. 2012. "Effects of School-Wide Positive Behavioral Interventions and Supports on Child Behavior Problems." *Pediatrics* 130(5):1136–45.
- Bradshaw, Catherine P., Tracy E. Waasdorp, and Philip J. Leaf. 2015. "Examining Variation in the Impact of School-Wide Positive Behavioral Interventions and Supports: Findings from a Randomized Controlled Effectiveness Trial." *Journal of Educational Psychology* 107(2):546–57.
- Breinholt, Asta and Mads Meier Jæger. 2020. "How Does Cultural Capital Affect Educational Performance: Signals or Skills?" *British Journal of Sociology* 71(1):28–46.
- Broidy, Lisa M., Richard E. Tremblay, Bobby Brame, David Fergusson,

- John L. Horwood, Robert Laird, Terrie E. Moffitt, Daniel S. Nagin, John E. Bates, Kenneth A. Dodge, Rolf Loeber, Donald R. Lynam, Gregory S. Pettit, and Frank Vitaro. 2003. "Developmental Trajectories of Childhood Disruptive Behaviors and Adolescent Delinquency: A Six-Site, Cross-National Study." *Developmental Psychology* 39(2):222–45.
- Burger, Kaspar, Jeylan Mortimer, and Monica Kirkpatrick Johnson. 2020. "Self-Esteem and Self-Efficacy in the Status Attainment Process and the Multigenerational Transmission of Advantage." *Social Science Research* 86(October):102374.
- Buus, Anne Mette, Palle Rasmussen, Merete Wiberg, Trine Holck Grundahl, Ulla Nørtoft Thomsen, and Stine Del Pin Hamilton. 2012. *Brug Af Evidensbaserede Metoder i Seks Pædagogiske Institutioner Rapport 3*.
- Caprara, Gian Vittorio, Michele Vecchione, Guido Alessandri, Maria Gerbino, and Claudio Barbaranelli. 2011. "The Contribution of Personality Traits and Self-Efficacy Beliefs to Academic Achievement: A Longitudinal Study." *British Journal of Educational Psychology* 81(1):78–96.
- Carr, Edward G., Glen Dunlap, Robert H. Horner, Robert L. Koegel, Ann P. Turnbull, Wayne Sailor, Jacki L. Anderson, Richard W. Albin, Lynn Kern Koegel, and Lise Fox. 2002. "Positive Behavior Support: Evolution of an Applied Science." *Journal of Positive Behavior Interventions* 4(1):4–16.
- Carrell, Scott E. and Mark L. Hoekstra. 2010. "Externalities in the Classroom: How Children Exposed to Domestic Violence Affect Everyone's Kids." *American Economic Journal: Applied Economics* 2(1):211–28.
- Cattelino, Elena, Mara Morelli, Roberto Baiocco, and Antonio Chirumbolo. 2019. "From External Regulation to School Achievement: The Mediation of Self-Efficacy at School." *Journal of Applied Developmental Psychology* 60(March 2018):127–33.
- Cheema, Jehanzeb R. and Anastasia Kitsantas. 2014. "Influences of Disciplinary Classroom Climate on High School Student Self-Efficacy and Mathematics Achievement: A Look at Gender and

