School, learning and mental health

- a systematic review of aspects of school climate affecting mental health and positive academic outcomes

Karin Bertills

Summary

Aim

This study of a systematic review of systematic reviews on school, learning and mental health investigates the relation between school climate, mental health and positive school outcomes. The aim is to analyze the quality and content of previous reviews and to identify aspects in the school climate that positively affect learning and mental health. Research questions are: What is the quality and content of previous systematic reviews on school, learning and mental health? What is the current state of knowledge concerning causal relationships between school climate, learning and mental health according to systematic reviews? What factors in the school climate can be identified as vital for positive outcomes and good mental health?

Method

Systematic review of longitudinal or cross-sectional studies. 792 references were identified through literature searches in various databases, with search words considering mental health in combination with search words considering school and learning. Data extraction was performed in three steps; abstract, full text and in-depth data extraction. Criteria for inclusion were: systematic review, published 1999-2009, ages 2-19 years, published in English in peer reviewed journals. The number of reviews that met the criteria set for quality was 37, which were quality rated as of high 27% (10/37), medium 46% (17/37) or low quality 27% (10/37).

Results

Three categories of content emerge, where much research has been executed: the relation between positive aspects of mental health and learning, between mental health problems and learning and indirect relations between school factors and mental health and learning. The quality is relatively low, only 8% (3/37) meet all the quality criteria. At school level, where the teacher plays an important role, there is a positive relation between school climate and outcome and mental health, as well as on an individual level, where self-efficacy, i.e. will and skill to perform, can be identified as a factor of major importance to school outcome.

Conclusions

Due to the low quality of research on the *relation* between school, learning and mental health causal relation cannot be established. There are apparent connections between school outcome, self-efficacy and a positive school climate. Teachers are important in and for school climate and are of vital importance for outcome and mental health. Students' possibility to influence and control their learning promote school outcome and mental health. Policy aimed at improving achievement and school outcome need to consider perceived self-efficacy.

Sammanfattning

Syfte och frågeställningar

Denna studie av en systematisk översikt över systematiska översikter om skola, lärande och psykisk hälsa undersöker relationen mellan skolmiljö, psykisk hälsa och positiva skolresultat. Syftet är att analysera kvalitet och innehåll i tidigare översikter samt att identifiera faktorer i skolmiljön som påverkar lärande och psykisk hälsa positivt. Frågeställningar är: Vad är kvaliteten hos och innehållet i tidigare systematiska översikter om skola, lärande och psykisk hälsa? Hur ser aktuellt forskningsläge ut gällande orsakssamband mellan skolmiljö, lärande och psykisk hälsa enligt systematiska översikter? Vilka faktorer i skolmiljön kan identifieras som avgörande för positiva skolresultat och god psykisk hälsa?

Metod

Systematisk översikt av longitudinella eller tvärsnittsstudier. 792 referenser identifierades genom litteratursökningar i olika databaser, med sökord avseende psykisk hälsa i kombination med sökord gällande skola och lärande. Dataextraktion genomfördes i tre steg; abstrakt, fulltext och djupare data extraktion. Kriterier för inklusion var: systematisk översikt, publicerad 1999-2009, ålder 2 – 19 år, publicerad på engelska i tidsskrift granskad av sakkunnig. Antalet översikter som uppfyllde uppställda kriterier för kvalitet var 37 som kvalitetsbedömdes som av hög 27% (10/37), medel 46% (17/37) eller låg kvalitet 27% (10/37).

Resultat

Innehållsmässigt framträder tre kategorier där mycket forskning genomförts: relationen mellan positiva aspekter av psykisk hälsa och lärande, mellan psykisk ohälsa och lärande, samt indirekta samband mellan skolfaktorer och psykisk hälsa och lärande. Kvaliteten är relativt låg, endast 8% (3/37) uppfyller samtliga kvalitetskriterier. På skolnivå, där läraren spelar en viktig roll, finns det en positiv relation mellan skolmiljö och skolprestation och psykisk hälsa, såväl som på individnivå, där self-efficacy, dvs. vilja och kompetens att prestera, kan identifieras som en avgörande faktor för skolprestationer.

Sammanfattning

På grund av den låga kvaliteten på forskning om *relationen* mellan skola, lärande och psykisk hälsa, går orsakssamband inte att fastställa. Tydliga kopplingar finns mellan skolresultat, self-efficacy och en positiv skolmiljö. Lärare är viktiga i och för elevernas skolmiljö och spelar en avgörande roll för skolprestation och psykisk hälsa. Elevens möjlighet att påverka och kontrollera sitt lärande bidrar positivt till skolprestation och psykisk hälsa. Policy för att förbättra skolprestation och skolresultat behöver beakta individens upplevda self-efficacy.

