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Interventions for school engagement among children displaying behaviour problems

A systematic literature review

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ABSTRACT

Children with behaviour problems tend to be more unengaged and low-achieving at school than children without behaviour difficulties. This systematic literature review is highlighting the meaning of intervention to support children towards the school engagement. The interventions for decreasing behaviour problems, is seen as a facilitator to be engaged. The school engagement will lead to an academic achievement at school. Early engagement has impact for longer in future in child's life. The engagement in kindergarten has influence in primary school engagement and achievement. Therefore, intervening in early age to support children at-risk, will lead to better possibilities in learning. The risk factors can be child's socioeconomical status, race, disability and parent's low involvement in the school settings. Behaviour problem has pointed out to be hindering factor for the school engagement and this means missed opportunities in learning. This might lead even more disruptive behaviour. That kind of behaviour is challenging for the whole classroom, since it affects on everyone's learning. Teacher's attitudes manifest the self-worthiness in students. Supportive and friendly environment at school embraces the participation to the school settings. Especially, children from low socioeconomical families tend to score lower at school. These children need more intervening from the teacher to cultivate the school engagement. This systematic review analysed the data from 14 different articles from Europe, USA and Australia.

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1   Introduction

Children are the essence of a healthy and sustainable society. The way society treats its youngest members has a significant influence on how children are seen by the others and how they will grow up in that environment. On the other hand, not all children have the same opportunities in life. Thus, the sociological, biological and physical reasons affect the outcome. Therefore, the mission of early childhood intervention is to narrow down this gap of segregation by helping and supporting the children in need of support (Meisels & Shonkoff, 2002).

In this thesis, the focus is on improving children's engagement in school settings, finding the tools for supporting children with behaviour problems at school. School engagement is seen mutually to improve student's educational outcomes. Therefore, with the help of interventions the student's full capacity could be used in the school world (Appleton, Christenson & Furlong, 2008).

Engaged students earn higher grades, perform better on tests, and have lower dropout rates. Students with lower levels of engagement are at risk for negative outcomes such as lack of attendance, disruptive classroom behaviour and school drop outs (Klem & Connell, 2004). This systematic literary review is investigating different interventions, which have been successful among the children with behaviour problems and improved their school engagement, which has also influences their academic success. The reason why there should be interventions to improve students' engagement at school is clear. Engaged children are empowered and it will lead to the desired academic achievements (Appleton, et al., 2006).

This systematic literature review provides knowledge about planning the interventions for children with behaviour problem to increase their engagement in the school settings. It also reports the possible risk factors, which might hinder children's school engagement.

2 Background

The thesis describes the results from a systematic literature review on interventions to improve the school engagement among children displaying behaviour problems at school settings. The thesis will define school engagement and what it needs for achieving it. It also labels the behaviour challenges children might face in school settings and the risk factors, which might lead to behaviour difficulties. This thesis is investigating children in age of seven to ten years-old in primary education. The cap between the entrance age to Primary or Elementary School differs from 5 to 7 years old depending on the country (Unesco Institute of Statistics, 2017).

2.1 The developmental expectation of being a student

Children at school are confronted with significant behavioural, affective and cognitive challenges, like learning new skills and maintaining the peer-relations. Adapting to a new environment, including the new classroom after preschool and to new teacher can be confrontational. The demands of achieving in academically at school settings differs from preschool demands as well, which can be considered part of the new learning experience. Students are expected to be involved and participate in the activities, follow the instructions the teacher is giving, pay attention and be organized during the lessons. It is a lot to ask from a child, who is just learning and developing the skills of how to be a student in general and how to be an active participator and show interest during the lessons, while you also must listen carefully and focus on the subject of matter. Children's ability to respond to these behavioural, affective and cognitive demands vary significantly from child to child due to their developmental or/and environmental differences (Ladd, Buhs, & Seid, 2000).

2.2 School engagement

School engagement is seen as a commitment in learning and participating in school settings. It is appealing and a matter to achieve for. Academic achievement is seen as an outcome of school engagement, which makes it even more desirable. There are three types of engagement according to Fredricks, Blumenfeld & Paris, (2004); behavioural engagement, emotional engagement and cognitive engagement.

Motivation is central for understanding the term of engagement. Engagement can change while its interacting with other variables like in the figure 1. This figure gives a good understanding of the demands of engagement and the outcomes of it (Appleton, Christenson & Furlong, 2008).

Engagement in general, is seen especially helpful as a framework for preventing school dropout and promoting school completion, even more so for apathetic learners who do not see the relevance or value of school or discouraged learners who have experienced extreme frustration trying to perform better and now lack confidence as a learner (Fredricks, et al., (2004).

2.1.1 Different engagement aspects in school settings

Behavioural engagement is simply achieving your goals, doing the tasks and following the rules at school (Fredricks, et.al., 2004). It also refers to the actions student do and how the student performs at school. Attending class and extracurricular activities is also part of behavioural engagement in school settings (Pears, Kim, Fisher & Yoerger, 2013). Emotional engagement is more about putting value on your tasks and identifying oneself as a student. It is more related to student's attitudes towards the school settings (Fredricks, et.al., 2004). It is the students' feelings towards being at school and how they feel connected to the school, peers and teachers (Pears, Kim, Fisher & Yoerger, 2013).

Cognitive engagement includes problem solving, fondness for hard work, and positive coping in the face of difficulties. A student, who is motivated to learn is inspired to gain more knowledge in learning situations. Also, students who are cognitively engaged are focused on learning, understanding the subject and not intimidated of challenges. The learning literature defines cognitive engagement as being strategic or self-regulating. Cognitively engaged or self-regulated students use metacognitive strategies to plan, reflect and estimate their cognition when finishing the tasks. These students use learning strategies, such as rehearsal, summarizing, and explanations and memorizing (Fredricks, et al., (2004).

2.1.2 Environmental factors of school engagement

Engagement leads to positive academic outcomes and environment has a great influence on the school engagement. Therefore, engagement is seen in classrooms involving supportive teachers and peers, but also challenges for learning and children can feel that they have an influence on the school settings (Fredricks, et al., (2004).

The role of school, family and the peers predict and facilitate school engagement. Those indicators make student feel connected with school and learning. These factors are contextual. Thus, the school discipline practises, parent's activity of supervising the homework and peer's attitudes toward academic achievements makes it differ from school to school. Therefore, the connection with environment could also hinder the engagement at school (Appleton, Christenson & Furlong, 2008).

2.1.3 Academic achievement

Like previously mentioned positive academic outcomes are the influence of engagement. Thus, the use of self-regulating, paying attention and building the new information on top of the existing knowledge and reflecting it, is the key for succeeding academically. Student's engagement consists of the participation in the classroom, social bonds and different activities inside of school settings. Using interventions to nurture the school engagement, has had positive outcomes on academic achievement and prevents school drop outs

(Fredricks, et.al., 2004). Therefore, it is not overexaggerated to say that interventions which amplify school engagement among children displaying behaviour difficulties, are meaningful for our society to have more integrated members in the future. The school drop-outs might hinder this integration process.

2.4 Risk factors for students

Family factors like low socioeconomical status, family income, mental health problems, disability, parent's involvement in their child's school settings, parenting style race and ethnicity. In USA, the children with English as their second language has greater risk to be less engaged in the school settings. Without early intervention it might lead to later negative outcomes, such as low academic achievement. Intervening early is the main factor. Especially among children, which has several risk factors in their lives (Hendricker & Reinke, 2017).

2.5 Children in need of special support

The Convention of the rights of the child (1989) says that a child in need of special support should be able to enjoy a full and decent life. Which means that the child should be an active participator in their communities and they have the right to education (CNCR, 1989). Children have the right to attend school. But being engaged in school settings in the matter of learning new skills, might need intervention for functioning.