- Racial–Ethnic Differences.” *International Journal of Science and Mathematics Education* 12(5):1261–79.
- Chitiyo, Morgan, Michael E. May, and George Chitiyo. 2012. “An Assessment of the Evidence-Base for School-Wide Positive Behavior Support.” *Education and Treatment of Children* 35(1):1–24.
- Currie, Janet. 2009. “Healthy, Wealthy, and Wise: Socioeconomic Status, Poor Health in Childhood, and Human Capital Development.” *Journal of Economic Literature* 47(1):87–122.
- Deding, Mette C., Mette Lausten, and Angelo Rosenstjerne Andersen. 2007. *Starting School The Effect of Early Childhood Factors on Child Well-Being*. Working Paper 2: København.
- Deding, Mette and Mads Andersen Høj. 2015. “Lodtræningsforsøg Og Andre Eksperimentelle Design i Danmark.” *Økonomi & Politik* 88(3):63–71.
- DiPrete, Thomas A. and Gregory M. Eirich. 2006. “Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments.” *Annual Review of Sociology* 32(1):271–97.
- DiPrete, Thomas A. and Jennifer L. Jennings. 2012. “Social and Behavioral Skills and the Gender Gap in Early Educational Achievement.” *Social Science Research* 41(1):1–15.
- Downey, Douglas B. and Dennis J. Condron. 2016. “Fifty Years since the Coleman Report.” *Sociology of Education* 89(3):207–20.
- Downey, Douglas, Joseph Workman, and Paul von Hippel. 2019. “Socioeconomic, Ethnic, Racial, and Gender Gaps in Children’s Social/Behavioral Skills: Do They Grow Faster in School or Out?” *Sociological Science* 6:446–66.
- Duckworth, Angela L. and David Scott Yeager. 2015. “Measurement Matters: Assessing Personal Qualities Other Than Cognitive Ability for Educational Purposes.” *Educational Researcher* 44(4):237–51.
- Duckworth, Angela Lee and Stephanie M. Carlson. 2013. “Self-Regulation and School Success.” Pp. 208–30 in *Self-Regulation and Autonomy: Social and Developmental Dimensions of Human Conduct*, edited by B. W. Sokol, F. M. E. Grouzet, and U. Müller.

- New York: Cambridge University Press.
- Dumont, Hanna and Douglas D. Ready. 2020. "Do Schools Reduce or Exacerbate Inequality? How the Associations Between Student Achievement and Achievement Growth Influence Our Understanding of the Role of Schooling." *American Educational Research Journal* 57(2):728–74.
- Duncan, Greg J. and Katherine Magnuson. 2011. "The Nature and Impact of Early Achievement Skills, Attention Skills, and Behavior Problems." Pp. 47–69 in *Whither Opportunity? Rising Inequality, Schools and Children's Life Chances*, edited by G. J. Duncan and R. J. Murnane. New York: The Russell Sage Foundation.
- Evertson, Carolyn M. and Carol S. Weinstein. 2006. "Classroom Management as a Field of Inquiry." Pp. 3–16 in *Handbook of Classroom Management*, edited by C. M. Evertson and C. S. Weinstein. New York: Routledge.
- Fan, Weihua and Cathy M. Williams. 2010. "The Effects of Parental Involvement on Students' Academic Self-Efficacy, Engagement and Intrinsic Motivation." 3410.
- Feuerborn, Laura L., Caroline Wallace, and Ashli D. Tyre. 2016. "A Qualitative Analysis of Middle and High School Teacher Perceptions of Schoolwide Positive Behavior Supports." *Journal of Positive Behavior Interventions* 18(4):219–29.
- Figlio, David N. 2007. "Boys Named Sue: Disruptive Children and Their Peers." *Education Finance and Policy* 2(1):376–94.
- Flannery, K. B., P. Fenning, M. McGrath Kato, and K. McIntosh. 2014. "Effects of School-Wide Positive Behavioral Interventions and Supports and Fidelity of Implementation on Problem Behavior in High Schools." *School Psychology Quarterly* 29(2):111–24.
- Gage, Nicholas A., Nicolette Grasley-Boy, Michael Lombardo, and Lucas Anderson. 2019. "The Effect of School-Wide Positive Behavior Interventions and Supports on Disciplinary Exclusions: A Conceptual Replication." *Behavioral Disorders* 019874291989630.
- Gage, Nicholas A., Nicolette Grasley-Boy, Heather Peshak George, Karen Childs, and Don Kincaid. 2019. "A Quasi-Experimental Design Analysis of the Effects of School-Wide Positive Behavior

