Evidence on Inclusion

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for Educational Research

Preface

This publication is a translated excerpt of the Danish review "Effekt og pædagogisk indsats ved inklusion af børn med særlige behov i grundskolen" [Effect and educational efforts of inclusion of special needs children in basic school], which was published December 2012.

The purpose of this excerpt is to present, in a brief, concise and readable manner, our current knowledge of strategies that have a positive effect on inclusion in the basic school. The chapters on methodology in the full systematic review have been abridged considerably here. The synthesis, however, is reported in its entirety.

The systematic review and this publication have both been produced through a collaborative contract between the *Danish Ministry of Children and Education* and *Danish Clearinghouse for Educational Research, Department of Education, Aarhus University*.

The following researchers formed the review group that solved the task and they regularly observed the progress of the project:

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A thank to the Danish Ministry of Children and Education and thanks to all the employees and researchers who have contributed to this concise presentation of the overall review results.

The full systematic review and this publication are available at:

http://edu.au.dk/clearinghouse/

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Danish Clearinghouse for Educational Research collects, analyses and distributes information about educational research and developmental work at schools in Denmark and abroad. Clearinghouse derives knowledge from research. Based on a selection of studies, the possibility of identifying efforts that generate a positive effect is assessed.

1. Introduction

Inclusion has attracted increasing attention within the field of Danish basic school in the past two to three years. In legislative terms, this can be seen in the amendment introduced in August 2012, which aimed at increasing inclusion through a new delimitation of special needs teaching. Prior to this amendment, in 2011, Local Government Denmark and the sitting Government agreed to increase the share of pupils to be included in mainstream teaching. Subsequently, a national counselling team has been established to assist the municipalities in implementing this inclusion effort. Furthermore, a national Resource Centre of Inclusion and Special Needs Teaching has been established.[1]

The purpose of this publication is to examine existing research on inclusion to identify strategies of inclusion that have generated positive effects. To do so it is necessary to understand the effect of the applied strategies. One approach, which is being discussed, is to use evidence to determine which methods have proven more effective than others. The desire to gain insight into research on inclusion forms the basis of the current systematic review. The task was to determine which strategies primary research has found to be most effective for inclusion purposes.

We have solved this task by addressing the existing research with the following question:

> *What is the effect of including children with special needs in mainstream teaching in basic school, and which of the applied educational methods have proved to have a positive effect?*

Learn more about the working method applied by Danish Clearinghouse for Educational Research at p.46.

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[1] Quote from the Danish language document: Regeringen [The Government] (2012). *Gør en god skole bedre – et fagligt løft af folkeskolen* [Make a good school better – professional skills improvement in basic school]. Copenhagen, p. 35.

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2. Research on inclusion and effect

With respect to theory, inclusion is a multidisciplinary research field as educational, psychological and sociological theories feed into the field. Effect research in education makes use of various quasi-experimental and experimental designs to compare and evaluate different educational efforts.

Evaluation of an effort or intervention is done through measurements at baseline, during and after the project period, so as to monitor the progress during the course of event. Measurements can consist of standardized tests, assessments by parents, teachers, educators and pupils or classroom observations. A crucial factor in effect studies is that these measurements are not simply assessments of the professional content but also include assessments of social and personal competences as well as well-being. Effect studies must also contain a review of the effort seen in relation to management, organization and resource usage. Quasi-experimental and experimental studies may be supplemented by follow-back or follow-up studies.

Hofstetter and Alkin (2002) have systematically reviewed 30 years of effect research with a particular view to assess whether it has an effect that institutions or interventions are being evaluated. They point to a lack of consensus on which methods or approaches are most suitable when conducting effect studies. However, they do believe that evaluation results are instrumental in reducing uncertainties and increase focus on processes that influence the efforts.

In Denmark, efforts in special education that concern inclusion are very different, and they are adapted to the individual pupil (Egelund and Tetler, 2009). Moreover, the way in which efforts are implemented and the type of available resources differ greatly from teacher team to teacher team and from school to school. It is thus difficult to select international measuring instruments that can capture all aspects of pupil relations.

Inclusion has been discussed throughout the past 20 years or more. Nevertheless, it is has been difficult to define exactly what successful inclusion requires or which interventions are effective for the individual pupil's scholastic and social development. Until a few years ago, discussions about how to develop more inclusive school cultures were primarily of an idealistic and ideological character, and the empirical focus has been limited.

Today, all Danish municipalities are turning the ideal of inclusion into practice. As the municipalities are working to make their schools more inclusive, the demand for evidence-based strategies increases. The municipalities face a great challenge developing their schools, and that task requires the teachers to have access to and knowledge of research on inclusion, so their teaching practice can rest on an evidence-informed basis. Mitchell (2008, p.1) defines evidence-based teaching strategies as:

… clearly specified teaching strategies that have been shown in controlled research to be effective in bringing about desired outcomes in a delineated population of learners.

Though it is hard to conduct effect studies in the educational field, wherefore we still face a need for further research, we do have some knowledge of which teaching strategies promote an inclusive practice. Nevertheless, at times we still see a gap between these research results and the pedagogical practice. This is partly because much of the research is still in a form that is too abstruse for our teachers.

3. The basis of this systematic review

This systematic review provides an answer the question: *What is the effect of including children with special needs in mainstream teaching in basic school, and which of the applied educational methods have proved to have a positive effect?*

The question is delimited as follows:

Inclusion

Active participation with optimal outcome for all pupils in the given learning community; i.e. pupils are together with and participate actively in the same teaching and community as their classmates. Included in the concept of inclusion is also that pupils benefit optimally and develop positive self-images from participation in the learning community.

Pupils

Pupils are children with or without special needs in the age of compulsory school attendance, including 10th grade, i.e. children from about 5-6 to about 16-17 years old.

Effect

That something generates an effect means that we must be able to identify a causal relation. Put differently, if we know that A follows B, we can say that B causes A. This criterion requires research to be able to document an effect. Regarding the content of the effect, the studied research must investigate:

- Cognitive effects: Effects on pupils' scholastic development.

- Social effects: Effects on pupils' social competences and the social environment of the class.

There is no requirement of finding an effect on *both* special needs pupils *and* mainstream pupils. Effect on one of these groups of pupils is sufficient. We have not included studies in which the pupils' own teachers are the sole source assessing the effect.

Basic school

Basic school covers public state schools that manage the education of children from they are 5-6 years to 16-17 years old (in Danish, basic school is called: Folkeskolen). Institutions such as day care, private schools, special schools, vocational school or upper secondary school are not included.

Outline of time, geography and language aspects

As the Salamanca Declaration from 1994 marks the beginning of a distinct change in the approach to this field, our time frame runs from the signing of the Salamanca Declaration, i.e. from 1994.

Geographically, this review comprises studies from the following countries: the EU-countries including Scandinavia, Switzerland, USA, Canada, New Zealand and Australia. The geographical delimitation is partly guided by the fact that the mentioned countries have a school system and special needs teaching that

resemble the Danish system. They are thus expected to be somewhat generalizable compared to Danish conditions. Moreover, they have a treatment system that allows diagnosis of children.

Language-wise the review covers: English, German and French together with the Scandinavian languages (Danish, Norwegian and Swedish).

Methodology

After having determined the described delimitations and conceptual decisions, the next step was to decide which search profiles to apply and then conduct searches in relevant databases. We searched 14 different national and international databases and examined 11 of the leading international journals within this research field. We established search profiles to ensure that, in principle, all research on inclusion was detected. The searches generated 10,494 different references. These were subsequently screened for relevance. We identified 65 relevant studies of which we subsequently made a quality assessment. That left us with 43 studies. From this analysis of the data material, we can ascertain that asking and answering questions concerning effect is rarely done in inclusion research. The list of databases, the applied search profiles and the screening are described in detail in the full systematic review.

Results are based on 43 studies

The work of identifying relevant research and the subsequent analysis followed systematic and transparent procedures outlined in the fundamental principles described in the Danish Clearinghouse for Educational Research's *Konceptnotat* [Concept Memorandum], which are accessible at our website. As part of work process, we traced a wide range of studies that, in various ways, deal with research on inclusion. However, only 43 studies proved to be relevant for this review. That is partly because of our two selection criteria: a) studies must deal with the question to which we seek answers, and b) studies must have reliable documentation of the effects of the inclusion initiatives.

4. The research synthesis

This chapter describes the narrative synthesis that was made on the basis of a prior research mapping. It includes both the construction of a theoretical model for the synthesis and an account of how the model was unfolded. This chapter also presents the actual narrative synthesis together with an assessment of its robustness.

4.1   The synthesis method

The first part of this report names the primary studies that qualified to form part of the systematic synthesis. The data covers the 43 studies that were assessed to have "high" or "medium" evidence in the prior research mapping. Only these studies are included in the synthesis.

When preparing systematic reviews the included studies may be synthesized in various ways. One approach is meta-analysis, and another approach comprises different types of narrative syntheses.

Meta-analysis is a statistical approach to research synthesis, which uses further analyses to combine the study results and thereby reach new conclusions. Meta-analysis is a quantitative synthesis of existing research. We conduct meta-analysis by solely using studies of a RCT design, which examine *one* specific intervention. We identified 17 such studies in the available, relevant material, but none of them examined the same intervention. Consequently, we cannot make a systematic synthesis in the form of a meta-analysis.

Instead, the synthesis is conducted following the principles of the narrative synthesis, which are described in more detail by Popay et al. (2006). Conducting a narrative synthesis entails four steps[2], which will be presented in the following sections. In fact, the process involves repetition of movements between the four steps.

4.1.1   Step 1: Developing a theoretical model

A model is developed to demonstrate how the interventions work, why and for whom. In this part of the synthesis the researchers must make decisions about the review question and identify the studies available for the synthesis. The process is an attempt to identify the causal chain that connects the resources, activities, results and the ultimate targets of the intervention (Wholey, 1987: 78; Weiss, 1998:55). It makes it possible to interpret the study results, just as the applicability of the results is determined. This entails establishing a programme theory.

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[2] The fourth step in Popay's model is testing synthesis robustness. That step is discussed extensively in the full technical report produced for the systematic review and is thus not discussed here. The robustness of the synthesis has been substantiated.

4.1.2 Step 2: Developing a preliminary synthesis

The studies are organized so as to identify patterns across the studies. The purpose of identifying patterns is to clarify aspects regarding the direction of the effect as well as the scope and strength of the effect. Moreover, the results of the examined studies are organized so as to identify facilitators of and barriers to the documented effects. Then we identify the relations between these. The task is to establish possible syntheses, with the reservation that the robustness of these syntheses is assessed at a later point.

4.1.3 Step 3: Searching for data correlations

The researchers work across the mentioned studies in order to identify factors that may explain variance in direction and strength of the investigated effects. The aim is to be able to identify factors that explain differences in facilitators and barriers as well as understand how and why a given intervention has an effect.

The three elements are combined in the conclusion, which is based on an overall assessment of the evidence strength.