The National Council for Special Education (NCSE) in Ireland, favours that as well. Their principle is that children and adults with special educational needs get support to achieve their potential. That means children should be able to enrol in their local schools and they should be provided with educational support they need. It should in hold individualised assessments and resources to improve the learning outcomes, but also the role of the parents should be take into consideration (National Council for Special Education, 2013).

2.1.4 Behaviour difficulties

Self-regulation means children's ability to control their thoughts, emotions and behaviour in different situations. It includes stopping unwanted behaviours, using working memory – such as remembering given instructions and keeping the focus (Cadima, Verschueren, Leal, & Guedes, 2015). When lacking the self-regulation skills, the person might behave inappropriately.

Problem behaviour is linked to negative outcomes, such as segregation, not achieving academically and discipline. Previous research shows that this kind of behaviour is more likely to increase in the absence of needed interventions (Turan, Erbas, Ozkan & Kurkuoglu, 2009).

In Lyons's & O'Connor's (2006) research these problems were termed as a 'challenging behaviour', 'problem behaviour' and 'antisocial behaviour'. These behaviours by children are causing difficulties in their

everyday life. In educational and psychological settings, they are referred to as 'emotional and behavioural difficulties', which include various of different behavioural difficulties underneath the term. Different behavioural dimensions in the classroom are; task-based behaviour, interaction with peer and with teachers and the general state of the child – his or her mood, for example nervousness. Behavioural problems are considered undesirable and disruptive and the reasons are often seen as the fault of the individual or their background, but it can also be contextual (Lyons & O'Connor, 2006).

Externalizing behaviour problems are considered hyperactivity, antisocial behaviour and aggression towards others. It could also lead to wider problems in the future, like drug abuse, vandalism and stealing. Boys tend to demonstrate more externalizing behaviour than girls in general (Campbell, Shaw & Gilliom, 2000). Disruptive behaviour has similar aspects, such as teasing, talking out without permission, getting out of one's seat and disturbing others in the classroom (Kaplan, Gheen & Midgley, 2002).

On the other hand, girls express internalizing problems more than boys. It can include depression, shyness, fearfulness and withdrawal behaviour. It has discussed that girls are more responsive for their parents or kindergarten teacher's socialization efforts; hence girls tend to develop language skills and empathic behaviour earlier than boys. It means that girls learn in early age to self-regulate themselves (Baillargeon, Zoccolillo, Keenan, Côté, Pérusse, Wu, Boivin & Tremblay, 2007)

2.4 Interventions for behaviour problems

Intervention in this context means the actions towards encouraging the child to be engaged at school settings and helping to solve the behavioural difficulties the child is having, but also about providing the support the child needs against the unpleasant outcome, which she or he might face without the intervention (Dunst & Trivette, 2009).

Emde and Robinson's (2002) article Guiding Principles for a Theory of Early Intervention concretized the main focuses of interventions for the age of 7 to 10 years. The different dimensions at school, for the 7 years old to 10 years old is to prevent detention, referral to special education and, disruptive behaviours and disorders. For promoting factors, the focus was on school engagement and positive peer relation (Emde, Robinson & Zigler, 2002).

Mark Wolery's article about Behavioral and Educational approaches (2002), highlighted the interventions effecting on behavioural challenges among children. Wolery (2002) gave some examples of the interventions, which demonstrates the educationally oriented interventions well. There were two types; positive practise, which supported the child towards good behaviour. In his example the child had thrown a wooden block aggressively – instead of punishing the child, the interventionist could make the child build with the wooden blocks for an amount of time. The second type was Restitution, which was more about the environment. On his example, the child has taken a toy from someone else, instead of punishing the child, the

interventionist requires the child to give two or three toys back to the child he or she has taken a toy from (Wolery, 2002).

In the research about Positive Behavioural Interventions from USA has pointed out that the school staff and other participants, must view intervention as a solution to the problem in the school settings. If they are not willing to take actions to be engaged to the intervention, then the interventions will have a small chance to reach the goal and have the wanted outcome (Anello, Weist, Eber, Barrett, Cashman, Rosser & Bazyk, 2016).

Icelandic study shows the power of the interventions. According to them, students changes their problem behaviours. Furthermore, their academic engagement was reflected on the graduating student's capability to implement on Functional Behaviour assessments (FBA) and Behaviour Support Plan (BSP) successfully. Participants were mainly male students and most of them had had a long history of behaviour difficulties. Before interventions the students were observed, and they were showing around 15 examples of disruptive behaviour during the observation, which lasted only 20 minutes. Then after the intervention only 3-4 disruptive behaviours were shown, which is considered quite typical amount of problem actions among the youngest students. The study also measured task-engagement and it increased from 41% and after the intervention to 76%, during the 20-minute observations. Also, the aggressive behaviour during the class decreased from five occasions to less than one per observation (Pétursdóttir, 2017).

2.1.5   The history of interventions in education

The Early Childhood Intervention (2002) article identifies three historical periods among children with special needs. First one is "Forget and Hide", when children with physical or intellectual disabilities were kept out from public places. Second one was "Screen and Segregate" which was set in 1950 to 1960. Children were labeled and tested, but also segregated from the society. Third period was "Identify and Help". In the 1970's it was marked to provide intervention services to the children with special needs and as early as possible. The last one is to describe the current state of interventions. It is called "Educate and Include", which beholds intervening and preventing work, but also integrating children with special needs and empowering them (Meisels, Shonkoff & Zigler, 2002).

2.5 ICF-CY

The ICF-CY can be used as a framework to receive more holistic approach of the child's functioning. It is also used as a common language between different professionals (clinicians, educators, policy-makers, consumers and researchers) and family members. It describes the health in a multidimensional way and gives a broad understanding on health components and how it effects child's functioning in its everyday life (World Health Organization, 2007). ICF-CY points out the barriers and facilitators a child might be involved in through its body functioning or body structures. The activity and participation levels in child's life, the environmental and personal factors are influencing on the everyday functioning in child's life (Adolfsson, Malmqvist, Pless & Grandlund, 2011).

This model and classification was chosen for this systematic literature review; enabling an individual and contextual approach. The categories will be presented clearly in Table 1.

Table 1

The components and definitions of ICF-CY. It is adapted by the author, based on World Health Organisation (2007).

Components	Definition
Body Functions	are the physiological and psychological functions of body systems.
Body Structures	are anatomical parts of the body such as organs, limbs and their components.
Activity	is the completing of the task or an action.
Participation	is involvement in a life situation.
Personal Factors	race, age, health conditions, fitness, lifestyle, habits, upbringing, coping styles, social background, education, profession, past and current experience, overall behaviour pattern and character style and individual psychological assets.
Environmental Factors	make up the physical, social and attitudinal environment in which people live and conduct their lives, barriers and facilitators (risk factors hinder the everyday life functioning).

2.6 Rationale

At school, how the teachers approach the child is one of the main aspect in the school environment – seeing the child behind the stigma and trying to see the child underneath all the problems. As a teacher – you cannot underestimate your influence on the child. Teachers attitude can work as a facilitator in child's environment. Interventions for problem behaviour at the school settings, will support school engagement and that will eventually lead to academic achievement. While planning the intervention, it is important to take different context in child's everyday functioning on consideration. Families should be part of the planning since they may have different concerns at home than at school settings. ICF-CY -framework makes family more involved to the intervention process, which facilitates the successfulness in child's functioning in different context's, like home and school (Adolfsson, Grandlund, Björck-Åkesson, Ibragimova & Pless, 2010). The aim of this thesis is to find the features of the interventions and describe them. The risk factors for poor engagement will be delineated.

3   Aim and Research Questions

The aim of this thesis is to provide knowledge, how to improve school engagement among the children with behaviour problems. The hypothesis is that children with behaviour problems can be engaged in school settings with the help of interventions and achieve academically, when receiving the right support.

The aim is to highlight the importance of interventions, which will support the engagement in school settings, which leads to a better academic achievement. Risk factors which hinders school engagement will also be declared.