Table of contents

1. Introduction

In my profession as a teacher I've heard myself say: *If you manage to create a good school climate with an atmosphere, where students are allowed to be their selves, you can do whatever you want in that class*. A metaphor I've used is: *Teaching is like popcorn popping, you meet the students as seeds, you butter, match the exact heat and suddenly the seeds start popping*. But what is a good school climate that makes students want to learn, achieve and perceive good mental health?

The following quotes derive from working experience within Kunskapslyftet, a government sponsored program for adults with inadequate or without a school-leaving certificate to reach corresponding competency. Teacher to colleagues: *They've already failed school once, don't let them fail again.* Student to teacher: *Before studying English (as a second language) I avoided encounters at the camping site, where I risked being asked or spoken to in English, but now I find myself taking every opportunity to converse with foreigners!*

Another student to teacher: *I didn't know there was so much to learn, I didn't know what book/film to choose since I wasn't aware of such as "good" quality. All these years of compulsory school, what did I do? I never learnt how to make the best of school.*

Results from the PISA 2006 (Skolverket, 2005) studies presented alarming reports about how Swedish school childrens' knowledge of Mathematics, natural science, reading and writing, and language is deteriorating. Media and public opinion about the mental health among Swedish school children's is generally that their mental health is being impaired. This called for action and on the initiative of the Swedish Royal Academy of Sciences two conferences addressed these issues in April, 2010. Prior to this conference two systematic reviews were conducted, one on trends of Swedish children's mental health and one on school, learning and mental health. As a part of the latter a systematic review of previous reviews was undertaken. Based on the findings of the systematic review of systematic reviews this study presents the results of factors in the school climate that are of major importance for positive outcomes.

1.1 Background

This study has its origin in a systematic review of research on school, learning and mental health, conducted on the initiative of the Royal Swedish Academy of Sciences. The work was performed from August 2008 to March 2010. The main purposes of the review was to conduct a mapping of research on relations between schooling and mental health and an in-depth syntheses of research concerning the relation between academic achievement and mental

health. One of the activities carried out within the scope of interest was a review of previous systematic reviews, the findings of which this study will be based on. One aim of this study is investigate the current state of knowledge on school climate and its causal relation to academic achievement and mental health. In order to achieve valid and reliable knowledge on causation good quality reviews are required, therefore another aim is to establish quality of current systematic reviews. A third aim is to identify factors in the school climate that are of vital importance for successful academic achievement and good mental health.

1.2 Current state of knowledge on the relation between school, learning and mental health

There is an ongoing discussion about declining mental health among school children. Two systematic reviews have recently been conducted in Sweden. One on time trends of mental health problems in children and adolescents in Sweden during the period 1945 to 2009 (Petersen, et al., 2010). The other is a mapping of international literature on the relation between school, learning and mental health (Gustafsson, et al., 2010).

Due to lack of information before 1970 and with reservation to the level of evidence of the studies, the trend review cannot confirm that the mental health among children and adolescents has declined during the past decades. A negative trend is implied in results that suggest an increase of internalizing problems among teenage girls from 1980 to date. (Petersen, et al., 2010, p. 82)

The review of the relation between school, learning and mental health establishes that research on the *relation* between school and mental health is limited especially on an organizational level. Examples of major findings in the review are that academic achievement and mental health are reciprocally related, problems with academic achievement and mental health remain stable over time, early school failure increases the probability of later mental health problems, girls with academic achievement problems have a greater risk of developing internalizing mental health problems, transition to secondary school influence mental health positively and good academic achievement improves self-esteem. (Gustafsson, et al., 2010, p. 155 f.)

Mara Westling Allodi presents a literature review in Gustafsson, et al. (2010) on qualitative reports of perceptions of mental health and schooling among Swedish children. They define mental health as a general feeling of positive and negative emotions, not necessarily related to illness. School factors described as protective are supportive environments with social relationships, doing meaningful things and creative activities, feeling engaged and safe. Risk

factors are related to "the feeling of being a failure", e.g. difficulties in school resulting in alienation, aggressiveness or coping, or perceived stress derived from pressure of performing, poor teacher relationship and too much freedom to choose. The latter refer to a more individualized society, where relevant information and adequate knowledge are prerequisites for making the right choice. (Gustafsson, et al., 2010)

1.2.1 Causal relationship

Causal relationships are important in prevention work. Establishing a causal relationship contributes to better understanding of the development of both mental health and academic achievement. If a causal relationship can be established it implies the nature of and in what direction a phenomenon works. Further on a detailed specification of the nature of a certain mental health aspect and its relation to certain aspects of academic achievement gives information about what starts where, when and why. Given this information, prevention work can develop content and methods of programs to be implemented. One implication in (Gustafsson, et al., 2010, p. 104) is that reciprocal relations may cause vicious spirals of development, school failure may lead to problems of mental health, which leads to further school failure and so on. The reciprocal relations may also cause positive spirals; success in school may lead to improvement of positive aspects of mental health, which enhances chances of further success and so on. If you know where a problem has its origin and in what direction it works you can intervene to prevent a negative development or promote a positive. In order to make conclusions about causality longitudinal studies with a relatively long delay (>12 months) are required.