4.2 A theoretical model – from research question to programme theory

The systematic review is based on the following research question: *What is the effect of including children with special needs in mainstream teaching in basic school, and which of the applied educational methods have proved to have a positive effect?*

The research question may be presented as a programme theory, which the following figure illustrates:
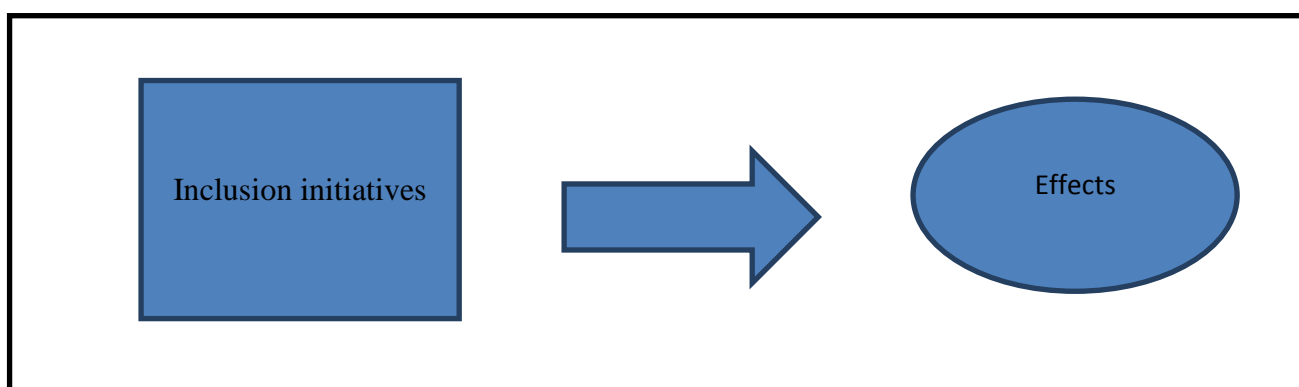

Figure 4-1 Programme theory

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The programme theory is a model and thus does not offer an actual depiction of real factors relevant for inclusion. Instead, it emphasizes areas of the real world that are theoretically assumed to be significant. The model demonstrates the connection between inclusion initiative and effect. In other words, the model demonstrates that some factors impact the effect or lack of effect. The model does not show which factors facilitate or obstruct an inclusion effect, or which types of effects are associated with a certain type of intervention. The model illustrates that inclusion occurs in a context, but not the specific circumstances that are associated with that context.

Thus the model calls for further examination of inclusion initiatives that work and further examination of the types of effects such initiatives generate. The inclusion initiatives' actual content, context and actors – i.e. what makes them work - are not included. It is therefore necessary to revise the model.

The revised programme theory was developed from the initial work with the preliminary synthesis. From that work the following patterns emerged, and they are illustrated in the revised programme theory in Figure 4.2
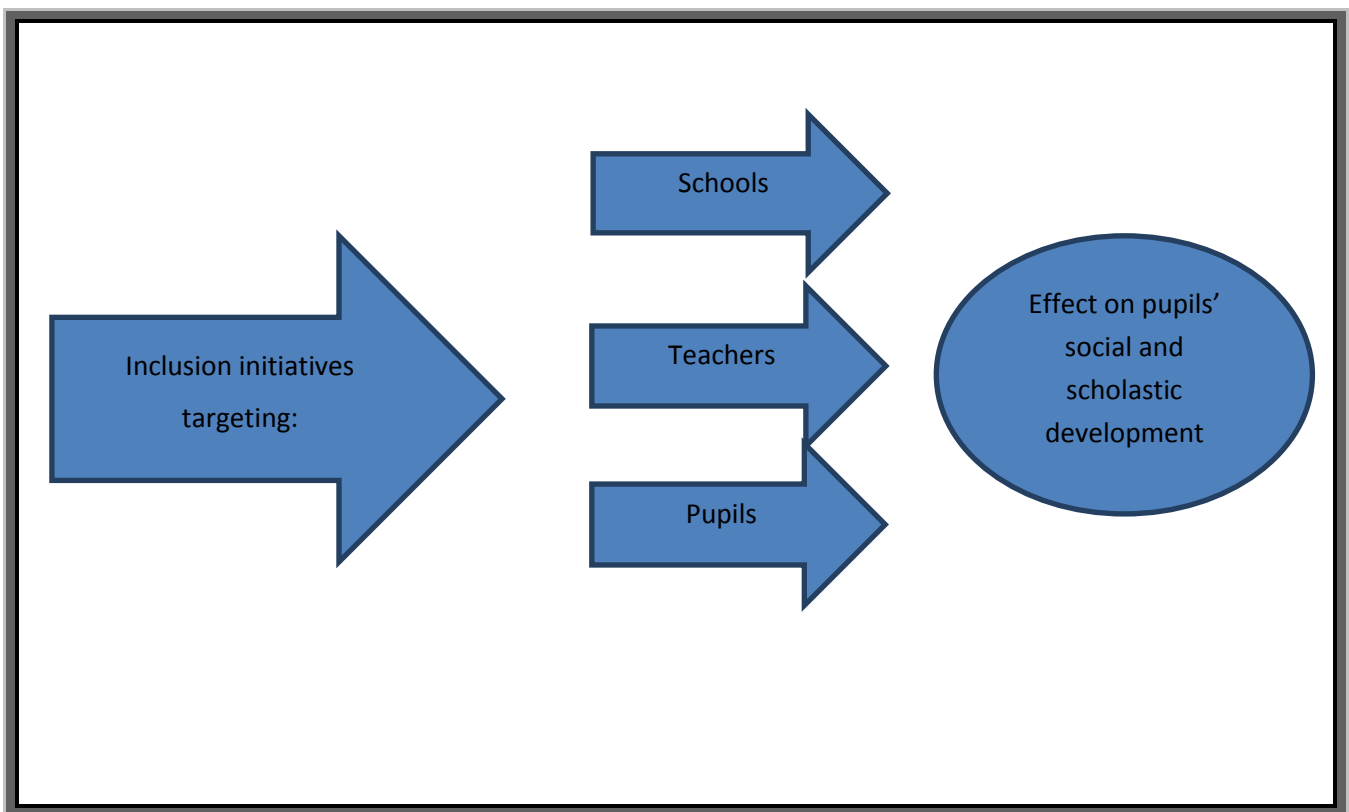
Figure 4-2 The revised programme theory

The model categories are analytical categories, which means they are constructed by emphasizing different aspects of the inclusion initiatives that the studies have identified as effective. In the beginning of the synthesis process the revised programme theory consisted of five categories: school, class, teachers, special needs pupils and mainstream pupils. The two categories *inclusion initiatives targeting special needs pupils* and *inclusion initiatives targeting mainstream pupils* have been merged into one category: inclusion

initiatives targeting pupils. The reason for this merger is that dividing the pupils into two groups makes no sense when the topic is inclusion initiatives. The four categories appeared from an analysis of whom and what the inclusion initiatives targeted. We use the expression "inclusion initiatives" to illustrate that many different approaches to inclusion exist. To divide the studies according to whom or what the initiatives targeted is one way of illustrating the studies' very varied approaches to inclusion. The studies are divided into the following four categories: school, class, teachers and pupils.

School: Studies that investigate inclusion initiatives at school level; i.e. studies that initiate interventions in the school seen as an organization.

Class: The studies in this category investigate various inclusion initiatives that target classes; i.e. the intervention is directed at the class as a whole.

Teachers: In this category, the inclusion initiatives target teachers. It covers studies that investigate the effect of teachers who learn about different ways to develop a more inclusive pedagogical practice.

Pupils: These studies investigate the effect of various inclusion initiatives targeting special needs pupils and mainstream pupils.

The 43 studies were grouped according to the four categories. As mentioned, working with a narrative synthesis is a process in which movements between the different steps are iterated. After having analysed more of the studies, the programme theory was revised once again.
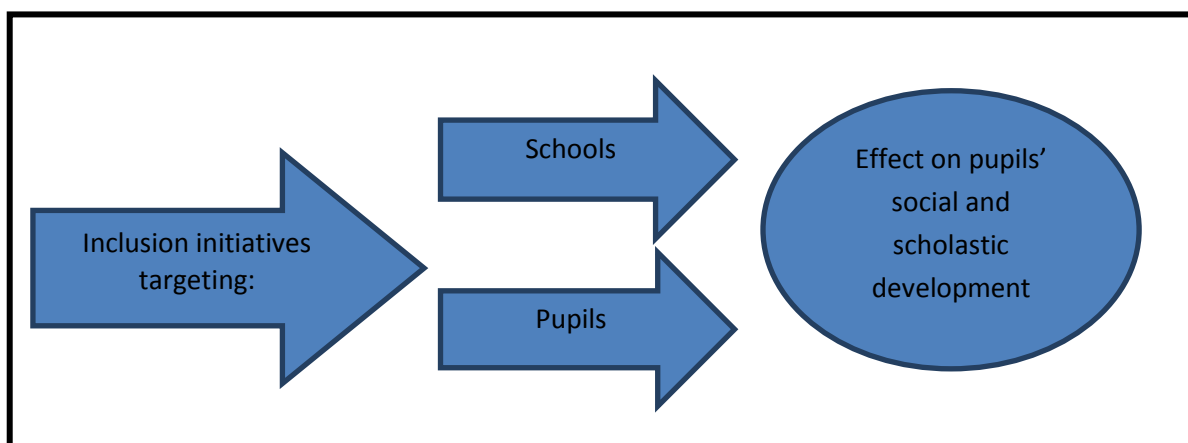
Figure 4-3 The final programme theory

Now, the 43 studies are grouped in two categories: *inclusion initiatives targeting school* and *inclusion initiatives targeting pupils* (see a full overview in Appendix 5). This decision was made as it became clear that the studies grouped in the categories *school*, *class* and *teachers* are difficult to separate regarding content. Thus, they have now been grouped in one collective category: *school*.

In principle, all of the studies might be included in the category *pupils*, since all of the studies included in this review, in one way or the other, investigate how special needs pupils can be included in mainstream teaching. Yet, by dividing the studies into the two mentioned categories we gain an overview of the involved research: The studies in the *school* category offer insight into the type of effect various organization- and structure-oriented inclusion initiatives generate, while the studies in the *pupils* category offer insight into the type of effect various teaching methods and evidence-based teaching programmes have on inclusion of special needs pupils in the mainstream school.

The studies are also grouped according to research themes within the two categories. The themes have been identified through analysis of the overall aim of each inclusion initiative in the studies. Many of the studies investigate more than one inclusion initiative, wherefore they figure in both categories. As mentioned, the 43 studies in the two categories are all of an appropriate research quality. The synthesis will therefore make it possible to determine which inclusion initiatives have an effect.

4.3   Narrative synthesis based on the theoretical model

In the following section we present the preliminary narrative synthesis. The starting point of this synthesis is presented at the end of the review, where the different, possible synthesis options are identified based on the 43 included studies. We have made the synthesis on the basis of the two categories *school* and *pupils*. This approach was applied in order to illustrate the very different starting points of various inclusion initiatives and designs in the involved studies. The studies constitute a wide field covering extensive and comprehensive meta-analyses to smaller and more limited studies with few informants and a relatively 'restricted' focus of the studies and inclusion initiatives. The theoretical model will make it possible to clarify the core aspects of the individual studies and across the studies.

4.3.1   Background of the theoretical model – the historical framework

Around 1990, a change in the use of terminology occurs. Internationally, the term "special education" is changed to "special needs education" to underline the fact that the pupils do not need special teaching because they are special, but that teaching should be adapted to the different needs of the pupils. In other words, we see a change in what or towards whom the initiatives are *directed*. These changes gradually emerge following the mentioned Salamanca Declaration from 1994, but can also be seen, very clearly, in the Danish Primary Education Act in 1993, in which §18, sub-section 1 reads: *The organization of teaching, including choice of teaching and working forms, methods, teaching materials and subject, must meet the objective of primary education in all classes and be varied to meet the needs and preconditions of the individual pupil.* Attention is thus directed toward the individual pupil (Egelund et al., 2006).

Special pedagogical activities can be traced back to the beginning of the 19th century where the first special schools for deaf and blind pupils were established. In the past 200 years, the ruling focus of research has changed from covering pupils with special needs to schools as organizations and the teacher's role etc.

Already in 1899, Dr. Phil. Oscar Hansen shows a keen interest in the possibilities of school psychology to assist the teachers in adapting their teaching to the diversities of the pupils. However, shortly after, and not least due to the emergence of intelligence tests, efforts targeting pupils with difficulties are ascribed a new aim. Now, focus is on segregating these pupils from the mainstream school community.

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Psychological theories continue to have a great impact on education and pedagogical considerations throughout the 20th century. A primary consequence of the psychological theories is that problems are ascribed to the pupil and not the school activities. The system adhered to a deficiency model. The deficiency model rests on the assumption that the cause of a pupil's learning difficulties is to be found in the pupil. It therefore became crucial to know the extent of the pupil's difficulties in order to make the right diagnosis and on that basis introduce an intervention and support programme. The aim was to make the pupil fit the system and thereby benefit from what the school had to offer (Mittler, 2000).