- Interventions and Supports on Discipline in Florida.” *Journal of Positive Behavior Interventions* 21(1):50–61.
- Gage, Nicholas A., Ahhyun Lee, Nicolette Grasley-Boy, and Heather Peshak George. 2018. “The Impact of School-Wide Positive Behavior Interventions and Supports on School Suspensions: A Statewide Quasi-Experimental Analysis.” *Journal of Positive Behavior Interventions* 20(4):217–26.
- Gage, Nicholas A., Walter Leite, Karen Childs, and Don Kincaid. 2017. “Average Treatment Effect of School-Wide Positive Behavioral Interventions and Supports on School-Level Academic Achievement in Florida.” *Journal of Positive Behavior Interventions* 19(3):158–67.
- Gage, Nicholas A., Chad A. Rose, and Dennis A. Kramer. 2019. “When Prevention Is Not Enough: Students’ Perception of Bullying and School-Wide Positive Behavior Interventions and Supports.” *Behavioral Disorders* 45(1):29–40.
- Gage, Nicholas A., George Sugai, Timothy J. Lewis, and Sarah Brzozowy. 2015. “Academic Achievement and School-Wide Positive Behavior Supports.” *Journal of Disability Policy Studies* 25(4):199–209.
- Gage, Nicholas A., Denise K. Whitford, and Antonis Katsiyannis. 2018. “A Review of Schoolwide Positive Behavior Interventions and Supports as a Framework for Reducing Disciplinary Exclusions.” *The Journal of Special Education* 52(3):142–51.
- Gershenson, Seth. 2016. “Linking Teacher Quality, Student Attendance, and Student Achievement.” *Education Finance and Policy* 11(2):125–49.
- Gershoff, Elizabeth T. and Sarah A. Font. 2016. “Corporal Punishment in U.S. Public Schools: Prevalence, Disparities in Use, and Status in State and Federal Policy.” *Social Policy Report* 30(1):1–26.
- Di Giunta, Laura, Guido Alessandri, Maria Gerbino, Paula Luengo Kanacri, Antonio Zuffiano, and Gian Vittorio Caprara. 2013. “The Determinants of Scholastic Achievement: The Contribution of Personality Traits, Self-Esteem, and Academic Self-Efficacy.” *Learning and Individual Differences* 27:102–8.

- Golann, Joanne W. 2015. "The Paradox of Success at a No-Excuses School." *Sociology of Education* 88(2):103–19.
- Goldhaber, Dan and Umut Özek. 2019. "How Much Should We Rely on Student Test Achievement as a Measure of Success?" *Educational Researcher* 48(7):479–83.
- Granström, Kjell. 2006. "Group Phenomena and Classroom Management in Sweden." Pp. 1141–60 in *Handbook of Classroom Management*, edited by C. M. Evertson and C. S. Weinstein. New York: Routledge.
- Grasley-Boy, Nicolette M., Nicholas A. Gage, and Michael Lombardo. 2019. "Effect of SWPBIS on Disciplinary Exclusions for Students With and Without Disabilities." *Exceptional Children* 86(1):25–39.
- Gupta, Sandeep K. 2011. "Intention-to-Treat Concept: A Review." *Perspectives in Clinical Research* 2(3):109–12.
- Hanselman, Paul. 2018. "Do School Learning Opportunities Compound or Compensate for Background Inequalities? Evidence from the Case of Assignment to Effective Teachers." *Sociology of Education* 91(2):132–58.
- Hardis, Arne. 2020. "Reformen Er Død, Den Længe Leve." *Weekendavisen*.
- Heckman, James J. and Tim Kautz. 2012. "Hard Evidence on Soft Skills." *Labour Economics* 19(4):451–64.
- Hedström, Peter and Peter Bearman. 2011. "What Is Analytical Sociology All about? An Introductory Essay." Pp. 3–24 in *The Oxford Handbook of Analytical Sociology*, edited by P. Bearman and P. Hedström. Oxford University Press.
- Heinesen, Eskil. 2010. "Estimating Class-Size Effects Using Within-School Variation in Subject-Specific Classes." *Economic Journal* 120(545):737–60.
- Holland, Paul W. 1986. "Statistics and Causal Inference." *Journal of the American Statistical Association* 81(396):945–60.
- Honicke, Toni and Jaclyn Broadbent. 2016. "The Influence of Academic Self-Efficacy on Academic Performance: A Systematic Review." *Educational Research Review* 17:63–84.
- Horner, Robert H., George Sugai, and Cynthia M. Anderson. 2010.