1.2.2 Quality Assessment

Systematic reviews aim to minimize bias by rigorously mapping, screening, coding and analyzing individual studies. By being systematic, the reviews document gaps in research literature which are of use for future research, however research shows that systematic reviews vary greatly in quality and reporting content. Researchers save time by using systematic reviews, but when using other researchers' findings they must be able to distinguish high quality reviews from reviews of dubious quality (Schlosser, Wendt, & Sigafoos, 2007). The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), funded by The *Economic and Social Research Council (ESRC)* of the United Kingdom, develops methods and tools to be applied on conducting systematic reviews for

public policy purposes. One major area in which they conduct systematic reviews is education (EPPI-Centre, 2010).

In determining if a review is systematic and of high quality reviews the standards internationally accepted are:

- *A protocol*; title, background, search strategies and method information etc.
- *Research question*
- *Sources;* data bases, source selection, publication
- *Scope;* geographic, temporal, language
- *Selection principles;* criteria for inclusion/exclusion, inter-rater agreement
- *Data extraction;* included studies' what, who, how (Auperin, Pignon, & Poynard, 1997); (Schlosser, Wendt, & Sigafoos, 2007).

1.3 Definitions and Theories

School climate, learning and mental health are multifaceted areas. The first step in this systematic review is to define the concepts and present theories of mental health, learning, achievement and school climate. Since self-efficacy is a concurrent concept, self-efficacy will also be defined with theory linked to the concept.

1.3.1 Mental health

Health is a broad subject not easily defined. Within the concept of health one should consider physical, mental, social and existential health. A mixed balance makes a person perceive health. Mental health is defined by WHO as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community (WHO, 2010, p. 19). Two perspectives are primarily seen in studies of mental health, one focuses on mental illness, the second on positive aspects of mental health. Mental illness is diagnosed when a pattern of signs and symptoms are identified that are connected to problems with psychological and social functioning. A distinction is made between externalizing and internalizing problems. Aggressiveness, antisocial behavior and attention deficit are examples of externalizing problems and emotional problems such as anxiety, worry and depression are examples of internalizing problems. Positive aspects of mental health are believed to promote functioning. In investigating the relation between school, learning and mental health it is important to consider positive aspects of mental health such as emotional, psychological and

social well being. Positive aspects are characterized and indicated by individuals' perceived sense of coherence, self-efficacy, life satisfaction, control and quality of life.

One way of explaining how schooling and academic achievement influence mental health is to be found in the conservation of resources (COR) theory developed by Hobfoll. People strive to retain, protect and build resources. Resources are attributes that matter and are valued by an individual and may be objects (e.g. possessions), personal characteristics (e.g. self-efficacy), conditions (e.g. being a student) or energy (e.g. social networks, time). Stress occurs when resources are lost, threatened with loss, or if one after significant investment fails to gain resources. One important principle of the COR model is that "resource loss is disproportionately more salient than resource gain", i.e. given equal amount of loss and gain, loss has more impact than gain. Another principle is that one must gain or invest resources in order to protect against or recover from resource loss. In accordance with these principles those with lower levels of resources are more vulnerable than those with higher levels of resources. In addition initial loss increases future loss, if you experience failure in early school years the feeling of being a failure remains or increases with negative life outcomes as a result. (Hobfoll, 1989, p. 513 ff.)

1.3.2 Learning

Defining relevant aspects of learning and achievement is a challenging task. Everyone has school experience and seems to have his/her own opinion about learning. As a conscientious parent you feel you have the right to question teachers' choice of tasks and way of teaching as well as their ability to teach their child. In the perspective of learning as life-long, the child interacts with many tutors; teachers, parents, activity-leaders, friends etc. A major concept in life-long learning is motivation. According to The American Psychological Association's (1997) Learner Centred Principles, learning experiences create feelings, beliefs, interests, goals, habits and behaviors of the individual that are the ground in future learning experiences. Creativity and natural curiosity contribute to intrinsic motivation to learn and is stimulated by challenging tasks of optimal difficulty for the student to master. The effect of motivation is willingness to invest effort. In short the principles have to do with the learner's sense of self and willingness to invest effort to achieve a learning goal (Bonk & Cunningham, 1998, p. 29). Motivation may be intrinsic or extrinsic. Intrinsic motivation means that the learners find interest and satisfaction in what they learn and lead to continued learning. Extrinsic motivation means that the learners' engagement in learning is a means to an end and has little to do with the content. Intrinsic or extrinsic motivation is associated with different

learning strategies. Some learners respond to a summative, performance related teaching style whereas others respond to a formative, task- and learning-centered teaching style. (Kellaghan, Madaus, & Raczek, 1996) see (Harlen & Deakin Crick, 2003, p. 175)

In explaining learning the most commonly theory referred to is Bronfenbrenner's bioecical model. According to this theory we are born as individuals with resources and development is influenced by interaction with and adaption to the surrounding environment. There are four dimensions of the environment, the micro-, meso- and exo- and macrosystem. The micro system consists of a child's close relations, e.g. family, pre-school, school. Connections between two or more micro systems is the mesosystem. The exosystem is the larger social context for a family, e.g. parents' work, friends, distant relations. Social service and authority with norms, laws, and traditions is the macro system. (von Tetzchner, 2005, p. 19 f.)