In the 1960s, we see an incipient dissociation of the segregated special teaching – internationally as well as in Denmark. During the 1960s and 1970s, it becomes politically and pedagogically correct to integrate as many pupils with disabilities as possible into the mainstream basic school. We see a political concern for the increase in pupils who attend segregated special education at special schools, in special classes or in courses away from the regular class. As a result, the nine-point programme was introduced May 30, 1969, and the Danish parliament decides to reform the basic school education. The nine-point programme marked the beginning of an integration debate and integration effort, which led to the Institution for Special Care's exposition to the local authorities in 1980, and to the fact that all children now come within the Primary Education Act (Egelund, 2004). In the 1990s, the term "the inclusive school" emerges, and it becomes the primary message of the previously mentioned Salamanca Declaration in 1994.

From the beginning of the 1960s and until the 1980s, the interconnection of pedagogical psychology and special teaching was gradually broken down at the theoretical level. We see a gradual move from the deficiency model toward a social model. In the social model, difficulties are believed to be a societal creation and institutions are seen as repressive and discriminating, wherefore attention is directed at removing obstacles to learning and participation. Thus, the needs of the individual pupil become the centre of attention. Sociological views begin to dominate the field – both with respect to education and training of special needs educators and psychologists (Dyssegaard, 2009). The terms *special pedagogy* and *special teaching* are not used in the promulgation of the teacher training and education in 1997. They have been replaced by the expression *pupils with special needs.*

Interestingly, as steps toward a more inclusive school were taken, an increase in special needs teaching separate from the mainstream school and mainstream class occurred. From 1997-2007, the pupil population (6-16 years) increased by 18.3%. In the same period of time, the number of pupils who received extensive special teaching increased by 48%. Over the entire period (1996/97-2006/07), there was an average percentage increase of 4.8% per year (UNI-C, 2008).

We have no research-based knowledge of the reason for this increase. And, it should be mentioned that it is very difficult, if not impossible, to compare current segregation criteria with the criteria used ten years ago. The distinction between what is considered normal and abnormal is, and will be, a process involving educational, psychological, social, cultural and medical aspects – and this process is by nature historically variable.

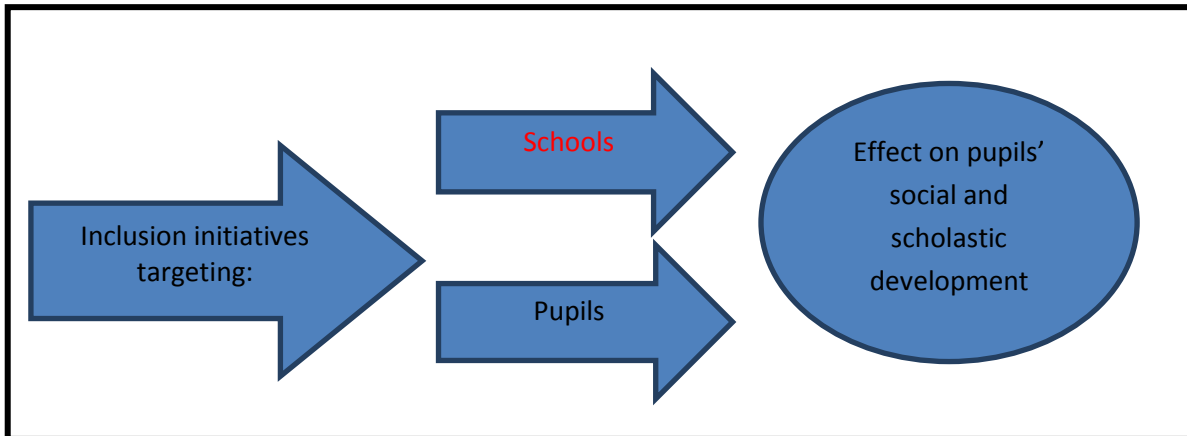## 4.4   Inclusion initiatives targeting the school

Figure 4-1 The final programme theory

The first category in the synthesis is the school. 38 of the 43 studies in the systematic review can contribute to this category. The following is an overall description of the studies included in the category "inclusion initiatives targeting the school". [3]

The studies are divided according to five topics: inclusive mainstream school (eight studies), shared values (two studies), pedagogical approaches to inclusion in mainstream schools (nine studies), collaborative teaching (four studies) and teacher assistants (five studies).

These studies have typically (a) used a strong research design and (b) collected data from extensive sample sizes. Closer examination reveals, among others, that three of the studies are randomized controlled trials (RCT), eight are non-randomized controlled trials and five are systematic reviews. Moreover, the category contains four cohort studies, five longitudinal studies and nine studies of baseline and post-project measurements. Many of the studies have a combination of research designs, e.g. using case studies. The studies' sample size varies, but for the majority data comprise several hundred pupils and in a few studies up to several thousand students.

Of the 38 studies, 16 have a "high" level of evidence.

11.1.1   The inclusive mainstream school and special needs class/school

Eight of the studies are comparative. They look into differences in the scholastic and social development of pupils with special needs based on their status as fully included pupils in a mainstream school or attending special needs class/school. Such studies can provide an overall picture of the effects of the offers proposed to pupils by the school.

Bakker et al. (2007) examine the connection between scholastic achievement, a diagnostic label, social status and the pupils' self-image. The study specifically looks at differences between pupils with certain

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[3] The total number of studies in this category is 38, but only 28 of these are discussed in this publication. See Appendix 5, p. 143, for a full outline.

learning difficulties and pupils with general learning difficulties in mainstream schools as well as special needs schools. 1,300 pupils take part and 861 of these attend mainstream basic schools, while 439 attend various special needs schools. The study emphasizes three findings regarding social status in mainstream teaching: Poor scholastic achievements and a diagnostic label only have a negative influence on social status among the older students. The younger pupils do not rate their classmates on curriculum-related skills, but they do consider classmates negatively if they exhibit disruptive behaviour. When the pupils reach middle school, they begin to assess each other based on scholastic achievements, as they, at this stage, have a better understanding of own cognitive skills.

The study identifies differences as well as similarities in the self-image of the pupils who attend mainstream and special needs schools, respectively. Regarding the special needs schools, the study finds no correlation between the pupils' view on classmate relationships and diagnostic labels or achievement level. Common for the pupils attending mainstream schools and special needs schools is, however, that the youngest pupils consider their classmate relationships to be noticeably more negative than the older pupils do. One explanation is that the special needs school are still new to the youngest pupils, wherefore they still compare with relations to previous classmates at the mainstream school. The older pupils, however, think of their classmates at the special needs school as their reference group.

The children's self-perception regarding scholastic achievements varies whether they are mainstream or special needs pupils. Pupils with learning difficulties attending mainstream schools compare themselves with the mainstream classmates, and they consequently feel less competent performing schoolwork. The pupils who attend special needs schools have a more positive self-perception regarding schoolwork as they compare themselves to their peers, who have similar difficulties. Yet, the study also finds that pupils attending special needs schools tend to underestimate their learning difficulties, which may result in a weaker inner motivation to overcome the learning difficulties.

The study by *Daniel et al. (1997)* has two objectives. The primary aim is to investigate the effects of three types of inclusion initiatives seen in relation to four dependent variables: a) parents' concern for their children's school programme, b) the pupils' problematic behaviour, c) scholastic achievements and d) the pupil's self-esteem. The second aim is to assess whether pupil participation in various inclusion programmes causes differences in the dependent variables. The three types of inclusion programmes are: a) random placement of special needs pupils in a mainstream class, b) cluster inclusion, i.e. when more special needs pupils are placed in the same class and c) part-time inclusion of pupils, i.e. when the pupils regularly receive special needs teaching away from the mainstream class. The study comprises 207 pupils from 3rd to 5th grade.

The results reveal mixed effects of the three inclusion programmes. From the results there is no indication of a consistent scholastic progress among the pupils who are included in mainstream teaching. Moreover, there are more incidences of problematic behaviour among the pupils in the inclusion classes, and the teachers consequently spend more time on discipline than actual teaching. In addition, special needs pupils' self-esteem is affected negatively by full-time inclusion in mainstream teaching. This finding is contrary to that of the pupils who are offered part-time inclusion and thus regularly attend special needs teaching away from their ordinary class; their self-esteem is not affected negatively. Lastly, the parents of

pupils in the inclusion classes are more concerned about their children's school program than the parents of the non-included pupils.

254 pupils with mild, general learning difficulties in (the last part of) 3rd grade participate in a Polish study by *Szumski et al. (2010)*. These pupils attend schools/classes that are organized according to three different principles: special needs schools, integrated classes and mainstream classes. The three courses of education differ in various ways: 1) staff, 2) organization of teaching and 3) the degree of special care, in particular. The special needs schools are independent schools with trained special needs teachers, who are qualified specifically to teach special needs children. These classes have 10-16 pupils on average. Integrated classes are typically set up at mainstream schools. Those classes have 16-20 pupils on average, and three to five of these pupils have special needs, while the remaining are mainstream pupils. The pupils are taught by the regular teacher, who is assisted by a special needs teacher. The average mainstream class size is 25-30 pupils, where one or two of these pupils have special needs. Mainstream classes get no support from special needs teachers.

The purpose of the study is to investigate the effect of the individual initiatives behind different forms of teaching. The study examines how three forms of teaching influence the pupils' scholastic development and how the pupils' psychosocial behaviour is affected.

The results demonstrate a statistically significant connection between special education offers for pupils with mild, general learning difficulties. Special needs pupils who are taught by mainstream teachers in mainstream education acquire scholastic skills comparable to those of pupils who have been taught by special needs teachers in special education offers.

With respect to the pupils' psychosocial condition, the pupils at the special needs schools feel they are in a more favourable psychosocial position; they feel more content at the school, consider their classmate relationships to be better and are more motivated to learn.

The study by *Karsten et al. (2001)* comprises 5,000 pupils who attend special needs schools and 35,000 pupils who attend mainstream schools. The aim of this study is to investigate whether special needs pupils benefit more, academically and psychosocially, from being taught in special needs classes/schools compared to mainstream classes. The results show that the scholastic development of the pupils in special needs classes/schools is poorer than that of their peers in mainstream classes. In the study it is emphasized that the deviation in scholastic development increases with the age of the pupils. In the mainstream classes we see a positive correlation between scholastic development and the pupil's psychosocial behaviour. The study finds no correlation between scholastic development and psychosocial behaviour among the pupils who attend special needs classes/schools.

Two studies have looked at how included pupils affect mainstream pupils *(Ruijs et al., 2010a)* and special needs pupils *(Ruijs et al., 2010b)* when none, few or several special needs pupils are included in a mainstream class.

The target group in Ruijs et al. (2010a) is mainstream pupils. This study examines (a) how inclusion of none, few or several special needs pupils affect the remaining pupils in the class and (b) whether the effect varies depending on the level of intelligence among the remaining pupils and the types of needs the included special needs pupils have. The study uses data from the Dutch PRIMA cohort study, which involves data on

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27,745 mainstream pupils from 2nd, 4th, 6th and 8th grade. The study identifies no negative effect from inclusion of none, few (less than 10%) or several (more than 10%) pupils with special needs regarding scholastic development of the mainstream pupils. The study also identifies no interaction effect on the pupils' learning seen in relation to the mainstream pupils' level of intelligence and inclusion of special needs pupils. It only identifies minor socio-emotional effects but cannot determine the impact of these. Furthermore, no interaction effect has been identified between the mainstream pupils' IQ and inclusion of special needs pupils with respect to social inclusion and well-being.

In *Ruijs et al. (2010b)* the target group is pupils with special needs. The study investigates the scholastic and socio-emotional development in special needs pupils, who are included in mainstream classes. It also looks at the role of the number of included special needs pupils, and whether the different types of needs make a difference. The study uses data from the Dutch PRIMA cohort study, which involves 1,839 special needs pupils from 2nd, 4th, 6th and 8th grade. The study examines how the pupils' social and scholastic development is affected by inclusion.