- “Examining the Evidence Base for School-Wide Positive Behavior Support.” *Focus on Exceptional Children* 42(8):884–92.
- Horner, Robert H., George Sugai, Keith Smolkowski, Lucille Eber, Jean Nakasato, Anne W. Todd, and Jody Esperanza. 2009. “A Randomized, Wait-List Controlled Effectiveness Trial Assessing School-Wide Positive Behavior Support in Elementary Schools.” *Journal of Positive Behavior Interventions* 11(3):133–44.
- Imbens, Guido and Donald B. Rubin. 2015. *Causal Inference for Statistics, Social, and Biomedical Sciences : An Introduction*. New York: Cambridge University Press.
- Jackson, C. Kirabo. 2013. *Non-Cognitive Ability , Test Scores , and Teacher Quality : Evidence from 9th Grade Teachers* In. No. 18624. National Bureau of Economic Research. Cambridge, MA.
- Jæger, Mads Meier. 2011. “Does Cultural Capital Really Affect Academic Achievement? New Evidence from Combined Sibling and Panel Data.” *Sociology of Education* 84(4):281–98.
- Jæger, Mads Meier and Richard Breen. 2016. “A Dynamic Model of Cultural Reproduction.” *American Journal of Sociology* 121(4):1079–1115.
- Jennings, Jennifer L., David Deming, Christopher Jencks, Maya Lopuch, and Beth E. Schueler. 2015. “Do Differences in School Quality Matter More Than We Thought? New Evidence on Educational Opportunity in the Twenty-First Century.” *Sociology of Education* 88(1):56–82.
- Kautz, Tim, James Heckman, Ron Diris, Bas ter Weel, and Lex Borghans. 2014. *Fostering and Measuring Skills: Improving Cognitive and Non-Cognitive Skills to Promote Lifetime Success*. No. 20749 National Bureau of Economic Research. Cambridge, MA.
- Kim, Mihyeon. 2014. “Family Background , Students ’ Academic Self-Efficacy , and Students ’ Career and Life Success Expectations.” 395–407.
- Kinsler, Josh. 2013. “School Discipline: A Source or Salve for the Racial Achievement Gap?” *International Economic Review* 54(1):355–83.
- Kohn, Alfie. 1993. *Punished by Rewards The Trouble With Gold Stars,*

- Incentive Plans, A'S, Praise, And Other Bribes*. Boston: Houghton Mifflin.
- Kohn, Alfie. 2006. *Beyond Discipline : From Compliance to Community*. 10. annive. Alexandria, Va.: Association for Supervision and Curriculum Development.
- Korpershoek, Hanke, Truus Harms, Hester de Boer, Mechteld van Kuijk, and Simone Doolaard. 2016. "A Meta-Analysis of the Effects of Classroom Management Strategies and Classroom Management Programs on Students' Academic, Behavioral, Emotional, and Motivational Outcomes." *Review of Educational Research* 86(3):643–80.
- Kraft, Matthew A. 2020. "Interpreting Effect Sizes of Education Interventions." *Educational Researcher* 49(4):241–53.
- Lamont, Michele and Annette Lareau. 1988. "Cultural Capital: Allusions, Gaps and Glissandos in Recent Theoretical Developments." *Sociological Theory* 6(2):153–68.
- Landrum, Timothy J. and James M. Kauffman. 2006. "Behavioral Approaches to Classroom Management." Pp. 47–72 in *Handbook of Classroom Management*, edited by C. M. Evertson and C. S. Weinstein. New York: Routledge.
- Lareau, Annette. 2011. *Unequal Childhoods : Class, Race, and Family Life*. 2nd ed. Berkeley: University of California Press.
- Lareau, Annette and Elliot B. Weininger. 2003. "Cultural Capital in Educational Research : A Critical Assessment." *Theory and Society* 32(5–6):567–606.
- Lazear, Edward P. 2001. "Educational Production." *The Quarterly Journal of Economics* 116(3):777–803.
- Lee, Ahhyun and Nicholas A. Gage. 2020. "Updating and Expanding Systematic Reviews and Meta-analyses on the Effects of School-wide Positive Behavior Interventions and Supports." *Psychology in the Schools* 57(5):783–804.
- Lee, Jennifer C. and Jeylan T. Mortimer. 2009. "Family Socialization, Economic Self-Efficacy, and the Attainment of Financial Independence in Early Adulthood." *Longit Life Course Stud.* 1(1):45–62.