- What characteristics are in the interventions to improve school engagement among children with behavioural problems?
- How is the relationship between school engagement and academic achievement of children with behaviour problems described in articles about interventions purposing to improve the children's engagement?

4 Method

In this method section the process of the systematic literature review will be introduced. Systematic literature review summarises the evidence related to the topic. It analyses the previous research critically and highlights the gaps in the field, which would need more conducted research (Liberati, 2009).

This chapter includes search strategies, which included five databases to give more diverse picture of the interventions for school engagement. Selection criteria explains why certain articles were included to this systematic literature review and some were excluded. Selection processes shows the data collecting process step by step. It has a figure, which reports authors progression from collecting data to actual results. The quality assessment conducted the trustworthiness of this systematic review. The scoring is seen in Appendix B. The final step was data analysis of this review. It will explain content analysis for the reader and how it was used due to the systematic literature review.

4.1 Search strategy

The first database, which were used to collect data, was ERIC. The process will be explained step by step in this section and also Table 2 will concrete the search strategy process. It will be seen end of this chapter.

The used search criteria for databases ERIC and PsychINFO were; Behaviour problems AND primary school AND school engagement AND intervention. ERIC gave 35 hits and PsychINFO 91 hits. Peer-reviewed was chosen to be one of the search strategy, which narrowed down the hits in ERIC from 35 to 24 and in PsychINFO from 91 to 68. In the PsychINFO -database the topic was narrowed even more greatly, since the part of the articles were about adolescence, which were not the target group. The search was narrowed to school age 6-12 years, which was an ready-made option in the database and it gave 24 articles. In PsychInfo the articles were from year 2007 to 2018.

On EmeraldOnSight following search criteria were used; School engagement AND academic achievement AND behaviour problems AND intervention AND primary school. The search offered significant amount of hits. Therefore, school engagement was chosen to be the keyword. This change diminished the results to 4.

Web of Science -database gave 8 as a result, after the search criteria and narrowing it down. School engagement OR academic achievement OR on-task behaviour AND elementary school OR primary school OR compulsory school AND intervention AND behaviour problem OR behaviour difficulty AND first grade AND second grade AND third grade were chosen to be the search criteria. Only years 2008 to 2018 were included. Document types were chosen to be articles and category from the database was Education Educational Research. Highly Cited in the Field was also one category, as well as open access. These resulted in 8 articles and from those, two of them were used in this systematic literature review.

In Science Direct the criteria, behaviour problems OR behaviour difficulties AND intervention AND primary school OR elementary school OR compulsory school AND school engagement OR on task behaviour, were used. It gave 639 hits and they were added to full text review with covidence.com. Covidence.com (n.d) excluded plenty and gave 25 articles. From those 25 articles, only two were used in the end. The amount of hits Science Direct gave, was the reason why Covidence.com was used to exclude the unsuitable articles. It uses the search criteria as a tool to exclude, if they are not mentioned in the articles. Other databases were investigated manually by the author.

Table 2

Search criteria for the databases

Database	Key words and the strings of the search
ERIC	*Behaviour problems*
	AND *Primary school*
	AND *School engagement*
	AND *Intervention*
PsychINFO	*Behaviour problems*
	AND *Primary school*
	AND *School Engagement*
	AND *Intervention*
EmeraldOnSight	*School engagement*
	AND *Academic achievement*
	AND *Behaviour problems*
	AND *Intervention*
	AND *Primary school*
Web Of Science	*School engagement* OR *Academic achievement* OR *On-task behaviour*
	AND *Elementary school* OR *Primary school* OR *Compulsory school*
	AND *Intervention*
	AND *Behaviour problem* OR *Behaviour difficulty*
	AND *First grade*
	AND *Second grade*
	AND *Third grade*
Science Direct	*Behaviour problem* OR *Behaviour difficulty*
	AND *Intervention*
	AND *Primary school* OR *Compulsory school*
	AND *School engagement* OR *On task behaviour*

4.2 Selection criteria

The selection criteria were that the studies are peer-reviewed, written in English and published in year of 2000 or later. School engagement is the main focus in this research, but academic achievement was also added, since it is an outcome of school engagement. The original plan was to limit the search to 7 to 10 years-old children in primary school, since in this age children start to study in school and therefore, school engagement is meaningful matter. Since the studies included preschool and its affect on learning in primary school, those articles were also added. Learning starts in the children's early age and it has an impact on the engagement in school settings later on. Some of the articles did not examinee interventions and were only having a strong theoretical point of view. It differs on the articles, wether they were included or excluded because of this. Some studies thar focused on the teacher's viewpoint were excluded. Some of them were not, since they had solid information about teacher's responsibility on children's engagement in school.

The inclusion and exclusion words for the systematic literature review will be described in detail in the table 3 below.

Table 3.

Inclusion and exclusion criteria of the selected articles

	Inclusion	**Exclusion**
Population	Children in age of 7 to 10 years old	Toddlers, adolescents and adults were excluded
	Children with behaviour problems	Children with substance use problems and homeless children were excluded
Content	School engagement	Parental and teacher's engagement were excluded
	Intervention at School	Home intervention were excluded
	Participants from primary, elementary or compulsory schools.	Children just in kindergarten, high school and secondary school were excluded
Design	Empirical studies	Systematic literature reviews, literature studies, descriptive articles, book chapters, doctoral thesis, other literature
Publication type	Peer review article	Not peer reviewed
	Published in 2000 to 2018	Articles published before 2000
	Published in English	Not available in English
	Full text available for free	

4.4 Selection process

The selection process is explained in the Figure 1 below. It explains the data collection process and the steps of included articles for this systematic literature review. It shows how many hits author received from each database and how many were articles were excluded and which criteria's they were excluded from this study.
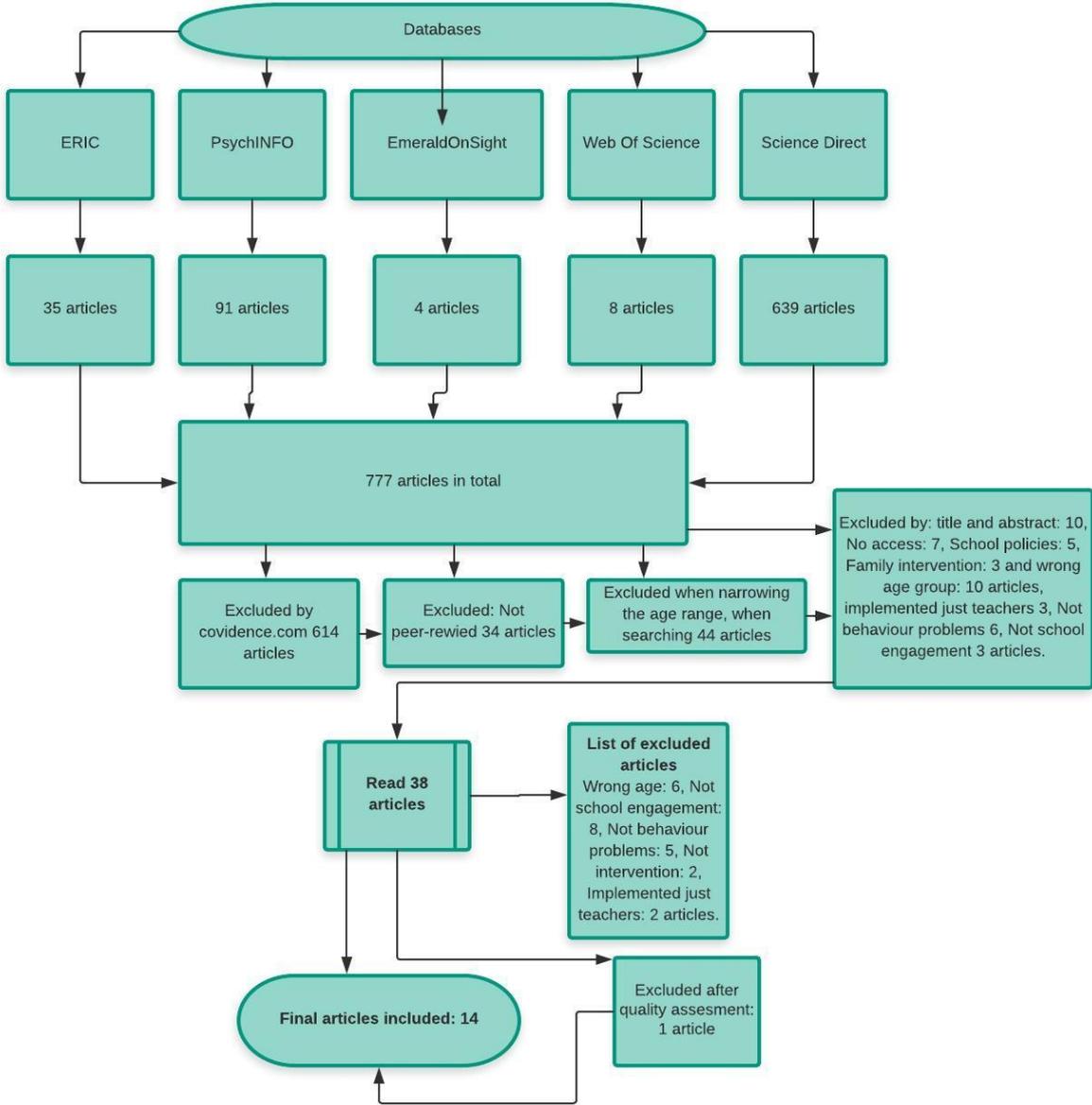