The results show that it has no impact on the scholastic development of special needs pupils whether only one special needs pupil is included in a mainstream class or whether they are in a class with up to 10% special needs pupils. The study has found no effect regarding the number of included children in most of the measurements of socio-emotional development. According to the teachers, it has no effect on the pupils' self-esteem, the teacher-pupil relation or the pupil's work effort whether the special needs pupil is the only one in the class or if there are other special needs pupils in the class. Nor does it influence the pupils' well-being and social integration, according to the pupils. The pupils' and the teachers' responses regarding well-being, popularity and self-esteem differ. According to the study, this variation in responses indicates that teachers and pupils perceive the pupils' socio-emotional development differently. The study does identify a bearing on individual measurements of socio-economic effect, but it is not clear how to interpret this impact.

The study by *Luciano & Savage (2007*) investigates how exposed to bullying pupils with learning difficulties, and who are fully included in mainstream classes, are. The sample consists of 13 special needs pupils and 14 mainstream pupils in 5th grade at two schools. Both schools work with an anti-bullying policy. The results show that, despite the schools' efforts of implementing anti-bullying policies, the special needs pupils report more incidences of being bullied than the mainstream pupils. The study also identifies a correlation between special characteristics in pupils with learning difficulties and risk of being bullied. The fact that these pupils' scholastic achievements are poorer, that they have language difficulties and that they are insecure, place them at risk of rejection and subsequent bullying. Moreover, the pupils' acquisition of receptive vocabulary and (to a lesser extent) reading skills, locus of control (i.e. the extent to which a person believes s/he is in control of their life or is being controlled by environmental factors) as well as own perception of social accept are connected to bullying.

A systematic review (*Kalambouka et al., 2005*) examines the relation between inclusive efforts in school and pupils' scholastic and social development. The review covers 26 studies in all. Generally, the results indicate that inclusion of special needs pupils in mainstream classes is unlikely to have a negative effect on the scholastic and social development of pupils without special needs. None of the studies report negative effects on the pupils in the class when children with physical and/or sensory impairment and language

difficulties are included. Some of the studies indicate that inclusion during introductory schooling can have a positive effect on the pupils' academic standards, if the support of the included pupils is well organized and managed. Few studies include the later classes (i.e. secondary school) and here the results are mixed. There is no evidence that inclusive efforts generate a greater effect when certain subjects are being taught.

11.1.2   Summary of the inclusive mainstream school and special needs class/school

All of the mentioned studies have examined the correlation between psychosocial behaviour and scholastic development in special needs pupils, who are taught in different education contexts. The correlation is very clear at the mainstream schools and less so at the special needs schools/classes. At the mainstream schools we see a clear connection between the pupils' scholastic achievements, well-being at the school and classmate relationships. The youngest special needs pupils thrive best in the mainstream school, but as they grow older, and reach middle school, they gain a stronger awareness of own cognitive competences and thus feel less content in mainstream education.

When we look at motivation for schoolwork and self-perception among pupils with special needs, it appears these pupils thrive better in special needs education offers. As they compare themselves to pupils with similar difficulties they do not constantly feel less competent than their classmates.

Two of the studies present conflicting results. One study finds that the scholastic development of pupils in special needs classes is poorer than that of peer pupils in mainstream classes, and this gap in scholastic performance increases with the age of the pupils. Yet, another study finds no significant difference in the scholastic development among special needs pupils, regardless whether they attend a mainstream school or special needs education.

Results from more of the studies indicate no negative effect on the mainstream pupils' scholastic and social development when special needs pupils are included in the mainstream class.

Overall, the study results give rise to new considerations of the impact of special needs education (special needs classes/schools) on the scholastic development of special needs pupils. We may re-consider the existing use of special needs educators and the current contexts of special needs education.

11.1.3   Shared values

Two of the selected systematic reviews, *Nind et al. (2004*) and *Rix et al. (2006),* examine the underlying values of including special needs pupils in mainstream teaching. *Nind et al. (2004)* analyses ten studies and *Rix et al. (2006)* explores seven. The results of both reviews stress that an essential element in promoting a more inclusive school culture is that the given school has a shared set of values and knowledge of inclusion. *Nind et al. (2004)* call this "a shared philosophy". The school must have a shared philosophy that is familiar to everyone and a common understanding of all pupils' learning potential with respect for special needs pupils. The study results reveal that the teachers' attitude to inclusion directly affects whether inclusion of a special needs pupil is successful.

The Rix et al. (2006) results also demonstrate that if the teacher has a positive attitude to inclusion it directly affects the learning of all the pupils. Furthermore, it is recommended that the teachers join an "educational community" either at own school or outside the school. Such communities can support the individual teacher's pedagogical practice through a shared understanding of how children learn. Such memberships give the teachers an understanding of how to teach the curriculum and insight into why they do as they do. Furthermore, the teachers acquire knowledge of various methods for teaching a certain subject so it becomes accessible to a wide range of pupils. The pupils' conception is developed through a planned scaffolding of the given subject's social and cognitive content.

11.1.4   Summary of shared values

A common understanding of the goal of the school practice is essential when a school wishes to become more inclusive. Teachers who demonstrate a negative attitude to inclusion of special needs pupils have a negative effect on special needs pupils' scholastic development. As a consequence, the special needs pupils risk becoming stigmatized by their classmates. Furthermore, several of the mentioned studies find that randomly initiated interventions and efforts never generate a long-term effect regarding inclusion of special needs pupils at the school.

11.1.5   Pedagogical approaches to inclusion in mainstream schools

Nine of the studies in this review explore which pedagogical approaches, applied by schools as a whole, have an effect on inclusion of children with special educational needs in mainstream classes. The aim of the two studies in *Hunt et al. (2001 og 2003)* is to investigate the effect of "Unified Plans of Support" (UPS) in relation to inclusion of special needs pupils in mainstream education. Three pupils take part in the study from 2001: One pupil has extensive physical and psychological impairments and the other two pupils have very low scores in scholastic performance, but do not receive special needs teaching. Six pupils participate in the study from 2003: three special needs pupils and three pupils who are at risk of developing difficulties. A team of employees involved in mainstream and special needs teaching make the unified plans of support. This team comprises the school manager, regular teachers, special needs teachers, advisors and the parents of the special needs child. The team meets up once a month for about 1.5 hours to futher develop and refine each pupil's personal plan. Each UPS contains a personal list of support demands in reading, writing and mathematics (e.g. adapted material, assistive technology and/or tailored teaching programmes, demands for achievement or teaching methods). It also describes means to promote participation in class and classmate interaction (e.g. partnerships, adult support in social interaction, social support from adults, teaching in smaller groups and support from a teaching assistant). The regular teacher holds the primary responsibility of implementing the UPS. The team collaborates for the benefit of the pupil. The time span of the two studies was nine and six months, respectively.

The results show that the work of the UPS team made it possible to focus efforts at the pupils who needed intensive and extensive support in order to develop scholastically and socially in the mainstream class. The results also demonstrate that the special needs pupils become more active during classes, they progress academically, gain higher self-esteem and self-confidence, interact more with their classmates and are proud of their scholastic achievements. The study concludes that the positive effects can be explained by the fact that the team of employees allocated time for regular meetings.

Kovaleski et al. (1999) investigate the role of the quality of the intervention "Instructional Support Teams" (IST) for the quality of the pupils' learning outcome. One of the purposes of IST is to reduce the number of pupils who are referred to special needs education. It is assumed that this may be achieved through a coordinated effort in which vulnerable children are identified at an early stage and offered the appropriate resource-oriented and scholastic support. The study is based on data from schools that have implemented IST and control schools. The data comprise pupils from 117 schools with references to the intervention as well as two mainstream pupils from the same class. These data are compared with results from pupils at comparable schools that have not yet implemented the intervention. The data include how much time the pupils spend on school assignments, how many assignments they solve and the pupils' understanding of the assignments. The study finds that if the intervention is well implemented, it generates a positive effect on pupils who are at risk of being referred to special needs education. The effect concerns improved understanding of schoolwork and behaviour, which is more suitable for teaching. When the intervention is poorly implemented, the pupils do not achieve better results than pupils who take part in previously implemented interventions that targeted pupils at risk of exclusion.

The study by *Petriwsky et al. (2009)* comprises 429 children aged four to seven, who attend either preschool class, 1st or 2nd grade. The purpose of this study is to investigate how teachers handle pupils with different needs when they are included in mainstream education. The study also investigates the teachers' structural and pedagogical approaches and how variance in the group of children influences how the teachers handle inclusion in the classroom. These relations are explored on the basis of the pupils' scholastic and social development.

The study confirms that the ability to adjust the pedagogical practice and differentiate the teaching/tasks to meet the requirements of the special needs pupils has a positive effec on the inclusion of special needs pupils in mainstream education. The study concludes that it is essential for the regular teachers to have access to resources persons. Along the same lines, *Petriwsky et al. (2009)* note that school management, a consistent behaviour policy and professional teamwork are crucial when catering for special needs pupils in mainstream education. In-service training/instruction of teachers in educational methods and strategies also has a positive effect on the teaching climate, and it is an effective way of learning about ways to differentiate the teaching.

The systematic review by *Sheehy et al. (2009)* analyses 11 studies and examines which educational methods can effectively include special needs pupils in mainstream teaching. An important conclusion is that teachers are recommended to join educational communities, either with colleagues at their school or elsewhere. When the teachers' pedagogical practice is substantiated by a shared model for learning, the individual teacher gains an understanding of how a given curriculum can be taught as well as an understanding of why they act as they do. A positive effect of educational communities is that teachers, who reflect and collectively develop a teaching form that targets inclusion of special needs pupils, promote the inclusion of special needs pupils in the mainstream teaching.

The study by *Tapasak et al. (1999)* summarizes the evaluation of an inclusion programme at a mainstream school. The evaluation concerns 60 pupils from preschool to 2nd grade and 50 pupils from 3rd to 5th grade. The results covering preschool class to 2nd grade demonstrate a significant increase in the pupils' self-perception and cognitive development, both in the special needs pupils and the mainstream pupils. There is

no significant difference in the choice of playmate among these pupils. In middle school, the mainstream pupils rate themselves higher than the special needs pupils as regards scholastic and social competences. In all of the grades, the teachers find that both the primary and middle school pupils demonstrate improved social skills. School reports and teacher comments indicate that the teachers' expectations of the special needs pupils differ from their expectations of the mainstream classmates.

The *Heath et al. (2004)* study describes a model for systemic team approach to promote inclusion of pupils with emotional and behavioural difficulties in mainstream schools. 96 pupils aged five to ten years and 11-16 years with socio-emotional difficulties participate in this study. The aim of the inclusion model is to make the school more inclusive. The purpose of using different methods is to alter the sympathy and understanding of pupils with special challenges among significant others (i.e. teachers, classmates and parents). The underlying assumption is that a change in perception will change the pupils' disruptive behaviour and thereby change the surrounding environment.

The results show that when the systemic team approach is applied, the special needs pupils function equally well in the mainstream school as when they attend tradition special needs education. The included pupils feel less depressed, become better at expressing their frustrations and demonstrate a markedly improved behaviour. Moreover, the included pupils' parents think more positively of their children. Scholastically, the included pupils develop on a par with peer pupils in special needs teaching; however, in the course of a school year, the study did register more incidences of disruptive behaviour among the included pupils compared to the pupils attending special needs teaching.

Adams & Lloyd (2007) look into the implementation and effect of an inclusion effort comprising an intensive talking and language therapeutic programme, "Pragmatic Language Implications" (PLI), for pupils with pragmatic language difficulties. Six children aged five to nine with language difficulties are offered 20 sessions of talking and language therapy in the course of eight weeks, which corresponds to three intervention sessions with a senior speech therapist per child per week.