- Lent, Robert W., Steven D. Brown, and Kevin C. Larkin. 1986. "Self-Efficacy in the Prediction of Academic Performance and Perceived Career Options." *Journal of Counseling Psychology* 33(3):265–69.
- Lipsey, Mark W., Kelly Puzio, Cathy Yun, Michael A. Hebert, Kasia Steinka-Fry, Mikel W. Cole, Megan Roberts, Karen S. Anthony, and Matthew D. Busick. 2012. "Translating the Statistical Representation of the Effects of Education Interventions into More Readily Interpretable Forms." *National Center for Special Education Research* (November 2012):54.
- Ma, Xin and J. Douglas Willms. 2004. "School Disciplinary Climate: Characteristics and Effects on Eighth Grade Achievement." *Alberta Journal of Educational Research* 50(2):169–88.
- Machamer, Peter, Lindley Darden, and Carl F. Craver. 2000. "Thinking about Mechanisms." *Philosophy of Science* 67(1):1–25.
- Madigan, Kathleen, Richard W. Cross, Keith Smolkowski, and Lisa A. Strycker. 2016. "Association between Schoolwide Positive Behavioural Interventions and Supports and Academic Achievement: A 9-Year Evaluation." *Educational Research and Evaluation* 22(7–8):402–21.
- Miech, Richard, Marilyn J. Essex, and H. Hill Goldsmith. 2001. "Socioeconomic Status and the Adjustment to School: The Role of Self-Regulation during Early Childhood." *Sociology of Education* 74(2):102–20.
- Mikus, Karoline, Nicole Tieben, and Pia S. Schober. 2020. "Children's Conversion of Cultural Capital into Educational Success: The Symbolic and Skill-Generating Functions of Cultural Capital." *British Journal of Sociology of Education* 41(2):197–217.
- Mitchell, Barbara S., Heather Hatton, and Timothy J. Lewis. 2018. "An Examination of the Evidence-Base of School-Wide Positive Behavior Interventions and Supports Through Two Quality Appraisal Processes." *Journal of Positive Behavior Interventions* 20(4):239–50.
- Molloy, Lauren E., Julia E. Moore, Jessica Trail, John James Van Epps, and Suellen Hopfer. 2013. "Understanding Real-World Implementation Quality and 'Active Ingredients' of PBIS."

- Prevention Science* 14(6):593–605.
- Morgan, Stephen L. 2001. “Counterfactual, Causal Effect Heterogeneity, and the Catholic School Effect on Learning.” *Sociology of Education* 74(4):341–74.
- Morgan, Stephen L. and Christopher Winship. 2015. *Counterfactuals and Causal Inference : Methods and Principles for Social Research*. Second Edi. New York, NY: Cambridge University Press.
- Mortimer, Jeylan T., Lei Zhang, Chen Yu Wu, Jeanette Hussemann, and Monica Kirkpatrick Johnson. 2017. “Familial Transmission of Educational Plans and the Academic Self-Concept: A Three-Generation Longitudinal Study.” *Social Psychology Quarterly* 80(1):85–107.
- Munk, Martin D. 2013. “Completion of Upper Secondary Education: What Mechanisms Are at Stake?” *Comparative Social Research* 30:255–91.
- Murnane, Richard J. and John B. Willett. 2011. *Methods Matter : Improving Causal Inference in Educational and Social Science Research*. New York: Oxford University Press.
- Nagengast, Benjamin, Brigitte M. Brisson, Chris S. Hulleman, Hanna Gaspard, Isabelle Häfner, and Ulrich Trautwein. 2018. “Learning More From Educational Intervention Studies: Estimating Complier Average Causal Effects in a Relevance Intervention.” *Journal of Experimental Education* 86(1):105–23.
- Nagin, Daniel S. and Richard E. Tremblay. 2005. “What Has Been Learned from Group-Based Trajectory Modeling? Examples from Physical Aggression and Other Problem Behaviors.” *Annals of the American Academy of Political and Social Science* 602:82–117.
- Närhi, Vesa, Tiina Kiiski, Satu Peitso, and Hannu Savolainen. 2015. “Reducing Disruptive Behaviours and Improving Learning Climates with Class-Wide Positive Behaviour Support in Middle Schools.” *European Journal of Special Needs Education* 30(2):274–85.
- Nelen, Monique J. M., T. Martijn Willemse, Margreet A. van Oudheusden, and Sui Lin Goei. 2019. “Cultural Challenges in Adapting SWPBIS to a Dutch Context.” *Journal of Positive Behavior Interventions* 109830071987609.