1.3.3 Achievement

Achievement is an indirect measure of learning, a reward such as a certification, merit marks, prizes or avoiding failure. The amount of knowledge and skills assessed by the student are conventionally measured by grades and test scores. In 1994-1996 a new goal-orientated grade system, with grades G, VG, MVG (pass, pass with distinction, pass with special distinction) was introduced into the Swedish school system. One reason for this was that the old relative grade system was criticized for inflation in grades, the relative mean was the same although students' performed less in national tests. Today the new goal-orientated grade system is criticized for the same reason. Gustafsson et al. (2010) implicate that the grading system should be revised, since this matter causes stress among students in the school environment. In 2008 "individual development plan", IUP, was introduced into Swedish comprehensive school. It is a written documentation of the students' knowledge and skills used as a base for developmental meetings once a year between student, teacher and parents. Based on an evaluation after one year of practice, by the National Agency for Education it is concluded in the systematic review, school, learning and mental health, that the IUPs should hold a strict focus on goals, knowledge, performance and plan of action. The evaluation showed that written statements often refer to personal characteristics, which if negative, carry the risk of causing severe damage in students who perceive failure, especially if not followed up by a plan of action. (Gustafsson, et al., 2010, p. 159 ff.)

1.3.4 School climate

School climate is a complex area to define. Previous research has shown that good schools should hold a pleasant and comfortable environment, and host a clear goal-orientated focus in order to encourage students' participation and responsibility and teachers' expectations of student success. School ethos with mutual values and norms and consistent work to realize these are of major importance (Ogden, 2005, p. 11). When measuring school climate the Swedish National Agency for Education uses a survey, skolmiljö 2000, in three different versions one for personnel, one for older students and one easier version for younger students. The questions are based on the national curriculum and the working environment legislation and focus on the areas:

- Individual level: happiness, development, health
- Physical environment: air- sound- and light conditions, classroom standard, interior and exterior environment, maintenance and ergonomics
- School work: methods, collaboration and organization (Skolverket, Skolmiljö 2000, 2008)

A Swedish national mapping of health promoting efforts in schools concludes that school is a complex system in which people interact, influence and change their own as well as work climate and life situation of others. A caring school with respectful and supportive relations is created by sharing norms and values, in these conditions the emotional and social learning of students is inspired, this in turn affects school achievement. School is therefore an important arena for health prevention since all children can be reached. Research implies that prevention should be introduced in pre-school, longitudinally designed and counteract risks and problems. (Green, Tranqvist, & Eriksson, 2009, p. 29)

Results from research on adults' working life can be regarded in a student – school-work perspective. The happy-productive worker hypothesis proposes that "happy" employees show better work performance than "unhappy" employees. A longitudinal study found that psychological well-being significantly predicts job performance two years later (Wright, Cropanzano, Denney, & Moline, 2002, p. 146 ff.). Cross-sectional studies further show larger correlations between general psychological well-being and job performance than between job satisfaction and job performance (Wright, T.; Cropanzano, R., 2000, p. 87). (Cotton, Dollard, & de Jonge, 2002, p. 159). finds support that high levels of strain and dissatisfaction are results of poor structure of university students' work, satisfaction in turn predicts performance levels. In comparing results from the WHO survey "Health Behavior among school-aged

Children" in Finland, Latvia, Norway and Slovakia, Samdal et al. (1998, p. 394) indicate that in creating a good school environment, students' achievement as well as well-being improve. The National Agency for Education refer to results from international measures, PIRLS (Progress in Reading Literacy Study), TIMSS (Third International Mathematics and Science Study), PISA (Programme for International Student Assessment) when establishing that 80% of Swedish school children are satisfied with their school climate. On the other hand they question whether it is reasonable that the remaining 20% are disturbed and feel insecure in school (Skolverket, 2009). In a lecture by professor emeritus Ulla Lahtinen on the brilliant school achievements of Finnish students according to PISA, she points out that whereas the Finnish students who achieved highest had the lowest levels of well-being, the Danish students' who achieved lowest had the highest levels of well-being. Finland introduces a new subject for teachers' education and subsequently for comprehensive school, Hälsokunskap (health literacy) including a health promoting school/workplace, health dimensions (physical, mental, social, existential), health didactics, public health issues (youth, genus, ethnicity, age) on an individual, group and society level (working material not to be referenced)[1].