Figure 1. Flowchart of the selection process.

4.5 Quality assessment

To quality assessment tools were used to evaluate the quality of the chosen articles. The Critical Review Form (Law, Stewart, Pollock, Letts, Bosch & Westmoreland, 1998) and CASP Qualitative Checklist (Critical Appraisal Skills Programme, 2010) was combined to reach both qualitative and quantitative research. The Critical Review Form (1998) and CASP Qualitative Checklist (2010) were modified to fit better for interventions in school settings and it was combined in one protocol to fit to qualitative and quantitative studies. The full version of the Quality Assessment can be found in the Appendix A.

The highest score for quality was 17 points. High quality article was exposed, when it was equal or above the 75%. Medium quality article was when it gained between or equal to 75% and 50%. Those articles, which were below 50% scored low quality in the Quality Assessment. To reach 100% or 75% to get the high quality, needed to gain 17 to 14 points and to get medium quality, 75% to 50%, article needed to reach 14 to 8 points. To receive low quality on the quality assessment, article had less points than 8.

Out of 15 articles in this study, 6 articles were high quality. Highest rate was 99,83% from 100%. Medium quality expressed 8 articles and one article had a low quality. The article with low quality was excluded after quality assessment. Therefore, 14 articles were included for this systematic literature review. The Case Studies lowered the quality of this systematic literature review, but they were kept in the research, since they had other significant factors, like successful intervention and a holistic approach for interventions. Five articles from 14, were case studies and had from 1 participant to 5 participants exanimated. The table of qualities of the articles is seen in Appendix B.

4.6 Data analysis

Content analysis was used for the data analysis of the 14 articles. Content analysis is a tool for identifying, analysing and reporting themes in the data. It seeks for patterns and it gains an understanding about the phenomenon. Chosen themes are the key factors in the data and codes are the subheadings for the themes (Braun & Clarke, 2006). The content data analysis reports the information from the chosen articles. The themes and codes help to analyse the data due to the research questions. The coding gives the point of view for the data analyser since its structures the data collecting. The codes give more in-depth understanding and points out the differences and similarities of the chosen codes (Graneheim & Lundman, 2004).

This systematic literature review used three themes to analyse the data from the articles. The themes were based on the aim and research questions. First theme was: Interventions in school settings. This theme analysed the intervention in the articles. The second theme was school engagement related to academic

achievement, which measured the outcome of the successful engagement in school settings. The last theme was Risk factors related to ICF-CY. This theme consisted codes from ICF-CY.

Codes were; Body Functioning, Body Structures, Activity/Participation, Personal Factors and Environmental Factors. Body Functioning, Body Structures, Activity/Participation and Personal Factors are considered as individual factors in child's life and they are strongly related to child's life. Environmental factors on the other hand include services, systems, policies, attitudes, relationships and physical environment (WHO, 2007). These themes and codes were investigated from the articles. The detailed explanation of ICF-CY is found in Table 1, under the subheading ICF-CY. In the Result section, it will be shown in Protocol 1, which codes were discovered in the articles.

5   Results

The Results were collected from 14 articles from five different databases (ERIC, psychINFO, Web of Science, Science Direct and EmeraldOnSight). ICF-CY -framework was used as a theoretical approach for the thesis. Content analysis was used for analysing the collected data.

5.1 Characteristics of the interventions

14 articles included 5 case studies, which had participants from 1 to 5 children (Whitney, et.al., 2017; DeJager & Filter, 2015; Clegg, 2013; Lane, et.al., 2015; Rote & Dunstan, 2011). One was a qualitative study, with 24 participants (Hartman & Gresham, 2016). The rest of the articles were quantitative studies, which gives calculative and trustworthy image of the research, hence it is easy to repeat (Split, et.al., 2016; Willner, et.al., 2015; Archambault & Dupéré, 2017; Low, 2013; Kirby & DiPaola, 2010; Sektnan, et.al., 2010; Pakarinen, et.al., 2017; McClelland, et.al., 2013).

Some of the characteristics of the interventions were repeated in many studies in the research for this thesis. Mainly it was about the continue of the intervention. It had an impact, if the intervention had changed the environment for good, not just during the intervention and when evaluating it. In one case, the end of intervention had a turn back to what it was before for one student (DeJager & Filter, 2015). The case Sam had many failed interventions in the past, which have caused that the disruptive behaviour even increased (Rote & Dunstan, 2011).

Good Behaviour Game was amplified in two different interventions (Hartman & Gresham, 2016; Split, et.al., 2016) and both had the aim to prevent disruptive behaviour in the classroom. Difference was, that Spilt, Leflot, Onghena & Colpin (2016) had a Dutch version of the intervention. Therefore, they were just rewarding the good behaviour.

Step to Respect -intervention (Low, et.al., 2013) used teaching as a method to decrease bullying and promoting socially responsible norms and behaviour among the students. Whitney, et.al. (2017) had tailormade mathematic book for the lessons for children with behavioural difficulties and difficulties in mathematics. The book was more interactive, and it needed more involvement. It also helped teachers to teach, hence the book made lectures semi-structured.

Across-task and Within-task -choices was the intervention in Lane, et.al. (2015) study. In this intervention teacher told the students what needs to be done, but children themselves chose the supplies and location to do it. It gave more liberty for children, but they could also feel that they have more influence on their own learning. Clegg (2013) had an intervention to promote vocabulary skill on students with behaviour problems. This intervention had two phases. First was about phonological awareness and the second was the curriculum vocabulary learning. It taught children to pronounce words correctly and also widen their vocabulary. DeJager & Filter (2015) interventions were made for each child with different needs. It had

different approaches to child's difficulties, but the outcome was similar in all. Every child improved during the intervention.

5.2 School engagement

The early years in children's life are crucial for developing the skills the child needs to success in school settings. Many articles pointed out the fact, that kindergarten gives the needed basics for starting the school. The engagement level in kindergarten was predicting the engagement in primary school. The high engagement in kindergarten was the ground for high engagement in school settings in primary school-age (Willner, et.al, 2015; McClelland, et.al, 2013; Pakarinen, et.al., 2017; Sektnan, et.al., 2010). Well-functioning teacher-child interaction in kindergarten had a positive effect still on the 4th grade in children's academic skills. The good relationship with the teacher in kindergarten predicted academic achievement in primary school for the child (Pakarinen, et.al., 2017).