- Nelson, Ron J., M. Ronald Martella, and Nancy Marchand-Martella. 2002. "Maximizing Student Learning: The Effects of a Comprehensive School-Based Program for Preventing Problem Behaviors." *Journal of Emotional & Behavioral Disorders* 10(3):136–48.
- Ng-Knight, Terry and Ingrid Schoon. 2017. "Disentangling the Influence of Socioeconomic Risks on Children's Early Self-Control." *Journal of Personality* 85(6):793–806.
- Nielsen, Chantal Pohl, Vibeke Myrup Jensen, Mikkel Giver Kjer, and Kasper Merling Arendt. 2020a. *Elevernes Læring, Trivsel Og Oplevelser Af Undervisningen i Folkeskolen - En Evaluering Af Udviklingen i Reformårene 2014-2018*. København: VIVE - Viden til Velfærd Det Nationale Forsknings- og Analysecenter for Velfærd.
- Nielsen, Chantal Pohl, Vibeke Myrup Jensen, Mikkel Giver Kjer, and Kasper Merling Arendt. 2020b. "Ro i Undervisningen Og Elevernes Relationer Til Lærerne." Pp. 53–66 in *Elevernes læring, trivsel og oplevelser af undervisningen i folkeskolen En evaluering af udviklingen i reformårene 2014-2018*. København: VIVE Det Nationale Forsknings- og Analysecenter for Velfærd.
- Noltemeyer, Amity, Katelyn Palmer, Anthony G. James, and Shanice Wiechman. 2018. "School-Wide Positive Behavioral Interventions and Supports (SWPBIS): A Synthesis of Existing Research." *International Journal of School and Educational Psychology* 3603(May).
- OECD. 2019. *PISA 2018 Results (Volume III): What School Life Means for Students' Lives*. Vol. III. Paris: OECD Publishing.
- OECD. 2020. *Early Learning and Child Well-Being*. Paris: OECD.
- Ogden, Terje, Mari-Anne Sørli, and Anne Arnesen. 2008. *Positiv adfærd og støttende læringsmiljø i skolen*. 1. udgave. Frederikshavn: Dafolo.
- Ogden, Terje, Mari-Anne Sørli, and Amlund Kristine Hagen. 2007. "Building Strength through Enhancing Social Competence in Immigrant Students in Primary School. A Pilot Study." *Emotional and Behavioural Difficulties* 12(2):105–17.