Before the intervention begins, various assessments of each child's communicative skills and text comprehension are carried out. Individual intervention plans are produced on the basis of these assessments. Parents and teachers are involved in the planning phase. An important part of the programme is to offer parents and teachers counselling and training in strategies that support the child's social communication. The pupil's progress is measured at the end of the intervention and eight weeks ahead.

Though the study produced mixed results, it did detect a progress in conversation skills in all six children together with moderately significant improvements in the achievement tests for language competences. The authors make certain reservations about the size of the sample, but conclude that intensive talking and language therapy generate a positive outcome for pupils with pragmatic language difficulties seen in relation to their linguistic and communicative skills. The study emphasizes the collaboration between parents, teachers and speech therapist as all-important for the success of the intervention.

Zafiropoulou (2005) investigates three different interventions targeting pupils with learning difficulties in 2nd, 3rd and 4th grade in Greece. The aim is to improve the pupils' learning strategies, including their writing, reading and mathematical skills, and to give the pupils a better awareness of own learning process and of themselves as learners. 120 pupils are divided in three different intervention groups and one control group. The three interventions are: (1) a psycho-educational intervention, which is a comprehensive intervention

implemented at the school and at home, (2) self-instruction training, which is implemented at the school and (3) attention control. The pupils are tested on scholastic and social parameters before, after and later as part of a follow-up study. Intervention (1) and (2) are carried out in 13 sessions by a researcher, who is a trained psychologist. Once a week the pupils are offered a 40-50-minute individual session. The analysis shows that the self-instruction training and the psycho-educational intervention produce positive results regarding the pupils' cognitive skills and learning strategies. The interventions produce a significant improvement in the pupils' scholastic confidence. Increased involvement in schoolwork is also measured at the seven-month follow-up study. The two interventions help the children get closer to the educational objective of learning to learn; to develop awareness of themselves as pupils and of their own learning process.

11.1.6   Summary of pedagogical approaches to inclusion in mainstream schools

From the studies it appears that clear objectives and a clear structure of the inclusion initiatives constitute decisive factors.

Overall, the results demonstrate that special needs pupils benefit from having clear objectives for their scholastic and social development. Pupil plans that are developed by the teachers, resource persons, parents and the pupils have a positive effect on the pupil's level of activity in class, their scholastic development, self-esteem and confidence as well as classmate relationships. It seems the pupils benefit greatly from knowing the exact aim of their learning, so they can monitor and assess their personal progress.

It is also clear that the teachers benefit greatly from developing objectives and evaluating their teaching practice together with relevant resource persons. Access to resource persons (i.e. managers, psychologists, consultants and parents) is decisive for whether the teachers feel competent to teach special needs pupils.

11.1.7   Collaborative teaching (two-teacher arrangement)

The studies that analyse collaborative teaching comprise various approaches to the two-teacher arrangement. Common for all of the studies is that the examined two-teacher arrangements involve one regular teacher from the class and a special needs teacher, or a so-called "special education paraprofessional". "Paraprofessionals" are widely employed in schools in the USA and Canada. The requirements of a paraprofessional vary, but the position usually requires graduation from an upper secondary education or a short further education (two years) and in some cases practical experience. Characteristic of this arrangement is that the extra person assisting the teaching has a specific, relevant professional background. Thus, the collaboration is not between two of the regular teachers in a class or one of the regular teachers and a general educator.

The purpose of the *Boudah et al. (1997)* study is to develop and evaluate a model for collaborative teaching involving one regular teacher and a special needs teacher. The study is a baseline study in four classes with one regular teacher and a special needs teacher in each class. The study performs baseline tests and observations in four classes from 6th to 10th grade. Teachers and special needs teachers subsequently receive four hours of instruction in collaborative teaching with the aim of ensuring integrated teaching in

mainstream education for 16 pupils with mild learning difficulties and 16 low-achieving pupils. Test results of the 32 pupils are compared with results of 32 pupils in control classes.

The study finds that prior to having received instruction in the collaborative teaching model, one of the teachers (typically the special needs teacher) tends to be passive during classes. After ended instruction in the collaborative teaching model, the special needs teacher and the regular teacher spend more time on actual teaching and they become better at switching roles. The study also finds that although two teachers are present during class and a greater percentage of the time is spent on actual teaching, the level of pupil activity during class is low. The study reveals an only marginal improvement in the test and quiz results of the low-achieving pupils and a deterioration in the test results of the pupils with mild learning difficulties.

Murawski et al. (2001) made a meta-analysis of six studies. They examine the effect of two-teacher arrangements (involving a general educator and a special needs educator) on inclusion of special needs pupils in the mainstream class. Their research questions are: 1) Does the effect of two-teacher arrangements vary depending on the grade of the class, gender, length of study and type of special needs? 2) Do the studies that have measured the greatest effect vary compared to other studies? The meta-analysis looks at independent variables such as grade, social background, scholastic development etc.

Concerning the first research question, the authors find that the data of the six studies is too limited to make further analyses of the effects of the two-teacher arrangements on gender, length of study or type of difficulty. It is not possible to measure the effect of two-teacher arrangements on pupils with different types of difficulties. One of the studies involving pupils from preschool class to 3rd grade and one of the studies involving high school pupils do, however, record an effect. Considering the size of the effect, it seems two-teacher arrangements may be an appropriate intervention for pupils in the mentioned grades. None of the analysed studies had middle school as their target group.

Concerning the second research question, the authors conclude that it cannot be answered due to great differences in what has been measured and reported in the selected studies. Despite the great differences in what has been measured and despite the limited data, the results seem to indicate that two-teacher arrangements can have a positive effect on scholastic development.

In *Banerji et al. (1995)*, 13 pupils with certain learning difficulties are included in a 5th grade class with 17 mainstream pupils. The class has a two-teacher arrangement, which involves one special needs teacher and one regular mainstream teacher. Both teachers teach and assist the pupils as needed. The two teachers collectively plan the teaching and the intervention.

The results indicate that a well-functioning collaboration between the regular teacher and the special needs teacher promote the inclusion of special needs pupils in mainstream teaching. The teachers benefit greatly from sharing strategies and the improved collaboration qualifies the teaching.

The results also show that all of the 5th grade pupils, who were monitored throughout a school year, have a satisfactory scholastic development in relation to the measured outcomes (i.e. reading and writing). 90% of the pupils with certain learning difficulties and 85% of the mainstream pupils improve their reading, equalling a school year. The pupils with certain learning difficulties do not improve their writing skills as

much as the mainstream pupils, but some progress was measured. There is no variation in the two groups of pupils regarding self-esteem and behaviour.

McDuffie et al. (2009) look into various effects of peer tutoring in classes with and without a two-teacher arrangement. 203 7th grade pupils with and without special needs are involved in the study. Study results shows that pupils who attend teaching with a two-teacher arrangement obtain a higher score in the post test involving identification questions (i.e. questions about facts) but not production questions (i.e. questions of a more abstract nature). A combination of peer tutoring and a two-teacher arrangement elicited no effect. Observations also show that the level of teacher-pupil contact is higher for pupils who attend classes without a two-teacher arrangement. One explanation may be that the teacher's way of teaching, rather than the teaching context, determines the level of teacher-pupil contact. The special needs pupils do not receive more attention when two teachers are present during class, and they are less in contact with the mainstream teacher because the special needs teacher provides the primary support. The teaching methods used in classes with or without a two-teacher arrangement were the same.

11.1.8   Summary of collaborative teaching (two-teacher arrangement)

The two-teacher arrangement has a positive effect on special needs pupils when[4]:

- instruction/in-service training in the collaborative teaching model increases the actual teaching time, particularly if the special needs educator and general educator change teaching roles

- the intervention is implemented in primary school; the two-teacher arrangement seems to generate the greatest effect in primary school

- time has been allocated for regular planning and evaluation of the teaching

- collaboration between the special needs teacher and the regular teacher is constructive

- the educators receive supervision from other professionals – psychologists, managers, consultants, etc.

- both teachers teach and assist all of the pupils in the class.

The two-teacher arrangement has a negative or no effect on special needs pupils when:

- the teachers do not receive instruction/in-service training in the collaborative teaching model and one of the teachers is passive during class

- the teaching is not planned or evaluated collectively

- pupils are not actively involved in the teaching, despite the extra teacher resource

- the teachers lack knowledge of/strategies for teaching pupils with special needs

- the special needs teacher only focuses on the special needs pupils

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[4] The summaries are repeated point by point in the rest of the synthesis.

- the special needs pupils are not in contact with the regular teachers.

11.1.9   Teacher assistants

Five of the studies included in this review have examined the effect of teacher assistants, who directly or indirectly provide general or focused support for special needs pupils in mainstream education. Teacher assistants are adult resource persons without a formal teacher's degree, and they generally assist the teaching of the regular teacher.

One of the studies looking at the role of teacher assistants is a systematic review of 35 studies, made by *Alborz et al. (2009)*. More specifically, it examines how the presence of teacher assistants during class affects the participation and learning of special needs pupils in mainstream education. The study also examines which types of support affect the scholastic and social development of the special needs pupils.

One of the conclusions is that teacher assistants can have a positive effect on special needs pupils' involvement in schoolwork if the teacher assistants are trained to deliver a certain intervention to individual pupils or smaller groups of pupils. The support must be tailored to the pupils' specific needs. The pupils' learning processes should only be given the minimum necessary support so as to enhance their self-determination and social interaction with other pupils. Put differently, teacher assistants must be able to assess the impact of their presence on the pupil and whether it facilitates or inhibits learning and participation.

A negative effect of having teacher assistants in the class was identified in seven of the 35 analysed studies. A common finding in these studies is that the pupils are too dependent on, or receive too much support from, the teacher assistants. Consequently, the pupils interact less with their classmates and the regular teachers. It undermines their opportunities for self-determination or makes them feel stigmatized.

Two of the studies conclude that it promotes a more inclusive ethos at the school when teachers and teacher assistance collaborate in supporting smaller groups in the class as part of the teaching. As a result, under-achieving pupils and special needs pupils experience receiving support as part of the regular teaching and thus feel less stigmatized. The support is more effective when it is an integrated element of the collaborative teaching approach, where teacher assistants function as a resource for smaller groups of pupils. When teachers and teacher assistants plan and evaluate courses together it strengthens the pupils' learning outcome and it improves the quality of the collaboration between the teachers and teacher assistants. Furthermore, the teachers' stress level is reduced when teacher assistants help the less cooperative pupils and smaller groups of pupils.

Lastly, the presence of teacher assistants positively influences the parents' involvement in the school concerning their child's daily activities.

An English study by *Blatchford et al. (2009)* collected data from 77 schools and 5,672 pupils attending 2nd, 6th and 9th grade, respectively. The study specifically looks at the scholastic development in the three subjects English, Mathematics and Natural science. The study results indicate that the presence of teacher assistants seems to have a positive effect on the pupils regarding 1) involvement during teaching – i.e. a

reduction in disruptive behaviour and 2) a more active approach to interaction with adults – i.e. they initiate interaction, answer questions from adults and maintain the interaction.

The study points to five factors that have a negative effect on inclusion of special needs pupils:

1. Teacher assistants spend most of their time supporting low-achieving pupils/pupils with special needs and rarely support average or high-achieving pupils. Teacher assistants support and work more than the regular teachers with the pupils on a one-to-one basis or in smaller groups, in and outside class. One-to-one support is primarily provided in the higher grades, while interaction with smaller groups of pupils tends to be more widespread in the younger grades. In both cases, the teacher assistants spend a third of their time working outside classroom teaching, and they primarily work with low-achieving pupils or pupils with special needs.

2. The regular teachers use teacher assistants as their primary means to ensure differentiated teaching for the low-achieving pupils or pupils with special needs. The consequences of dividing the teaching roles in this manner tend to be that special needs pupils are not taught by their regular teachers, that they lack overview of syllabus, feel alienated from their classmates and become dependent on the presence of a teacher assistant.

3. Time has not been allocated for meetings between the teachers and teacher assistants, and teaching arrangements are decided upon just before, during or after the teaching. A majority of the teacher assistants feel ill prepared. There is no collective planning of or preparation for the teaching activities.