Archambault & Dupéré (2017) had similar results. In their study children who showed high levels of engagement in 3rd grade – usually it will last until the 6th grade. On the other hand, children with low levels of engagement hardly gain engagement without intervention (Archambault & Dupéré, 2017). McClelland, et.al. (2013) highlighted the engagement as an outcome of the early achievement before primary school and that is why they saw interventions meaningful in early age. Intervening early has results for achieving later. Child's optimism towards school and learning correlates with engagement in school. Self-worth was a key factor to it. With teachers support, child can gain the feeling of self-worth in school settings (Kirby & DiPaola, 2010; Split, et.al., 2016).

5.3 Behaviour problems

In two studies (Clegg, 2013; Sektnan, et.al., 2010) the vocabulary's effect on the behaviour problems was pointed out. Supporting the learning in language helps children to be involved (Clegg, 2013). Risk factors correlated with behavioural problems. The mentioned risk factors were maternal education level, maternal depression, family income and race (Sektnan, et.al., 2010; Archambault & Dupéré, 2017; Rote & Dunstan, 2011; McClelland, et.al., 2013; Pakarinen, et.al., 2017).

In eight studies behaviour problems were measured and researchers saw improvements (DeJager & Filter, 2015; Lane, et.al., 2015; Low, 2013; Rote & Dunstan, 2011; Split, et.al., 2016; Whitney, et.al., 2017; Hartman & Gresham, 2016) during the intervention or right after intervention. Like Archambau & Dupéré (2017) stated too, that children can be engaged in the school settings and be disruptive at the same time. Poor attention skills at school lead to missed opportunities in learning, which can lead to behaviour problems, according to Willner, et.al., (2015). Kirby & DiPaola (2010) had similar results; when student is accomplishing the on-task behaviour, such as maintaining the attention and be motivated in learning. These children tend to achieve higher levels at school.

5.4 Correlations with ICF-CY theoretical framework

The 14 chosen articles were screened by using the ICF-CY theoretical framework (WHO, 2007). The factors are explained deepen under the subheadings of body function, body structures, activity/participation, personal factors and environmental factors.

Table 4.

ICF-CY -protocol of the articles.

Author	Body Function	Body Structures	Activity/Participation	Personal Factors	Environmental Factors
Archambault & Dupéré		X	X	X	X
Clegg	X		X	X	
Dejager & Filter	X		X	X	
Hartman & Gresham	X		X	X	
Kirby & Dipaola	X		X	X	X
Lane, et al.	X		X	X	
Low, et al.			X	X	X
McClelland, et al.	X	X		X	
Pakarinen, et.al.			X	X	X
Rote & Dunstan	X		X	X	
Sektnan, et.al.	X			X	
Spilt, et al.			X	X	X
Whitney, et.al.	X		X	X	X
Willner, et al.		X		X	

5.1.1   Body Function

Nine articles combined children's mental functioning (Kirby &DiPaola, 2010; Sektnan, et.al., 2010; DeJager & Filter, 2015; Lane, et.al., 2015; Rote & Dunstan, 2011; Whitney, et.al., 2017; Hartman & Gresham, 2016; McClelland, et.al., 2013; Clegg, 2013). They mentioned social, emotional and behavioural difficulties, several diagnoses and mental functions.

5.1.2   Body Structures

Willner, Gatzke-Kopp, Bierman, Greenberg & Segalowitz (2015) measured Pb3 amplitudes during the intervention with electroencephalographic (EEG) waveform from 239 children. The EEG was examinating the Pb3 amplitudes, which was measuring the relevance of neurophysiological measures of controlled attention division. High mean of Pb3 means that child is better at maintaining the focus. The pb3 itself has an impact on working memory and attention control processes, which was related to behaviours and academic performance in learning, according to Willner, et.al. (2015). Gender was also mentioned (Archambault & Dupéré, 2017; McClelland, et.al., 2013). Boys tend to be less engaged and more disruptive than girls in school settings.

5.1.3   Activity and Participation

Activity and Participation was in 12 articles out of 15 had factors, which amplified the activity and participation (Archambault & Dupéré, 2017; Pakarinen, et.al., 2017; Split, et.al., 2016; Low, et.al., 2013; Ucus, 2015; Clegg, 2013; Kirby & DiPaola, 2010; DeJager & Filter, 2015; Lane, et.al., 2015; Rote & Dunstan, 2011; Whitney, et.al., 2017; Hartman & Gresham, 2016). Mainly the interventions increased engagement and made children participate actively.

Interaction with the teacher raises children's engagement and decreases the disruptive behaviour in the classroom (Whitney, et.al., 2017). In Rote & Dunstan's (2011) case study, the child was part of formulating his issues at school and gave positive feed-back from it, hence he felt like a participant in his own environment and higher his self-worth.

DeJager & Filter (2015) had three students in their study. Every child had their own tailor-made intervention plan, which gives more holistic approach to child's functioning. On the other hand, the class environment has a huge impact on student's achievement in school settings, Kirby & DiPaola (2010). Low, et.al., (2013) had similar results about importance of being participating in the environment. They said that student lesson engagement was most strongly associated with student climate. Clegg (2013) pointed out that supporting the learning in language, helps children to be involved in their environment.

5.1.4   Personal Factors

Personal factors were presented in every article (Kirby & DiPaola, 2010; Sektnan, et. al., 2010; Archambau & Dupéré, 2017; Ucus, 2015; Willner, et.al., 2015; DeJager & Filter, 2015; Lane, et.al., 2015; Low, 2013;

Rote & Dunstan, 2011; Split, et.al., 2016; Whitney, et.al. 2017; Hartman & Gresham, 2016; Pakarinen, et.al., 2017; McClelland, et.al., 2013; Clegg, 2013). Mainly it was the age and sex of the children, but some articles also presented the more detailed factors of child's background, which will be described below.

Kirby & DiPaola (2010) examined also the children with low socioeconomic status and their ethnicity. Their research included 62 % black, 23% white and 5% Hispanic children. Hartman & Gresham (2016) had the race in diagram, but the result did not combine these. Race was also mentioned in Whitney's, et.al., (2017), Low's, et.al., (2013), Willner's, et.al., (2015), McClelland's, et.al., (2013) and in the research from Belgium too (Split, et.al., 2016).

Maternal level of education was highlighted in three articles (Sektnan, et.al., 2010; McClelland, et.al., 2013; Pakarinen, et.al., 2017). It has an impact on vocabulary of the children and maternal teaching at home had a positive correlation regarding children's academic skills later on. McClelland (2013) also found a difference between adopted and non-adopted children and their engagement. Children, who are living in their biological parents tend to be higher engaged than children with adoption background.

5.1.5 Environmental Factors

In six different articles (Whitney, et.al., 2017; Split, et.al., 2016; Archambault & Dupéré, 2017; Low, et.al., 2013; Kirby & DiPaola, 2010; Pakarinen, et.al., 2017) the teacher's influence on children's engagement in learning was mentioned. The negative attitudes towards a child hinder student's learning and trust in the teacher (Kirby & DiPaola, 2010).

It was also mentioned, that teacher's behaviour effects the classroom engagement more than the school engagement itself (Split, et.al., 2016). But, interaction with teacher made children's engagement raise in the study in the USA (Whitney, et.al., 2017). Low (2013), which mentioned, that student support and student's attitudes against bullying are factors for student climate, which has an impact to engagement in school.

6   Discussion

This chapter will discuss about the interventions, which facilitates behavioural change in children and the matter of engagement to decrease the behaviour problems. The risk factors are seen as barriers for engagement in school settings, but with the proper intervention it could only be seen as an obstacle. These obstacles should not be predictions in child's academic achieving at school. Therefore, it is meaningful to understand that the right support hinders the bad outcomes, which might happen, if postponing the intervention. Every child should have the right to be successful in school setting, no matter the socioeconomical status, race or gender the person is.