- Park, Jiyeon, Hyo Lee, and Youngran Kim. 2019. "School-Wide Positive Behavior Support in Six Special Schools of South Korea: Processes and Outcomes across Years." *International Journal of Developmental Disabilities* 65(5):337.
- Pas, Elise T., Ji Hoon Ryoo, Rashelle J. Musci, and Catherine P. Bradshaw. 2019. "A State-Wide Quasi-Experimental Effectiveness Study of the Scale-up of School-Wide Positive Behavioral Interventions and Supports." *Journal of School Psychology* 73(February 2018):41–55.
- Pawson, Ray. 2013. *The Science of Evaluation : A Realist Manifesto*. London: SAGE.
- Pihl, Mie Dalskov and Rasmus Salmon. 2018. *Hver Sjette Elev Opnår Ikke 2 i Dansk Og Matematik i 9 . Klasse*. København: Arbejderbevægelsens Erhvervsråd.
- Pontoppidan, Maiken, Maria Keilow, Jens Dietrichson, Oddny Judith Solheim, Vibeke Opheim, Stefan Gustafson, and Simon Calmar Andersen. 2018. "Randomised Controlled Trials in Scandinavian Educational Research." *Educational Research* 60(3):311–35.
- Rasmussen, Pernille Skovbo and Peter Skov Olsen. 2012. *Positiv Adfærd i Læring Og Samspil En Evaluering Af En Skoleomfattende Intervention På 11 Pilotskoler*. København: SFI - Det nationale forskningscenter for velfærd.
- Raudenbush, Stephen W. and Robert D. Eschmann. 2015. "Does Schooling Increase or Reduce Social Inequality?" *Annual Review of Sociology* 41(1):443–70.
- Reimer, David, Simon S. Jensen, and Christian Kjeldsen. 2018. "Social Inequality in Student Performance in the Nordic Countries: A Comparison of Methodological Approaches." Pp. 31–59 in *Northern Lights on TIMSS and PISA 2018*. Copenhagen: Nordic Council of Ministers.
- Ross, Scott W., Natalie Romer, and Robert H. Horner. 2012. "Teacher Well-Being and the Implementation of School-Wide Positive Behavior Interventions and Supports." *Journal of Positive Behavior Interventions* 14(2):118–28.
- Rubin, Donald B. 1974. "Estimating Causal Effects of Treatments in

- Randomized and Nonrandomized Studies.” *Journal of Educational Psychology* 66(5):688–701.
- Rubin, Donald B. 1990. “Comment: Neyman (1923) and Causal Inference in Experiments and Observational Studies.” *Statistical Science* 5(4):472–80.
- Ryoo, J. H., S. Hong, W. M. Bart, J. Shin, and C. P. Bradshaw. 2018. “Investigating the Effect of School-Wide Positive Behavioral Interventions and Supports on Student Learning and Behavioral Problems in Elementary and Middle Schools.” *Psychology in the Schools* (March):1–15.
- Sainani, Kristin L. 2010. “Making Sense of Intention-to-Treat.” *PM and R* 2(3):209–13.
- Sektnan, Michaela, Megan M. McClelland, Alan Acock, and Frederick J. Morrison. 2010. “Relations between Early Family Risk, Children’s Behavioral Regulation, and Academic Achievement.” *Early Childhood Research Quarterly* 25(4):464–79.
- Skov, Peter Rohde, Vibeke Myrup Jensen, and Mogens Nygaard Christoffersen. 2017. *Opfølgning På Skoleprogrammet Positiv Adfærd i Læring Og Samspil (PALS)*. København: VIVE Det Nationale Forskning- og Analysecenter for Velfærd.
- Socialstyrelsen. 2010. *De gode cirkler i skole og SFO: PALS-team*. Odense: Socialstyrelsen.
- Socialstyrelsen. 2015. *Omkostnings-Vurdering Af Positiv Adfærd i Læring Og Samspil*.
- Sørli, Mari-Anne, Thormond Idsoe, Terje Ogden, Asgeir Røyhus Olseth, and Torbjørn Torsheim. 2018. “Behavioral Trajectories during Middle Childhood: Differential Effects of the School-Wide Positive Behavior Support Model.” *Prevention Science*.
- Sørli, Mari-Anne and Terje Ogden. 2007. “Immediate Impacts of PALS: A Schoolwide Multi-Level Programme Targeting Behaviour Problems in Elementary School.” *Scandinavian Journal of Educational Research* 51(5):471–92.
- Sørli, Mari-Anne and Terje Ogden. 2015. “School-Wide Positive Behavior Support–Norway: Impacts on Problem Behavior and Classroom Climate.” *International Journal of School & Educational*