4. The schools have not defined the teacher assistants' role in advance, and the individual teachers' ideas, expectations, delegation of tasks and general practice define the role of the individual teacher assistants.

5. The teaching methods differ greatly. That is, when the teachers activate groups of pupils, while the teacher assistants primarily focus on individual pupils. The teachers spend more time explaining various concepts than the teacher assistants do. The teacher assistants' explanations are sometimes unclear and confusing for the pupils. The teachers ask questions, encourage independent thinking and make sure the pupils have understood the assignment, whereas the teacher assistants tend to give the pupils the answer/result. The teachers encourage learning through feedback, while the teacher assistants are more concerned that the task is completed.

Three of the studies have investigated the effect of one specific intervention targeting special needs pupils. The intervention fully includes the pupils in the mainstream school, and the teacher assistants play a central role in the implementation of the intervention *(Hunt et al., 2001; Hunt et al., 2003; Lane et al., 2008).* The three studies conclude that the presence of teacher assistants during class has a positive effect on the pupils. In the three studies the teacher assistants know exactly what their role in class is. They have completed a short training and receive regular supervision. What characterize these studies are plans and outlines of learning objectives for pupils with curriculum-related difficulties or special needs, as well as written, individual pupil plans. Furthermore, time has been allocated for collective planning and evaluation meetings involving relevant resource persons (e.g. psychologists, special needs teachers, teachers and teacher assistants).

11.1.10   Summary of teacher assistants

Teacher assistants have a positive effect on special needs pupils' involvement in schoolwork and social interaction with classmates and teachers when:

- the teacher assistants are trained to deliver a specific intervention to individual pupils or smaller groups of pupils

- the support for the pupils is tailored to their specific needs

- the teacher assistants can assess the impact of their presence and see whether it promotes/inhibits the pupils' learning and participation

- teachers and teacher assistants collaborate in supporting smaller groups of pupils during class

- special needs pupils see the support as part of the regular teaching so that they feel less stigmatized

- the support is part of a "team approach" to teaching, where teacher assistants are used as a resource for smaller groups of pupils

- planning and evaluation of progress occurs regularly in collaboration between teachers and teacher assistants

- the support is provided in the lower grades, and when the teacher assistants primarily provide support during class and for smaller groups of pupils.

Teacher assistants have a negative effect on special needs pupils' involvement in schoolwork and their social interactions with classmates and teachers when:

- the teacher assistants have no education/training

- the pupils are so dependent on, or receive too much support from, the teacher assistants that it inhibits the pupils' interaction with classmates and teachers and undermines their opportunities for self-determination or makes the pupils feel stigmatized

- no time has been allocated for planning or evaluation with the regular teachers

- the support is provided in the higher grades and focus is on individual pupils

- teacher assistants undertake the actual teaching of special needs pupils

- the school has not defined the role of the teacher assistants during classes.

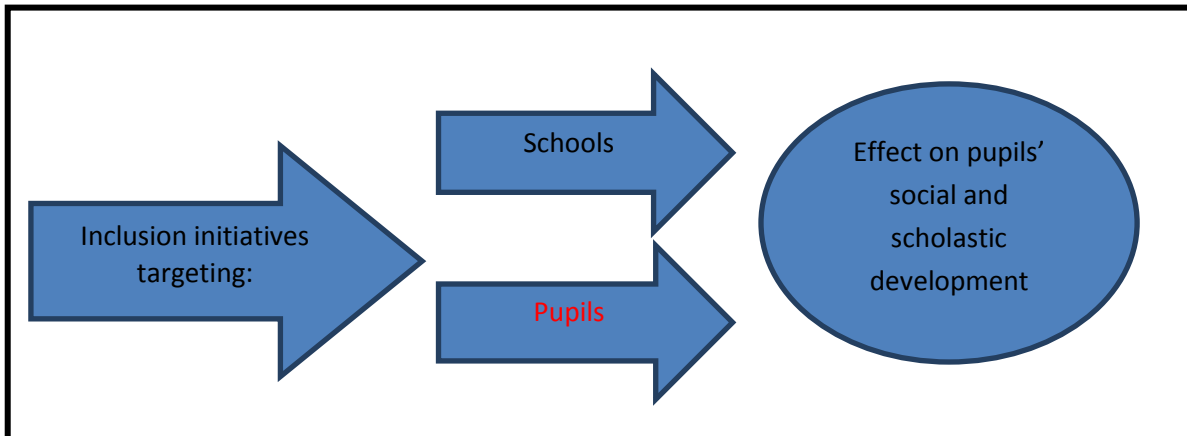## 11.2 Inclusion initiatives targeting pupils

Figure 4-3 The final programme theory

The second category in our synthesis is "pupils". 35 of the 43 studies in the systematic review qualified to contribute to this category. The following is an overall description of the studies in the category "inclusion initiatives targeting pupils".[5]

The studies cover two themes: peer tutoring (ten studies) and intervention initiatives targeting pupils with ADHD/ADHD-like behaviour/socio-emotional difficulties (12 studies).

These studies have typically (a) used strong research designs and (b) collected data from extensive samples. Closer examination of the research designs reveals that the inclusion effort is carried out as a randomized, controlled trial (RCT) in three of the studies and as a non-randomized, controlled trial in eight studies. 11 of the studies are baseline and post measurements of inclusion effort(s), seven are longitudinal studies and three of them are systematic reviews. The majority of the studies are based on a sample size of about 100 pupils, while some studies have data on up to 1,000 pupils. Overall, extensive and reliable studies contribute to this category.

Of the 35 studies, 13 are of a "high" level of evidence.

11.2.1   Peer tutoring

Ten of the selected studies examine the effect of peer tutoring.

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[5] The total number of studies in this category is 35, but only 22 of these are discussed here. See Appendix 5, p. 143, for a full outline.

The primary aim of *Cushing et al. (1997)* is to evaluate the effect of adapting curriculum to groups of pupils working together. 24 8th grade pupils, of whom two have special needs, take part in this study. The results show that when curriculum is adapted to groups of pupils (engaged in peer tutoring) as well as other forms of individualized teaching, the individualized teaching that is based on an adapted curriculum proves to be more effective for the mainstream pupils, while the special needs pupils benefit more from working in groups. The teachers and the pupils, with and without special needs, prefer working according to the peer tutoring model.

Dugan et al. (1995) compare peer tutoring with other forms of individualized teaching. The study participants are two 4th grade pupils who suffer from autism. In terms of academic and social aspects, the study finds that peer tutoring is more effective than individualized teaching. The pupils' involvement in schoolwork is much higher when the pupils teach each other, compared to traditional teacher instruction. A crucial element in this study's peer tutoring initiative is that a special needs teacher and the regular teacher constantly supervise and support all of the pupils.

The aim of the *Fuchs et al. (1997)* study is to investigate the effect of "Peer Assisted Learning Strategies" (PALS) on different categories of pupils: i.e. pupils with learning difficulties, low-achieving pupils and pupils with average achievements. The study is a partly randomized trial with baseline and post tests of 120 pupils grouped in the three mentioned categories. After a baseline test of reading skills among 60 pupils in intervention classes and 60 pupils in control classes, PALS were implemented in the 20 intervention classes over a course of 15 weeks.

The study finds that pupils who attend PALS classes read significantly better compared to the pupils in the control classes. The positive effects of PALS are partly explained by the fact that the teachers are trained and supported by research assistants during the implementation period. Moreover, because the PALS material is easy to use, the teachers implement the intervention exactly as intended. The strategies entail a systematic reward system, clear curriculum-related activities and mutual interaction among the pupils. Similar results have been found in *Mitchem (2001)*. This study implements a "Classwide Peer-assisted Self-Management Intervention" (CWPASM), which is a tool for peer-assisted self-management. The results show that a) when teachers and pupils have received instruction, it is easy for them to implement the procedures correctly, b) both teachers and pupils enjoyed working with CWPASM; they found it acceptable and effective in terms of improving behaviour and well-being in the class and c) the teacher continued to use CWPASM after the study ended.

Mastropieri et al. (2006) investigate the effect of a teaching intervention in science on pupils with and without special needs in 8th grade. 13 classes were randomly selected as either intervention or control classes. The pupils were grouped according to level of attainment. The special needs pupils begin at the least challenging level. The time that the teacher normally spends introducing an assignment is now spent on group-based learning, where the pupils, grouped according to ability, must solve the task and note the result in personal portfolios. In comparison with the control classes, the group-based learning produces positive results concerning the scholastic and social skills of both the pupils with and without special needs. When the pupils tutor each other and the assignments are differentiated, the pupils learn more than when they receive traditional teaching without peer tutoring. Similar results can be seen in *McDuffie et al. (2009)*: pupils attending classes with peer tutoring obtain higher scholastic achievements than pupils who receive

traditional teaching. The pupils also express contentment with peer tutoring. Peer tutoring combined with a two-teacher arrangement does not increase the effect of the peer tutoring.

Nind et al. (2004) is a systematic review that investigates how educational methods effectively include special needs pupils in the mainstream school. It also focuses on different groups of pupils. The reviewed studies deliver evidence for the effect of peer tutoring, particularly in relation to functional reading skills.

Peer tutoring covers a number of different types of teaching practices and the evidence basis relates to elements of social grouping/teamwork (Cushing, 1997; Stevens and Slavin, 1995), repetition and adaptation of curriculum (Cushing, 1997; Stevens and Slavin, 1995) and promotion of a peer tutoring school ethos (Stevens and Slavin, 1995). Specific evidence on the effect of two peer tutoring programmes has been found in Cooperative Integrated Reading and Composition "CIRC" (Stevens and Slavin, 1995) and Team-assisted Individualisation "TAI" (Stevens and Slavin, 1995). The review also identifies evidence on the effect of other concrete programmes: Guided Inquiry supporting Multiple Litteracies "GIsML" (Palinscar et al., 2001) and Circle of Friends (Frederiksen, 2002). The three programmes GIsML, CIRC and TAI all focus on how to teach subject-specific knowledge and skills while the pupils learn how to help each other. The latter is a method to promote social accept. A common aim of the above-mentioned studies is to make the pupils help each other see and consider various phenomena from different angles.

Another finding in this review is that peer tutoring efforts, which have an effect on scholastic development, also tend to have an effect on pupils' social participation and attitude to learning. The review concludes that the benefits of the studied peer tutoring approaches are the multifaceted nature, emphasis on active participation in the class and class community and the fact that the implementation is not at the expense of curriculum-related teaching and learning.

Steven et al. (1995) evaluate CIRC. 635 pupils from three basic schools participate in the evaluated study. The study works with the CIRC programme and draws comparisons to a control group of 664 pupils divided between four basic schools with traditional teacher-controlled teaching. 72 pupils with certain scholastic difficulties are included in the CIRC schools. Their results are compared with those of 65 pupils who receive traditional special needs teaching at basic schools. CIRC is an extensive peer tutoring approach to reading and language teaching. The pupils work with reading and writing in heterogeneous learning teams. The results show that the intervention has a positive effect on the pupils' scholastic development compared to traditional special needs teaching, where pupils are segregated from their class. The pupils acquire a greater vocabulary, word perception and understanding of language and they become better as expressing themselves compared to pupils in traditional classes. The positive effects apply to both pupils with and without special needs.

A study by *Xin (1999)* investigates the effect of an intervention for 118 pupils in 3rd grade. 25 of these pupils have learning difficulties. The pupils are randomly divided into peer tutoring classes and classes with traditional teaching. Six teachers and three special needs teachers participate. The project employs different math computer programmes that teach mathematics to the pupils. Mathematical skills are assessed in baseline tests and post tests.

The results show that the pupils in the peer tutoring classes do better than the pupils who receive traditional teaching. All of the pupils improve their mathematical skills, but the post test reveals a significant difference in the two groups of pupils. The pupils in the peer tutoring classes obtain markedly

higher scores. Moreover, it is clear that using computers together with peer tutoring has a positive effect on the pupils' attitude to the teaching. The study concludes that peer tutoring is an effective strategy for including special needs pupils in mainstream teaching. The results indicate that a structured peer tutoring strategy in a computer-supported environment may have en affect on performance, attitude and social interaction between pupils with and without special needs.