6.1 Interventions to improve good behaviour

The early achievement in school have positive outcomes in the long-term. Children are more engaged and less disruptive, when they have had the right support in early age (McClelland, et.al., 2013). Therefore, interventions are meaningful for reaching the wanted outcomes and end the vicious cycle of low socioeconomical families, which usually is inherited. Successful intervention needs to have engaged participants and a holistic approach on child's functioning on his or her everyday life. ICF-CY (WHO, 2007) is seen as a tool to enable it. It has individual and environmental factors, which measure the barriers and facilitators for the wanted outcome in child's life. It helps to understand, where is the support needed and which factors are supportive in child's everyday functioning in matter of planning the intervention for that specific child in the classroom.

The whole environment needs to change, not just the child (Anello, et.al., 2016.) Early intervention is relevant, hence the problems might get even more complex, if postponing it. The Case Sam (Rote & Dunstan, 2011) was a perfect example of environments influence on the outcome of the intervention. He only received plenty of diagnoses but was lacking a real change in his whole environment. The previous interventions he has had, did not implement the environment of his. Thus, they were not effective. Those intervening's made Sam's disruptive behaviour even poorer and made his self-worth drop even lower. (Rote & Dunstan, 2011). Intervention needs to include of the people around the child. Therefore, the school staff, family and health care staff were working all together besides the child and empowering the whole family together. In addition, professionals have commented that ICF-CY gives voice to the parents and working together with them is more equal, hence of the parent's contribution to the intervention. Considering children and their parents as important source of the intervention planning, it increases the change for holistic intervention, which will benefit the child's functioning in every aspect. (Adolfsson, Grandlund, Björck-Åkesson, Ibragimova & Pless, 2010).

The Good Behaviour Game -intervention was in two research's. This intervention is about rewarding chil-dren from a good behaviour and punish them from the bad behaviour. The rules were clearly stated and they were written down in a poster, which was held in the classroom. The children were working in teams and the team with more points of the good behaviour, won (Hartman & Gresham, 2016; Split, et.al.,

2016) and in the Split's, et.al., (2016) intervention, it was transformed to be more suitable in their settings in Belgium. The main difference was that teacher reacted neutrally, when students were breaking the rule and on the other hand, responded positively, when students were behaving well. Mark Wolery (2002) also supported the positive practise on interventions, which would show the children the propriate way to behave and not punish from the inappropriate behaviour. This will encourage and teach the child towards the good and wanted behaviour.

6.2 School engagement facilitates less behaviour difficulties

The school engagement diminishes behaviour problems and behaviour problems lowers the school engagement. Trust towards the teacher influence on school engagement and behaviour as well. If children trust on their teacher, they are less likely to display disruptive behaviour (Kirby & DiPaola, 2010). The study in Belgium showed that teacher's behaviour effects on children's developmental. Predictable, friendly and safe environment is more likely to increase the school engagement in the school settings. (Spilt, Leflot, Onghena & Colpin, 2016). School environment should support the learning of children. Making children be part of their environment helps them to feel more engaged in school settings. It's not irrelevant to put children's art on the wall in the classroom and make their participation be seen in the children's environmental factors too.

According to the articles on this research, disruptive behaviour is more common among the boys in school settings. Boys have lower levels on reading (McClelland, et.al., 2013) and are academically more unsuccess-ful (Archambault & Dupéré, 2017). The research did not provide definite answers why genders effect on the behaviour difficulties and engagement. But then again girls tend to express internalizing behaviour problems, which are not seen as strongly in the classroom as externalizing behaviour (Baillargeon, et.al., 2007) This can mean, that teachers are not paying attention to children with internalizing behaviour prob-lems, since they are shyer and more reserved. They tend to have less support; hence the disruptive behav-iour is seen more problematic in the classroom, since it affects on the other children's learning experience as well. Hartman & Gresham (2016) mentioned, that disruptive behaviour affects negatively to all student's engagement, academic achievement and to behaviour as well. Therefore, internalizing behaviour, who mostly tend to be girls, are not seen as harmless to the school climate and learning in the classroom. Inter-ventions in the classrooms should be targeted for reducing internalizing behaviour problems too. Interven-tions to prevent behaviour difficulties will encourage the child to be engaged in learning at school. Without the proper intervention it might lead to unpleasant outcomes (Dunst & Trivette, 2009). Postponing the intervention or neglecting it till the end, will lead eventually missed learning opportunities, which can in-crease behaviour difficulties and academic achievement even more (Willner, et.al., 2015).

6.3 Barriers and facilitators for achieving at school

Like Meisels & Shonkoff (2002) said, the way society treats its youngest members has a significant influence on how children are seen by the others and how they will develop in that context. Child's environment has a major impact on child's developmental. Socioeconomical status is a big prediction on child's engagement in school settings and poverty affects negatively to child's achievements at schools (Kirby & DiPaola, 2010). ICF-CY -model describes the barriers and limitations in individual child's functioning and recognise the factors, which are influencing on it (Adolfsson, Malmqvist, Pless & Grandlund, 2011). This helps planning the intervention.

Mother's education was pointed out in four articles as a barrier and a facilitator (McClelland, et.al., 2013; Rote & Dun-stan, 2011; Sektnan, et.al., 2010; Pakarinen, et.al., 2017). The maternal level of education tends to contribute on child's success in school settings strongly. If mother is highly educated it makes children more funded in school settings and they receive help and support for homework from home. Personal factors can hinder or support the engagement.

To lower this gap between low socioeconomical status families between the families with higher education, there must be policies to decrease segregation and transformation on teacher's attitudes too. It should behold intervening and preventive work, but also integrating children with special needs and empowering them (Meisels, Shonkoff & Zigler, 2002). Equality means giving the needed support to the individual child for reaching the wanted outcomes in engagement and achievement in school settings. The quality of the education, which children are receiving at school, is one of the main factors. The indicators, which make student feel connected to school settings and on learning, are teachers, family and peers. Those factors facilitate the engagement (Appleton, Christenson & Furlong, 2008). By supporting children in learning and being engaged in school, we give them tools to participate in their society. Teacher's should know their student's barriers and facilitators in hence of giving the right and needed support for the child and his or her family. Some children might need support in self-regulation, some in reading or writing and some on the other hand, support for maintaining the peer-relations.

If teachers believe that they can effect on students learning, they will. In positive or in the negative way. Especially supporting environments are helping the children with low socioeconomical status to achieve better at school. Teacher's are in the key position to support these children in low socioeconomical families to participate in society and develop their strengths in school settings (Kirby & DiPaola, 2010). Therefore, we can't underestimate the power of teachers. If educators intervene early on child's life, the difficulties will not be too overwhelming just yet.

Since teacher's attitudes were mentioned clearly several times (Pakarinen, et.al., 2017; Kirby & DiPaola, 2010; Whitney, et.al., 2017; Split, et.al., 2016; Archambault & Dupéré, 2017), it should be mentioned once more. Child can invest better in learning, when teacher is providing support and helps the child to regulate

its behaviour (Pakarinen, et.al., 2017). Split, et.al., (2016) believed that when child's and teacher's interaction have no trust, are children more willing to show their disruptive behaviour in the classroom. Kirby & DiPaola (2010) had a good suggestion for building up the trust between these two; teachers can build a trust with students by having clear expectations and fair procedures in the classroom for all, despite the gender or socioeconomical status or race. Good interaction helps children to be active members in the classroom and participate in school settings.