1.3.5 Self-efficacy

A considerable amount of research has been conducted with different aspects of self; self-belief, self-conscience, self-esteem, self-confidence, self-concept, self-determination, self-regulation etc. Definitions are somewhat blurred since the different aspects are closely related and measured in a way that makes it difficult to tell them apart. The term used in this thesis is self-efficacy or self-efficacy beliefs, which includes both skill and will to perform. The skills include emotional, physical, mental and social competences achieved by practice and interaction. The will to perform is related to interest, engagement and willingness to invest effort in a task.

Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. (Bandura, 1994)

The theory of self-efficacy is based on Bandura's Social Learning Theory. People learn by observing, imitating and modeling others' behaviors, attitudes, and outcomes of those behaviors. Necessary conditions for effective modeling are attention, retention, reproduction and motivation. Personal characteristics affect attention, retention means remembering what

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[1] Ulla Lahtinen, lecture at the State of the Science Conference, 2010-04-27

you paid attention to, reproducing includes personal capability and motivation is the good reason for imitation. A strong sense of efficacy is characterized by putting energy into new, challenging tasks, great effort in finishing the task and attributing failure to things one is in control of rather than blaming external factors. In case of failure recovery is quick and achieving personal goals is a likely outcome. On the other hand low self-efficacy students do not believe in success, effort is mediocre, challenging tasks are threatening and avoided. Low aspirations may result in poor academic achievement which in turn may become a self-fulfilling feedback cycle. Experiencing failure after having invested great effort undermines self-efficacy (Usher & Pajares, 2008, p. 779 f.).

1.4 Purpose and research questions

The purpose of this study is to explore the quality and content of previous reviews and to identify aspects in the school climate that positively affect individual academic achievement and mental health. Research questions are: What is the quality and content of previous systematic reviews on school, learning and mental health? What is the current state of knowledge concerning causal relationships between school climate, learning and mental health according to systematic reviews? What factors in the school climate can be identified as vital for positive outcomes and good mental health?

2. Method

A group of eleven experts within the fields of e.g. education, psychology and public health were appointed by the Health Committee at the Royal Swedish Academy of Sciences to conduct a systematic review on school, learning and mental health. The method described below was conducted by this project group, supported by two assistants, from August 2008 to March 2010 following the procedures for systematic review of research in education developed by the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre), see section 1.2.2. The literature search was carried out in collaboration with librarians at Stockholm University. Criteria for inclusion were: systematic review, published 1999-2009, ages 2-19 years, published in English in peer reviewed journals. 792 references were identified and the following extraction process was conducted in three steps: Abstract screening, full text screening, in-depth data extraction.

2.1 Literature search

Search words and –strings used in data base searches were connected to mental health and school environment, study-group aged 2-19, systematic reviews, longitudinally designed, published 1999-2009 in peer reviewed journals and in English. 10717 abstracts were found, categorized and screened for inclusion/exclusion. Excluded at this stage were 792 literature reviews (and other reviews) that were screened separately (see Figure 2). Included for full text screening were 1033 reviews. 471 relevant reviews remained meeting the inclusion criteria to be mapped i.e. data extracted and quality rated. Inclusion criteria at this stage concerned effects, relevance and longitudinal design. When checking for quality, 51 reviews remained for a narrative synthesis of schooling as determinant of mental health and of mental health as determinant of schooling (Figure 1).

The search procedures of the original systematic review on the relation between school and mental health are complex and not presented in detail. They are available in electronic form via the link www.buph.se. Here follows a short description of the procedures:

Major search word categories:

- Mental health – aspects such as:
    - internalizing symptoms (anxiety, depression, self-harm)
    - externalizing symptoms (hyperactivity, concentration problems, conduct disorders)
    - positive aspects of mental health
    - other psychiatric symptoms
- School environment – related to factors in eight categories:
    - individual activity (achievement, teaching methods, curriculum goals, homework, test etc.)
    - group activity (ability grouping, elite classes, age-mixed group)
    - special provisions (special education, inclusive education)
    - individual failure: drop out, school absenteeism, risk factors, perceive stress
    - relationships: teacher – student, peers, school
    - school organization: leadership, administration, funding
    - educational setting: rules, reward, discipline
    - changes in the educational system: reforms and their effects

2.1.1 Population

Children and adolescents in the age group 2-19, from pre-school to high school.