Pomplun (1997) investigates how pupils with and without special needs do in (group)tests, in which the pupils must co-operate in groups. The study compares results from groups without special needs pupils to groups with special needs pupils in order to identify possible differences in the groups. From 5th grade classes, the study selects 3117 co-operative groups with no special needs pupils and 614 co-operative groups with *one* special needs pupil in each group. It measures test results from natural science, and it measures group work behaviour for all groups and for the individual pupil.

The results show that pupils with special needs can participate in this type of group-based test, that their scores are as expected and that their performance does not have an undesireable impact on the mainstream pupils. Furthermore, the study identifies differences in how much pupils with special needs participate in the groups depending on the type of need.

11.2.2   Summary of peer tutoring

Peer tutoring has a positive effect on all pupils in a class when:

- curriculum/tasks are adapted to the groups of pupils

- teachers are aware of the aim of the teaching – be it social or scholastic development

- teachers constantly supervise and support all pupils

- teachers receive instruction/in-service training in peer tutoring

- teachers have access to material/resource persons that can ensure a correct implementation of the intervention

- teachers can continue the intervention after the implementation period

- pupils are grouped according to level of skills

- a positive effect of the applied peer tutoring programmes has been documented.

Peer tutoring has a negative or no effect on all pupils in a class when:

- peer tutoring is at the expense of curriculum-relevant teaching and learning.

11.2.3   Intervention initiatives targeting pupils with ADHD/ADHD-like behaviour/socio-emotional difficulties

12 studies explore the effect of including pupils who exhibit disruptive and inappropriate behaviour in mainstream classes.

Four of the studies investigate how the teachers' knowledge of strategies and methods for teaching pupils with challenging behaviour affects the pupils' scholastic and social development.

One of the studies is a systematic review by *Chitiyo et al. (2011)*. It examines five primary studies. The review focuses on the intervention "Positive Behavioural Support" (PBS) and how it affects the scholastic development of pupils with behavioural disorders and/or learning difficulties. PBS takes a problem-solving approach to handling problematic behaviour by adapting support strategies for reducing or eliminating inappropriate behaviour to the needs of the individual pupils. Interventions based on this approach ascribe importance to a change of environment, change of curriculum and removal of rewards that unintentionally maintain the problematic behaviour. Contrary to traditional behavioural methods, in which the pupil is considered the problem and must be "fixed", PBS systems consider the environment and the lack of competences to be part of the problem, and the aim is to change these factors. The study emphasizes that such efforts must be evidence based and aim at improving the scholastic achievement of pupils with behavioural disorders.

The review also demonstrates how positive behavioural support with the aim of helping special needs pupils to a more appropriate behaviour also resulted in improvement of scholastic skills. The meta-analysis of existing research identifies a positive correlation of 0.40 between improved behaviour and scholastic development. This means that 16% of the variance in curriculum-relevant performance can be explained as a direct result of improvement in the pupils' behaviour.

Henricsson's (2006) PhD investigates similar results. Henricsson followed 323 pupils from 1st to 6th grade with the overall aim of observing how children with a behavioural disorder develop in school and to study their relationships with teachers and classmates. One of the research results is that the teachers have a very limited repertoire for handling pupils with behavioural disorders. Their most common strategy is to discuss with the pupil and subsequently contact the parents, which has a very limited and short-term effect. Henricsson concludes that it would be beneficial to the pupils if teachers know about more strategies that directly effect pupil results. The analyses also show that poor acceptance among teachers and classmates are associated with early disruptive behaviour and lack of social competences. Furthermore, the analyses find a correlation between loneliness and low peer acceptance as well as problems of adjustment. It is concluded that children with behavioural disorders risk forming negative relations and develop further problems of adjustment and, with age, the negative circumstances will increase. Knowledge of evidence-based strategies and early efforts is crucial for a positive development in maladjusted pupils.

The purpose of the study by *Miranda et al. (2001)* is to investigate the effect of a programme for pupils with ADHD, who participate in an ordinary classroom context. The study involves 50 pupils with ADHD and they are divided between an intervention groups and a control group. The teachers in the intervention group (29 pupils) receive special training in modification strategies, cognitive behaviour strategies and management strategies. The outcome of the study is that both teachers and parents experience improvements in the individual child in terms of increased ability to concentrate, reduction of hyperactivity and impulsive behaviour at home and at school. Moreover, the study identifies improvement in scholastic

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performance and reduction of anti-social behaviour. Typical ADHD-related problems, such as learning difficulties, lack of self-control and failure to thrive at school, are markedly reduced. In addition, the teachers feel capable of including these pupils as they have gained more knowledge of how specific strategies can be used to meet these pupils' curriculum-related needs. The study concludes that implementation of teaching methods that benefit pupils with ADHD, close contact between these pupils and teachers who supervise the intervention have produced the observed improvements.

Tymms et al. (2006) investigated the effect of screening pupils for ADHD-like symptoms and subsequently propose recommendations regarding inattentiveness, hyperactivity and impulsive behaviour. In this study, interventions are randomly distributed among 2,040 schools and 24 school managements. At school level, the interventions involve one of three methods: 1) identification of pupils with ADHD-like behaviour, 2) dissemination of evidence-based advice to teachers about how best to teach pupils with this type of impairment or 3) a combination of 1) and 2). At the level of school management, the interventions provide evidence-based advice to key persons about how best to teach pupils with ADHD. The school managements are divided into two groups; one group is only offered good advice while the other is offered good advice as well as a one-day conference.

The results indicate no intervention effect at the level of school management. At school level, the evidence-based advice generated a minor positive effect two years later regarding: 1) the attitude of pupils with ADHD symptoms, 2) the behaviour of pupils with ADHD symptoms and 3) the teachers' quality of life. Simply identifying pupils with ADHD-like symptoms generates no effect. A combination of screening pupils for ADHD-like symptoms and offering evidence-based advice about how best to teach these pupils has a positive effect on the reading progress of all the pupils, but a negative effect on the scholastic development of pupils with ADHD-like symptoms. It is concluded that identifying pupils with ADHD-like symptoms has a negative effect on their scholastic development. Offering research-based advice to teachers has a minor positive effect but it is a low-cost intervention. Thus, the study recommends evidence-based advice to teachers about ways to work with inattentive, hyperactive and impulsive pupils in the first years of school.

Two of the studies examine the effect on pupils, who learn to apply certain, concrete strategies during class.

Harris et al. (2005) investigate whether registration of attention and work effort and concretely practice spelling with six ADHD pupils, who are included in mainstream education, influence their ability to stay focused. It proves to have a positive effect on their ability to stay focused and on the work effort when the pupils use self-registration for attention and work effort. *Mitchem (2001)* studies self-management interventions in connection with an experimental study. The study tests the implementation and evaluation of the classroom-based programme *CWPASM*, which is a peer-assisted self-management tool, in three 7th grade classes at one school. A total of ten pupils at risk of developing behavioural disorders attend these classes. Before the implementation of the intervention all pupils and teachers attend a course with instruction on how to implement the intervention. The study finds that the teachers and pupils can implement the effort very accurately and that the programme has a positive effect on the classroom environment. Inappropriate behaviour and scholastic achievements are improved in all of the ten pupils.

Three studies investigate the effect on pupils' development when they work in teams assisted by resource persons.

Anderson's (2011) longitudinal study investigates whether 365 pupils with emotional and behavioural disorders, who function poorly in school, behave in a more suitable manner when they are part of a team that involves family, friends and professionals (i.e. a consultant, school nurse, psychologist, social worker, teacher and special needs teacher), who collaborate in establishing objectives for the individual pupil. The study rests on the hypothesis that improvement in how the pupil functions at school is connected with improvements in the pupil. The outcome of the study confirms the hypothesis that the pupils will function significantly better in school from the beginning of the intervention and up to 36 months after the intervention has ended. The results also point to a significant correlation between reduction in the pupil's socio-emotional difficulties and improvements in how s/he functions generally, even after correcting for time. The study concludes that in spite of the limited knowledge about the connection between thriving in school and socio-emotional improvements, the results suggest an interdependence, which deems it essential to focus efforts on both scholastic and socio-emotional challenges simultaneously. Another finding in this study is that the intervention has the greatest effect on the youngest pupils. The researchers explain this by the fact that, compared to the older pupils, the youngest pupils and their families have had fewer negative experiences with the school, wherefore they have a more positive attitude towards the school.

In a study by *Heath et al. (2004)*, the authors investigate the effect of a systematic model that is applied in some schools in Canada with the aim of including pupils with mild to serious emotional and behavioural difficulties in mainstream education. 36 pupils from two basic schools participate in the study. The intervention "The Family School Support Treatment Team" (FSSTT) seeks to implement changes that allow pupils with problematic behaviour to be included. The team consists of teachers, behaviour specialists, psychologists, child development specialists, team co-ordinators and psychiatrists, who work together to ensure that pupils with emotional and behavioural difficulties receive support in class from a consultative, systematically advisory approach. In order to evaluate the effect of the team model on the pupils with emotional and behavioural difficulties, each pupil is assessed twice in a year. The outcome of the assessments is compared to maladjusted pupils attending special needs offers in which the team model is not employed.

The results show that pupils who were fully included at schools that worked with the systematic team approach performed on a par with peers in special needs offers. A positive effect on the included pupils is that they feel less depressed, become better at expressing their feelings and demonstrate significant behavioural improvement. Nevertheless, the teachers of the included pupils find that they seem to have more depressive symptoms. One explanation may be that as the teachers have acquired a better understanding of the pupils' difficulties they are more aware of the symptoms. The parents of the included pupils develop a notably more positive view on their children. In terms of scholastic development, the included pupils make progress on a par with pupils in special needs offers. A negative effect on the included pupils is that to an increasing degree during the school year, they exhibit undesireable behaviour toward the pupils in special needs offers.

The study by *Gibb et al. (1999)* investigates the impact of the inclusive classroom on pupils with emotional and behavioural difficulties in terms of scholastic achievements, social skills and acceptance among classmates. The study centres around 14 pupils, who are fully included in the local school. The 14 pupils are taught in classes by a team of the subject teacher, a special needs teacher and a BCW-teacher (i.e. a

Behaviour, Contact and Well-being teacher), who work directly with the pupils. The BCW-teacher assists the special needs pupils by following them to class, teaching them, providing general support in class or help solve homework, help taking notes and by helping the pupils acquire a more suitable classroom behaviour. The intervention has a positive effect: The teachers find it possible to include the special needs pupils, the special needs teachers and the BCW-teacher find that the pupils progress more in the mainstream class and the special needs pupils feel that the intervention has helped them adjust their behaviour. They become more self-confident both academically and socially. At the same time, the mainstream pupils do not think the teaching is different from before the intervention.

The results also show that the presence of the special needs teacher and the BCW-teacher in the class is decisive for the special needs pupils to benefit from the mainstream teaching. The mainstream pupils also experience that their presence supports them. A prerequisite for the positive intervention effect is that curriculum, at all times, is adapted to the preconditions of the special needs pupils.

Another result is that the teachers express a lack of in-service training or other types of courses about ways to teach pupils with special needs. Moreover, the teachers respond that the intervention will not work if the BCW-teacher is not a part of it. The special needs teachers stress that the intervention requires time for daily meetings so the teachers, special needs teacher and BCW-teachers can coordinate their work.

Two of the studies also look at how identification of curriculum-related difficulties influence pupils' disruptive behaviour.