The difficulty for a teacher for intervening to behaviour difficulties, is the classroom sizes and lack of re-sources. That can implement as a limitation for the good outcome for the intervention. Teachers do not have as much opportunities to respond to the students' needs in the classroom as it was wanted and required (Whitney, et.al., 2017). Lane, et al. (2015) also pointed out the workload teachers have. Intervening and noticing improvements is harder, when you have 25 or more, students in the same class. This research had a Case Study about Tina and Neal, who both had disruptive behaviour. The special education teacher found them more academically engaged and less disruptive after the intervention, but the general education teacher did not report the same results (Lane, Royer, Messenger, Common, Ennis & Swogger, 2015). The reason why teacher's do not put as much effort to internalizing behaviour difficulties than they tend to do towards externalizing behaviour problems, could be this factor. Teacher's workload is so great, that they don't have the opportunities to give the needed support for children who don't show loud or aggressive behaviour in the school settings.

6.4 Methods and limitations

The limitations of the study were a significant use of case studies. Case studies had a small scale of participants, which makes it hard to applied it to a bigger population. The reason why they were kept, was their evident use on ICF-CY framework. The use of ICF-CY can also see as a limitation since the activity and participation were linked together in this research and not seen as separate factors. Another risk of using ICF-CY as a framework, is the change for misunderstanding. Gaining more knowledge about the method would have assisted even more to depth understanding about it, since the method is rather new to the author.

The second limitation was the focus on school engagement and academic achievement, both. Academic achievement is the outcome of the school engagement. Therefore, it was held in the research, even though the focus could have been more clearer, when choosing just one outcome. Every article in this systematic literature review did not include intervention, although interventions was the main centralization in this thesis. Some of the articles were excluded, but those which were kept, gave a good understanding, which are the risk factors and where is the intervention needed in children's life.

Mostly the researchers did not do monitoring after implementing the intervention. In many cases the interventions were examined during the intervention and right after. This will not give the clear picture of the

successfulness of the intervention. This limitation was mentioned in every article, if they did not have wide monitoring for the intervention.

In general, the quality of the articles was mostly medium or high. The ethics were hindering some of them. It was not mentioned in every article, that how did the researcher get the approval of the child to participate on the study. Those who had, the permission has asked from the parents or care-givers of the child.

7 Conclusion

This research was conducted with the aim of finding main characteristics of the interventions to improve school engagement among children displaying behaviour difficulties. The research also wanted to point out the possibly risk factors, which may cause behaviour problems in the school settings. Behaviour problems itself might have a negative correlation with school engagement. On the other hand, school engagement allows academic achievement, which means that engaged students score better academically. Therefore, a child who is implementing behaviour problems, have difficulties to be engaged in the school setting, which will lead low achievement in learning.

The risk factors which might hinder the child's school engagement can be one's maternal low education, family income, minority status, gender and maternal depression (Sektnan, et.al., 2010). These factors which facilitates engagement and academic achievement can be the personal factors, such as maternal high education, family income and gender. The child's peers, family and teachers have a significant impact on engagement in school settings (Appleton, Christenson & Furlong, 2008).

Interventions should be implemented, so the child's environment is part of it, hence to achieve comprehensive change in child's behaviour difficulties – there must be seen transform in the environment too. Supporting the child in a positive way will lead to better and sustainable outcome than punishing children with the inappropriate behaviour, which can lead to an untruthiness between child and the teacher. That might increase the risk for disruptive behaviour, according to this thesis.

The main characteristics of the interventions was found, was teacher's attitude. It correlates with classroom engagement and the student's self-worth. If teachers acknowledge their position in children's engagement and achieving in the school settings, they might use it for supporting the learning. Particularly among children at-risk, it is vital to endorse their participation in the classroom and society.

7.1 For future research

For the future research, it would be notable to see more intervention for internalizing behaviour problems among girls. They tend to be the group without the intervention, hence they keep quiet in the background and not cause as much distress to the teacher as children with disruptive behaviour problems.

Also implementing on the children with low socioeconomical status. They are at risk and need the early intervention for supporting them to achieving in the school settings even more. More research gives more awareness and knowledge to educators and they will gain more self-confidence as a teacher and see the impact they have on their students.

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Appendix A

Protocol for quality assessment.

	Method	Answer
1.	Was the aim stated clearly on the study?	Yes (1) No (0)
2.	Was there a relevant background literary reviewed?	Yes (1) No (0)
3.	Was the study design appropriate according to the aim?	Yes (1) No (0)
4.	Was the intervention described in detail?	Yes (1) No (0)

	Participants	
5.	Was the sample described in detail?	Yes (1) No (0)
6.	Was the sample size justified?	Yes (1) No (0)
7.	Can the results be applied to bigger population?	Yes (1) No (0)

	Ethical Approach	
8.	Were the ethics of the study described?	Yes (1) No (0)
9.	Was the trustworthiness specified in the study?	Yes (1) No (0)

	Results	
10.	Was the intervention evaluated after the intervention?	Yes (1) No (0)
11.	Was the outcome of the intervention measures valid?	Yes (1) No (0)
12.	Were the results described in terms of statistical significance?	Yes (1) No (0)
13.	Were dropouts mentioned?	Yes (1) No (0)
14.	Were the conclusion appropriate given study methods and results?	Yes (1) No (0)
16.	Were the limitations described?	Yes (1) No (0)
17.	Are the findings valuable for future research?	Yes (1) No (0)
17.	Are the results precise?	Yes (1) No (0)

Total Points: /17   Total in percentage: %

Note: 75% or more = High Quality ; 75% to 50% = Medium Quality ; under 50% Low Quality.

Appendix B.

Quality of the articles.

Author	Points	Quality	Incuded/Ex-cluded
Archam-bault & Du-péré (2017)	11	Medium	Included
Clegg (2013)	12	Medium	Included
Dejager & Filter (2015)	13	Medium	Included
Hartman & Gresham (2016)	10	Medium	Included
Kirby & Dipaola (2010)	10	Medium	Included
Lane, et al. (2015)	10	Medium	Included
Low, et al. (2013)	14	High	Included
McClel-land,et al. (2013)	12	Medium	Included
Pakarinen, et.al. (2017)	17	High	Included
Rote & Dunstan (2011)	15	High	Included
Sektnan, et.al. (2010)	14	High	Included
Spilt, et al. (2016)	14	High	Included
Ucus (2015)	5	Low	Exluded

Whitney, Cooper & Karp (2017)	11	Medium	Included
Willner, et al. (2015)	14	High	Included

Appendix C.

Overview of the included articles.

Author/year	Country	Method	Intervention	Behaviour problems	School engagement related to academic achievement	Risk factors based on ICF-CY
Archambault & Dupéré (2017)	Canada	Quantitative	Study about student trajectories of behavioural, affective and cognitive engagement from Grade 3 to Grade 6.	Conflicts with teachers. Teacher's should target children at-risk earlier.	Children with strong levels of engagement, tend to have it from 3rd grade till 6th. Boys are more unengaged.	Transitions to other class level should happen more smoothly. Understanding the barriers and facilitators in child's life will help planning the prevention strategies for the most vulnerable children

Clegg (2013)	England	Qualitative Case Study	First intervention was phonological awareness and the second was the curriculum vocabulary learning -intervention.	Student's had violent behaviour. Some had diagnosis, like ADHD.	Language difficulties hinders the levels of school engagement. Supporting the learning in language, helps children to be involved.	Children with language barriers need more intervening

Dejager & Filter (2015)	USA	Qualitative Case Study	Prevent-Teach-Reinforce - intervention for behaviour problems.	All participants had disruptive behaviour, which lessened during the intervention.	It was observed that does student a) look ar instructional materials b) is raising hand c) student is working on task or is engaged. Everyone's engagement improved during the intervention.	behaviour problems increase the barriers child has

Hartman & Gresham (2016)	USA	Qualitative	Good Behaviour Game -intervention for disruptive behaviour.	Before intervention there were 15 children at-risk and after implementing the intervention, there was only 3 students at-risk.	Intervention ratings indicated improvement in academically.	Activity/Participation is about completing tasks and managing one's own behaviour.
Kirby & Dipaola (2010)	USA	Quantitative	Collected data from student's achievement and their	On-task behaviour facilitates to achieve higher levels	Optimism towards school and learning correlates with academic	Teacher's negative attitudes hinder student's learning and trust

			per-sonal fac-tors.	at school.	achieve-ment. Teach-er's nega-tive at-titude hinders the learn-ing.	
Lane, et al. (2015)	USA	Qualita-tive Case Study	Across-task choices and Within-task choices -interven-tion.	Across-task choices de-creased Neil's disrup-tive behav-iour. Tina on the other hand, dis-played less disrup-tive behav-iour during Within	En-gage-ment im-proved. For Neil highest engage-ment was during Across-task and Tina had it with Within-task.	Finding the facilitators. Supporting chil-dren in a positive way.