2.1.2 Design

1. Systematic review, meta-analysis, literature review
2. Longitudinal, follow-up, experimental

2.1.3 Criteria for exclusion

1. Interventions
2. Studies focusing on substance use
3. Studies focusing on children and adolescents with a diagnosis

2.1.4 Criteria for inclusion

1. Studies published in peer reviewed journals
2. Studies published 1999-2009

2.1.5 Data bases searched

1. ASSIA, Sociological Abstracts, Social services Abstracts
2. EBSCO, education, e.g. Academic Search Premier, ERIC
3. OVID, medicine and psychology, e.g. Medline, Psycinfo, Psycarticles

2.1.6 Search profiles

Build upon a combination with at least one term of:

a) Mental health concepts
b) Educational concepts
c) Population
d) Methodology

The process above resulted in 10717 references. Removed from these were 792 reports that were identified as literature reviews (and other reviews). A detailed description of the procedures of these 792 will follow.
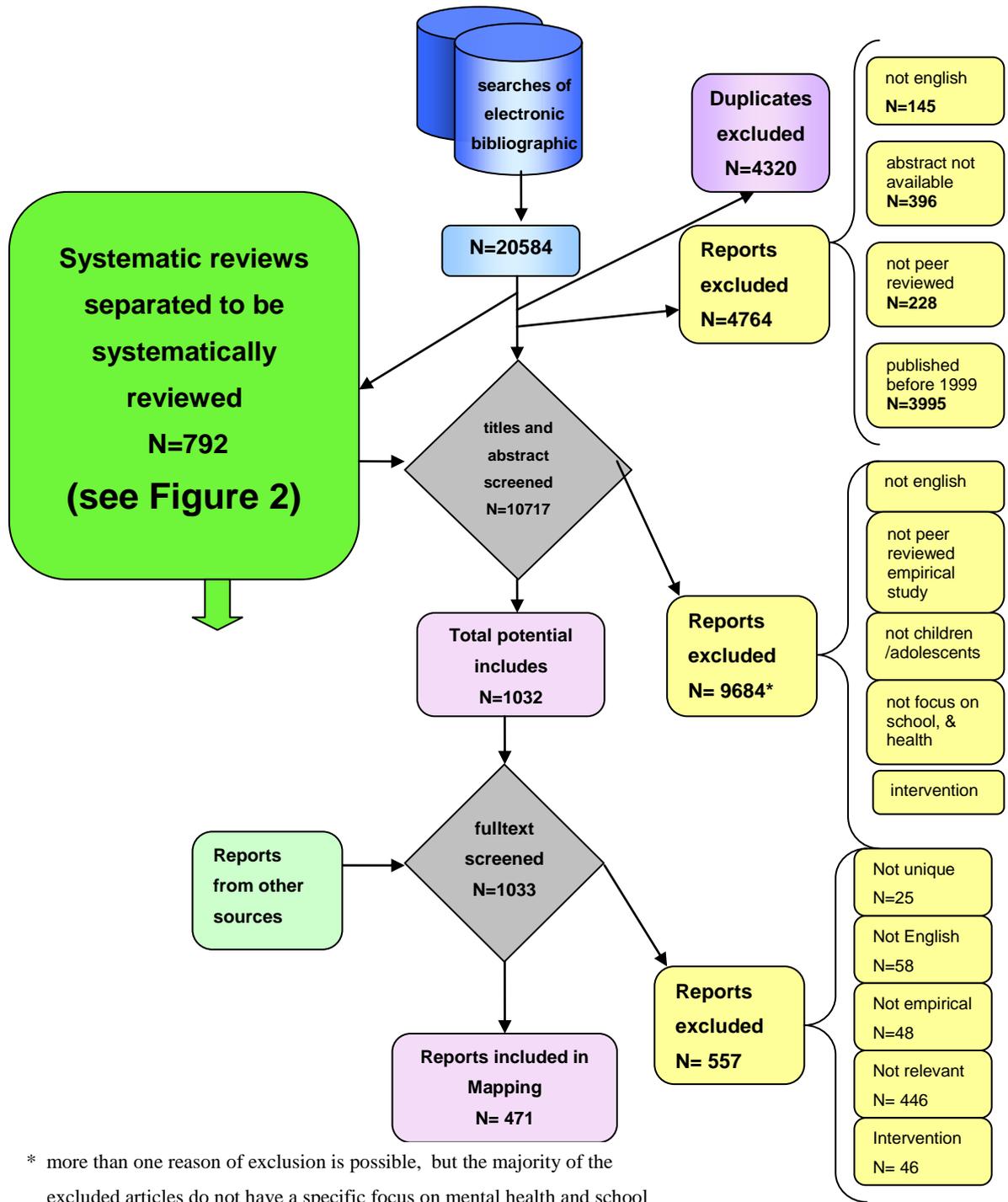
Figure 1. Flow of literature from the literature searches to the mapping phase. (Gustafsson, et al., 2010, p. 20)
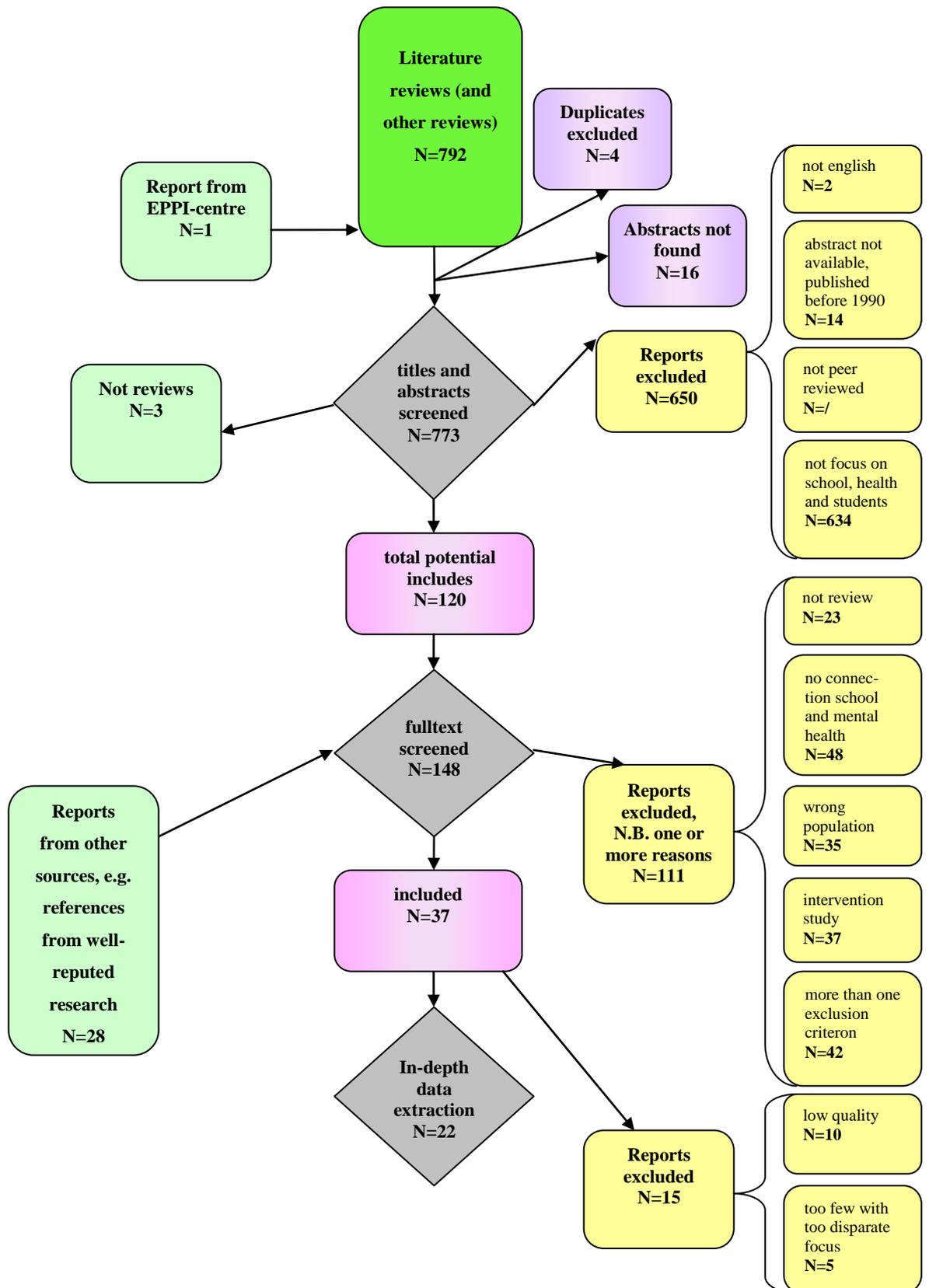
Figure 2. Flow of literature for the systematic reviews, literature reviews and meta-analyses from literature search to mapping.