- Psychology* 3(3):202–17.
- Sørli, Mari-Anne, Terje Ogden, and Asgeir Røyhus Olseth. 2016. “Examining Teacher Outcomes of the School-Wide Positive Behavior Support Model in Norway: Perceived Efficacy and Behavior Management.” *SAGE Open* 2016.
- Talsma, Kate, Benjamin Schüz, Ralf Schwarzer, and Kimberley Norris. 2018. “I Believe, Therefore I Achieve (and Vice Versa): A Meta-Analytic Cross-Lagged Panel Analysis of Self-Efficacy and Academic Performance.” *Learning and Individual Differences* 61(November 2017):136–50.
- Thomas, Duane E., Karen L. Bierman, John D. Coie, Kenneth A. Dodge, E. Michael Foster, Mark T. Greenberg, John E. Lochman, Robert J. McMahon, and Ellen Pinderhughes. 2006. “The Impact of Classroom Aggression on the Development of Aggressive Behavior Problems in Children.” *Development and Psychopathology* 18(2):471–87.
- Tyre, Ashli D. and Laura L. Feuerborn. 2017. “The Minority Report: The Concerns of Staff Opposed to Schoolwide Positive Behavior Interventions and Supports in Their Schools.” *Journal of Educational and Psychological Consultation* 27(2):145–72.
- Urzúa, Sergio. 2008. “Racial Labor Market Gaps: The Role of Abilities and Schooling Choices.” Pp. 919–71 in *Journal of Human Resources*. Vol. 43.
- Usher, Ellen L. 2009. “Sources of Middle School Students’ Self-Efficacy in Mathematics: A Qualitative Investigation.” *American Educational Research Journal* 46(1):275–314.
- Vasishth, Shravan, Daniela Mertzen, Lena A. Jäger, and Andrew Gelman. 2018. “The Statistical Significance Filter Leads to Overoptimistic Expectations of Replicability.” *Journal of Memory and Language* 103(January):151–75.
- Veldman, Karin, Ute Bültmann, Josue Almansa, and Sijmen A. Reijneveld. 2015. “Childhood Adversities and Educational Attainment in Young Adulthood: The Role of Mental Health Problems in Adolescence.” *Journal of Adolescent Health* 57(5):462–67.

- Waasdorp, Tracy E., Catherine P. Bradshaw, and Philip J. Leaf. 2012. "The Impact of Schoolwide Positive Behavioral Interventions and Supports on Bullying and Peer Rejection." *Archives of Pediatrics & Adolescent Medicine* 166(2):149.
- Wienen, Albert W., Inge Reijnders, Marleen H. van Aggelen, Elske H. Bos, Laura Batstra, and Peter de Jonge. 2018. "The Relative Impact of School-Wide Positive Behavior Support on Teachers' Perceptions of Student Behavior across Schools, Teachers, and Students." *Psychology in the Schools* (September).
- Wu, Yi-Chen, Pei-Yu Chen, Shin-Ping Tsai, Shu-Fei Tsai, Yu-Chi Chou, and Chun-Yu Chiu. 2019. "The Effects of the Class-Wide Function-Related Intervention Teams on Behaviors of an Elementary Student with Autism Spectrum Disorder in an Inclusive Classroom in Taiwan." *International Journal of Developmental Disabilities* 65(5):368.
- Wubbels, Theo. 2011. "An International Perspective on Classroom Management: What Should Prospective Teachers Learn?" *Teaching Education* 22(2):113–31.
- Zimmerman, Barry J., Albert Bandura, and Manuel Martinez-Pons. 1992. "Self-Motivation for Academic Attainment: The Role of Self-Efficacy Beliefs and Personal Goal Setting." *American Educational Research Association* 29(3):663–76.

Chapter 2

Simon Skovgaard Jensen¹

(Under Review - Removed due to copyright rules)

¹ References in Chicago Manual of Style 17th edition (author-date). British English

Chapter 3

Simon Skovgaard Jensen¹

(Published: Jensen, Simon S. 2020. “Effects of School-Wide Positive Behavior Support in Denmark: Results from the Danish National Register Data.” *School Effectiveness and School Improvement* 1–19.)

¹ References in American Psychological Association 7th edition. American English.

Chapter 4

Simon Skovgaard Jensen and David Reimer¹

(Under Review - Removed due to copyright rules)

¹ Reference in American Sociological Association. American English.