			-task choices.			
Low, et al. (2013)	USA	Quantitative	Steps to Respect. Intervention against bullying.	Preventing bullying means no bad behaviour against others.	Student's engagement was most strongly associated with the student climate.	Barriers were bad climate, teachers attitude
McClelland,et al. (2013)	USA	Quantitative	Data was collected when children were 4, 7 and 21 years		Maternal education, attention span-persistence, gender and being	Early intervening decreases the bad outcomes

			old, about their achievements at school.		adopted correlated with achievement.	
Pa-kari-nen, et.al. (2017)	Finland	Quantitative	Observating the kindergarten and school classes for 4 years.	Children needs teacher's support to help them to self-regulate their behaviour.	Teacher-child interraction in kindergarten was positively associated till 4th grade academic achievements.	Environment and Personal Factors (mothers and teacher's interactions with the child) has a huge impact on child's functioning. Individual curriculas to every child.

Rote & Dunstan (2011)	Australia	Qualitative Case Study	Intervention included Sam, his family, school staff, psychological therapist and other professionals.	Before focus has mainly be in Sam's diagnosis. Now the whole environment was part of the intervention, which decresed his disruptive behaviour at home and at school.	By the end of treatment Sam felt better about school and peers. Seemed more enthusiastic about school.	Family history affects. The whole environment need to change and adapt, to support child's functioning.

Sektnan, et.al. (2010)	USA	Quantitative	Investigating the early family risk, children's behavioural regulation and academic achievement	Risk factors correlated with behavioural regulation.	Good behaviour ment better achievement. The early years were seen crucial to develop the skills to succeed at school.	Minority status, maternal education, family income, maternal depression
Spilt, et al. (2016)	Belgium	Quantitative	Good Behaviour Game -intervention for disruptive behaviour. Dutch Version.	When child has just a little trust on the teacher, they are more willing to behave	Teacher's behaviour effects more to the classroom engagement. Self-worth creases engagement.	Peer-relations, self-worth and attitudes.

				disrup-tively.		
Wh itney, Cooper & Karp (2017)	U SA	Qu alita-tive Case Study	Sh ared Story Read-ing in Math-emat-ics for stu-dents with aca-demic diffi-culty and chal-leng-ing be-hav-iour. Les-sons in-cluded new book and	Th ere was seen a signifi-cant drop in dis-rup-tive-ness.	pb3 ampli-tudes tended to per-form aca-demi-cally better in first grade.	Teacher's attitudes towards the students

			was semi-struc-tured, which made teache r more partici-pating.			
Wil lner, et al. (2015)	U SA	Qu antita-tive	E EG - testing for Pb3.	Po or at-tention skills leads to a missed learn-ing op-portu-nities, which can lead to behav-iour prob-lems.	Kin dergar-ten chil-dren with high means of	Body functions and body structures have also an impact on learning

Author/year	Country	Method	Intervention	Behaviour problems	School engagement related to academic achievement	Risk factors based on ICF-CY
Archambault & Dupéré (2017)	Canada	Quantitative	Study about student trajectories of behavioural, affective and cognitive engagement from Grade 3 to Grade 6.	Conflicts with teachers. Teacher's should target children at-risk earlier.	Children with strong levels of engagement, tend to have it from 3rd grade till 6th. Boys are more unengaged.	Transitions to other class level should happen more smoothly. Understanding the barriers and facilitators in child's life will help planning the prevention strategies for the most vulnerable children
Clegg (2013)	England	Qualitative Case Study	First intervention was phonological awareness and the second was the curriculum vocabulary learning -intervention.	Student's had violent behaviour. Some had diagnosis, like ADHD.	Language difficulties hinders the levels of school engagement. Supporting the learning in language, helps children to be involved.	Children with language barriers need more intervening

Dejager & Filter (2015)	USA	Qualitative Case Study	Prevent-Teach-Reinforce -intervention for behaviour problems.	All participants had disruptive behaviour, which lessened during the intervention.	It was observed that does student a) look ar instructional materials b) is raising hand c) student is working on task or is engaged. Everyone's engagement improved during the intervention.	behaviour problems increase the barriers child has
Hartman & Gresham (2016)	USA	Qualitative	Good Behaviour Game - intervention for disruptive behaviour.	Before intervention there were 15 children at-risk and after implementing the intervention, there was only 3 students at-risk.	Intervention ratings indicated improvement in academically.	Activity/Participation is about completing tasks and managing one's own behaviour.
Kirby & Dipaola (2010)	USA	Quantitative	Collected data from student's achievement and their personal factors.	On-task behaviour facilitates to achieve higher levels at school.	Optimism towards school and learning correlates with academic achievement. Teacher's negative attitude hinders the learning.	Teacher's negative attitudes hinder student's learning and trust

Lane, et al. (2015)	USA	Qualitative Case Study	Across- task choices and Within-task choices -intervention.	Across-task choices decreased Neil's disruptive behaviour. Tina on the other hand, displayed less disruptive behaviour during Within-task choices.	Engagement improved. For Neil highest engagement was during Across-task and Tina had it with Within-task.	Finding the facilitators. Supporting children in a positive way.
Low, et al. (2013)	USA	Quantitative	Steps to Respect. Intervention against bullying.	Preventing bullying means no bad behaviour against others.	Student's engagement was most strongly associated with the student climate.	Barriers were bad climate, teachers attitude
McClelland, et al. (2013)	USA	Quantitative	Data was collected when children were 4, 7 and 21 years old, about their achievements at school.		Maternal education, attention span-persistence, gender and being adopted correlated with achievement.	Early intervening decreases the bad outcomes
Pakarinen, et.al. (2017)	Finland	Quantitative	Observing the kindergarten and school classes for 4 years.	Children needs teacher's support to help them to self-regulate their behaviour.	Teacher-child interraction in kindergarten was positively associated till 4th grade academic achievements.	Environment and Personal Factors (mothers and teacher's interactions with the child) has a huge impact on child's functioning. Individual curriculas to every child.

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Sektnan, et.al. (2010)	USA	Quantitative	Investicating the early family risk, children's behavioural regulation and academic achievement	Risk factors correlated with behavioural regulation.	Good behaviour ment better achievement. The early years were seen crucial to develop the skills to succeed at school.	Minority status, maternal education, family income, maternal depression
Spilt, et al. (2016)	Belgium	Quantitative	Good Behaviour Game - intervention for disruptive behaviour. Dutch Version.	When child has just a little trust on the teacher, they are more willing to behave disruptively.	Teacher's behaviour effects more to the classroom engagement. Self-worth creases engagement.	Peer-relations, self-worth and attitudes.

Whitney, Cooper & Karp (2017)	USA	Qualitative Case Study	Shared Story Reading in Mathematics for students with academic difficulty and challenging behaviour. Lessons included new book and was semi-structured, which made teacher more participating.	There was seen a significant drop in disruptiveness.	pb3 amplitudes tended to perform academically better in first grade.	Teacher's attitudes towards the students
Willner, et al. (2015)	USA	Quantitative	EEG -testing for Pb3.	Poor attention skills leads to a missed learning opportunities, which can lead to behaviour problems.	Kindergarten children with high means of	Body functions and body structures have also an impact on learning