2.2 Data extraction procedure

Based on the literature search procedures described in section 2.1, systematic reviews were separated for a mapping (see figure 2). The aim of this "review of systematic review" was to analyze the quality and content of previous reviews, in order to gain knowledge about aspects of form and content important for the over-arching review on school, learning and mental health. The extraction process of the review of literature reviews, systematic reviews and meta-analyses was conducted in three steps: Abstract screening, full text screening, in-depth data extraction. A special group of six persons, (four from the project group and two connected to CHILD, a research program focusing on every-day functioning in children and young people in need of special support, directed by professor Mats Granlund in the project group), conducted the extraction. To account for validity and reliability abstract and full text screening were performed in pairs and protocols were filled in (appendix 6.1, 6.2). In cases where the reviewers disagreed on inclusion/exclusion the reviewers discussed the case to decide on an agreement. Inter-rater agreement was 93,4% for the abstract screening and 86% for the full text screening. The in-depth data extraction was performed by two of the six reviewers cooperating closely. In the first step 792 titles/abstracts were identified, categorized, reviewed for relevance and screened using an inclusion/exclusion protocol. This step resulted in 148 included reviews. These were read in full-text in pairs of reviewers using an exclusion/inclusion protocol developed for rating quality and relevance of reviews. In total 37 out of the 148 reviews (25%) remained meeting the inclusion criteria to be data extracted and quality rated in the third step. Two categories were discerned in 22 reviews, the causal relationship between achievement and mental health and the causal relationship between school factors and mental health. In-depth data extraction was carried out on these reviews and categorized after method quality (high, medium, low), type and quality of information provided and content, i.e. type of relationship between school factors and mental health investigated. High quality reviews are characterized by describing quality assurance procedures, systemizing the rating of quality and having explicit aim/or research questions. In addition high quality reviews report search strategies, have explicit inclusion/exclusion criteria for studies, use an extraction protocol and report a tabulated display of characteristics e.g. time period covered, age span, number of studies included and countries represented of included studies. Medium quality reviews lack half of the criteria and low quality reviews contain research questions at the most. In addition, the means for which the reviews separated cross sectional and longitudinal studies were investigated.