A study by *Burke et al. (2003)* investigates the effect of "Functional Behavioural Assessment" of a 3rd grade pupil with reading difficulties and behavioural problems. To conduct a functional analysis is to identify relations between the pupil's problematic behaviour and the type of subject-related tasks that are presented during the reading instruction. The study poses two questions: (a) Does a functional relation between the demands of the reading tasks (decoding vs. understanding) and appropriate participation in the tasks exist? (b) Does a functional relation between vocabulary teaching prior to presentation of reading comprehension tasks and appropriate involvement in the reading comprehension tasks exist? This study is a case study with baseline and post-project measurements of effects. The authors analyse the pupil's ability to focus and how they behave while solving different tasks. The results show that the pupil's ability to focus while solving tasks is increased and the problematic behaviour is reduced when the pupil is supported. The results support the use of behavioural assessments when planning and organizing the teaching so as to improve the outcome of the teaching for pupils, who exhibit undesireable behaviour during class.

Lane et al. (2008) also investigate the effect of a subject-related intervention, which also involves a model for positive behavioural support targeting six pupils in 2nd grade. The pupils are at risk of developing behavioural difficulties and writing difficulties. They are taught how to plan and write a draft of a story by using a certain model, i.e. the Self-Regulated Strategy Development Model. The results reveal lasting improvements in all of the six pupils regarding ability to finish writing stories and ability to write stories of appropriate length and quality. Teachers, as well as pupils, consider the intervention positive.

In *McIntosh et al. (2008)* the authors investigate the connection between problematic behaviour and reading skills across mainstream schools and special needs schools. 51 pupils in 4th to 6th grade take part in the study. 20 of the pupils attend special needs schools and 31 attend mainstream schools. All of the pupils have received disciplinary warnings due to bad behaviour, and about half of them suffer from actual

behavioural disorders. The study looks at statistical correlations between class grade, type of school and type of behavioural problem for the pupils' reading scores. The study is based on a three-year longitudinal sample from 2001-2004. The results show that pupils who incur pupil attention are more fluent readers. Pupils who avoid school tasks are the least fluent readers. The low reading level continues throughout the school years, and in addition to falling behind the pupils gradually become deviant. The analyses confirm that the pupils different literacy levels indicate significant differences in the pupils; differences that are that connected to the type of problematic behaviour. The study concludes that pupils with various types of problematic behaviour can be included in mainstream education provided the scholastic challenges are adapted to these pupils. It affects the pupils' behaviour and learning positively when they can manage the tasks they are given.

11.2.4 Summary of intervention initiatives targeting pupils with ADHD/ADHD-like behaviour/socio-emotional difficulties

Inclusion efforts targeting pupils with ADHD/ADHD-like behaviour and socio-emotional difficulties have a positive effect on inclusion of this group of pupils in mainstream education when:

- positive behavioural support is provided
- the teacher has knowledge of evidence-based teaching methods that benefit pupils with ADHD
- pupils and teachers are in close contact
- there is knowledge of evidence-based advice
- the pupils learn to use self-registration interventions
- pupils and teachers collectively implement interventions and when the work has a positive effect on the classroom environment
- the pupils have precise learning objectives
- collaboration between teachers and resource persons is structured
- the intervention targets younger pupils
- BCW-teachers and special needs educators are present during teaching
- curriculum/tasks are adapted to the individual pupil.

Inclusion efforts targeting pupils with ADHD/ADHD-like behaviour and socio-emotional difficulties have a negative or no effect on inclusion of this group of pupils in mainstream education when:

- interventions are not evidence-based and do not seek to promote the pupils' scholastic development
- teachers lack knowledge of strategies and methods that directly affect pupil behaviour and scholastic development
- the effort is implemented late, at which point the pupil may already feel socially and academically stigmatized
- the pupils are defined as problematic
- the teachers have not received instruction/in-service training in the intervention prior to its implementation
- the pupil is not offered scholastic and social support at the same time
- the pupil does not receive continuous support and action plans for the teaching throughout the school year
- curriculum/tasks are not adapted to the pupil.

11.3 Direction and strength of the studied effects

The third element in the narrative synthesis is an outline of the factors, across the reviewed studies, that can explain variations in direction and strength of the studied effects; i.e. questions concerning the internal and external validity of the synthesis. The narrative synthesis also concerns the reasons why a certain initiative generates no effect, whether certain factors have an impact on and can clarify how or what strengthens or weakens an effect in a given context. The programme theory (Figure 4-3, p. 62) states that the direction of an effect runs from the intervention, i.e. the intervention effort, to the produced effect on pupils' social and scholastic development. At the same time, it is also emphasized that this is not an isolated movement, rather it is context dependent. The following section will deal with the direction and strength, as well as contextual connection, of the studied effects.

11.3.1   Direction and strength of effect

The studies in our systematic review investigate the effect of inclusion initiatives targeting *one* or more of the two synthesis categories: school and pupils. As previously mentioned, the term "inclusion initiative" was selected to illustrate the many different approaches to inclusion. Many of the above-mentioned studies have examined the effect of the same inclusion initiative. The conclusion will clarify what we can learn from the analysed research about effective educational methods for including special needs pupils in mainstream education.

11.4 Conclusion

The purpose of the full systematic review and this excerpt is to provide an answer for the specific review question: *What is the effect of including children with special needs in mainstream teaching in basic school, and which of the applied educational methods have proved to have a positive effect?*

The aim is to clarify which methods the basic school can use to effectively include special needs children in mainstream education, and how these methods can be expected to influence the included children as well as the other children in a class. The conclusion offers a summary of the overall results, which have been extracted from the 43 studies included in the full review. The summary is based on the two categories in the synthesis: *inclusion initiatives targeting the school* and *inclusion initiatives targeting pupils.*

11.4.1   Inclusion initiatives targeting the school

The studies investigate special needs pupils' scholastic and social development in either inclusive education offers or special needs offers. Particularly two results emerge very clearly. When looking at special needs pupils' motivation for schoolwork and self-perception, the results shows that the older the pupils become the better they thrive in special needs offers, where they do not constantly feel less competent than their classmates.

The results concerning special needs pupils' scholastic development are, however, conflicting. Among the more striking cases we have the following example: One study finds that special needs pupils have a poorer scholastic development in special needs classes compared to peer pupils in mainstream classes, whereas another study finds no significant difference in the pupils' scholastic development regardless whether they are included in a mainstream school or attend special needs education offers. A third study finds that special needs pupils who attend special needs schools underestimate their learning difficulties, which may make them less motivated to try to overcome these learning difficulties

These results indicate that we cannot unequivocally conclude which school offer has the greatest effect on the scholastic and social development of special needs pupils. The effect depends on the pupils' age and the type of competence the studies deem important.

The results do show that the mainstream pupils' scholastic and social development is not affected negatively when special needs pupils are included in the mainstream classroom.

Another important result is that a positive development of the special needs pupils' scholastic and social skills depends on whether the school has an overall objective for, and positive attitude to, inclusion of special needs pupils in the school. Teachers with a negative attitude to inclusion of special needs pupils have a negative effect on special needs pupils' scholastic development. And as a consequence, the special needs pupils may become stigmatized by their mainstream classmates.

Explicit goals for and a clear structure of inclusion efforts targeting special needs pupils are thus essential. The results reveal that it has a positive effect on the pupils' level of activity, scholastic development, self-esteem and self-confidence toward peers when they have explicit, individual learning objectives, as it allows them to keep track of own progress. Access to resource persons (i.e. managers, psychologists,

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consultants and parents) is decisive if the teachers are to feel competent establishing these objectives and managing teaching special needs pupils.

Regarding the two-teacher arrangements, several of the studies find that the presence of two teachers during class has a positive effect on all the pupils, if the two teachers are a general educator and a special needs educator. This is important because knowledge of and strategies for teaching special needs pupils are crucial. The studies emphasize the importance that the educators received instruction/in-service training in collaborative teaching. The results show that two-teacher arrangements, in which the involved parties have no knowledge of collaborative teaching, have a negative or no effect on the pupils.

A similar pattern can be seen in the studies that investigate effects of using teacher assistants. Teacher assistants have a positive effect on all pupils when they are trained to deliver a specific intervention and when their role/function during class is defined and planned in advance.

It goes for the use of both two-teacher arrangements and teacher assistants that without concrete instruction/in-service training about their roles and functions, the initiatives may have a stigmatizing impact on the special needs pupils.

11.4.2   Inclusion initiatives targeting pupils

Results from several of the studies show that peer tutoring can be an effective strategy for including special needs pupils in mainstream education, and that this method can have a positive effect on all the pupils in the class. Many of the studies emphasize the importance that teachers know which peer tutoring programmes have evidence for a positive effect, and that they have access to material/resource persons, who can guarantee the intervention is correctly implemented. The results also show that it has a negative or no effect on all pupils in a class when peer tutoring is implemented at the expense of curriculum-related teaching and learning.

In terms of including pupils with ADHD/ADHD-like behaviour and socio-emotional difficulties, the studies find positive effects when the teachers have knowledge of evidence-based teaching methods and intervention efforts that specifically benefit pupils with these types of difficulties. An effective intervention initiative is to teach the pupils to use self-registration interventions, as it gradually enables them adjust their own behaviour. Moreover, the interventions must focus on the pupils' scholastic development. Access to resource persons, such as BCW-teachers and special needs educators, both in and outside class, is also emphasized as a crucial factor in several of the study results.

The outcome of the synthesis thus suggests that it is possible to include special needs pupils in mainstream education and that inclusion can have a positive effect on all the pupils' scholastic and social development. Based on the presented study results we can generally summarize that successful inclusion requires instruction/in-service training of teachers in intervention initiatives that target pupils with special needs, access to resource persons who can supervise and offer direct support during teaching and knowledge of evidence-based teaching methods and intervention initiatives that target special needs pupils.

5. The current, best knowledge

Danish Clearinghouse for Educational Research was established in 2006, with the continued aim of enhancing the applicability of educational research. This is achieved by drawing on existing research. Clearinghouse helps to ensure that politicians and practitioners have access to reliable, informed knowledge about upbringing, teaching and education that can be used in practice and policymaking.

In addition, Clearinghouse helps research environments gain a greater and more reliable overview of existing research. The task is to provide politicians, practitioners and researchers with the current best knowledge.

Clearinghouse is a centre that sheds light on issues relating to practice, policy or research policy by studying existing primary research.

Clearinghouse engages in six fundamental activities:

Collecting. Clearinghouse systematically collects information, in principle, about any research that can shed light on a certain "review question".

Building a library. Clearinghouse collects, classifies and stores research information over a longer period of time in a library. In this way, potential users have access to a systematic overview of information that would otherwise be dispersed.

Quality assessment. Clearinghouse always makes quality assessments in cooperation with leading researchers in the given field and can therefore guarantee the quality of the research used to clarify a review question.

Extraction and description. Clearinghouse extracts key data and results for each individual research publication and groups these in one document, in order to enhance clarity and transparency for the users.

Synthesis. Synthesis involves working up the individual conclusions to a general conclusion, recommendation, model or similar result across the individual studies.

Distribution. Clearinghouse actively strives to disseminate relevant knowledge of national and international research results.

Each of the six activities can be seen as an independent step, but steps cannot be bypassed, for example, by jumping directly from collection to synthesis. However, it is possible to "step off" after each of the six steps. Continuing through all the steps to the synthesis corresponds to carrying out a fully systematic review. The present study of inclusion is an example of a fully systematic review.

The working process of the systematic review

On the one hand, a systematic review provides knowledge of how previous research has handled a given issue. On the other hand, it collects all the knowledge that can be extracted from existing research results.

The working process of a systematic review begins by clarifying the specific question to be answered, a description of the search strategy, screening criteria, data extraction and synthesis method.

Next step is to form a review group with researchers with special knowledge of the particular question to be answered. Then the search for studies is initiated and when complete, Clearinghouse screens the identified studies according to relevance for the review question.

Together with the Clearinghouse the review group of researchers assess the results and sort the studies according to research quality. Moreover, an extraction of data from the selected studies is made and the result of the study is synthesised. The review process leads to a written report prepared by the review group with support from Clearinghouse. The report will form the basis for a subsequent communication strategy.

Learn more about the working process at:

http://edu.au.dk/en/research/research-areas/danish-clearinghouse-for-educational-research/

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