Table 1: Detailed criteria of inclusion

<table>
<tr><td colspan="23">Detailed criteria of selection
Acceptable - High</td><td>Karin Bertills
23-okt-09</td></tr>
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ID		Author, art.nr	>1985	1986-1995	1996-2008	Not reported	2-5 yrs	6-9 yrs	10-15 yrs	16-19 yrs	Not reported	0-20	21-70	71-	Not reported	1	2	>3	Countries	Not reported	Acc.	High
4	230	Fletcher, Bonell and Hargreaves	1	1	1						1		1					1	3			1
22	794	Harlen and Crick	1	1	1			1	1	1		1						1	19			1
9	376	Klassen			1				1			1								1	1	
13	426	Ma	1	1				1	1	1			1					1	14		1	
14	427	Ma and Kishor	1	1				1	1	1				1						1	1	
23	863	Suldo				1		1	1	1					1			1	7		1	
25	936	Feldman and Matjasko		1	1				1	1			1			1					1	
27	991	Valentine, DuBois and Cooper	1	1	1				1	1			1					1	24		1	
29	1070	Maddox				1			1	1					1	1					1	
31	1140	Klassen	1	1	1			1	1	1			1							1	1	
34	1242	La Paro and Pianta		1	1		1	1						1						1	1	
37	1276	Dewey	1	1				1	1	1			1							1	1	
		Sum	7	9	7	2	1	7	10	9	1	2	6	2	2	2	0	5		5	10	2

* Number of references, not number of studies

As displayed in table 1 a majority of the reviews cover the years up till 1995, the age span 10-19 years, include 21-70 studies and the number of countries represented, in reviews not reporting the number of countries represented, a strong North American bias is indicated in the reference list.

2.2.1 Abstract screening

792 titles and abstracts were screened by pairs of reviewers. A protocol was filled out by each reviewer, deciding about inclusion or exclusion (appendix 6.1). Included were those studies, which met the inclusion criteria: published in English, peer reviewed, containing at least one factor relating to mental health and one relating to school and learning. These studies were categorized according to the procedures described in section 2.1 and into type of study: Systematic review, meta-analysis, literature review and other. Exclusion criteria were: lack of connection mental health – school factors (e.g. main focus is on mental health in family, substance abuse etc.) or wrong population (e.g. main focus on adults, ADHD students etc.). The average agreement between pairs was 93.4%. References that were included by at least one of the reviewers were included in the full text screening.

2.2.2 Full text screening

The remaining 120 reviews, adding 28 reported from other sources (e.g. references from well-reputed research) making a total number of 148 reviews, were full text screened by two reviewers. This was conducted in two steps. In the first step the protocol used for abstract-screening was used (appendix 6.1) and extended to include reporting of reason for exclusion. A majority of excluded studies (111/148) were excluded because of lack of relevance. In cases where the reviewers disagreed on inclusion/exclusion, a discussion between the pair resulted in exclusion or inclusion of the review. In total 37 reviews were included. Inter-rater agreement for inclusion/exclusion was 86%.

In a second step, for the 37 remaining reviews, information about the method, content and quality of each review was collected by two reviewers.

Each reviewer filled in a protocol (appendix 6.2) checking for:

- ➢ detailed extraction criteria; time span, ages studied, population, country, number of studies, type of study
- ➢ focus; mental symptom – student, mental symptom – school, health – student, health – school
- ➢ theory/model of explanation; genetic, environment or both. Level; individual, classroom, school, nation, type of measure, method of analysis
- ➢ findings; connection mental health – learning

The reviews were also quality rated on a low, medium, high scale based on whether the authors describe the establishment of quality, use a system for rating quality, have explicit

aim and/or research questions, report search strategies with search words and search strings for each data base, state inclusion/exclusion criteria, use a structured extraction protocol and report a tabulated display of included studies. In addition the reviews were mapped for focus of content (based on the reviewers free text summaries). Table 2 displays the type of relationship between achievement, school factors and mental health that has been studied. The summaries were categorized independently by two judges. Please note that certain summaries could be assigned to more than one category therefore the number of reviews in the categories is higher than the total number of reviews categorized.

Table 2: Focus of content in the reviews in relation to quality

Category	Type of relationship school factors – mental health studied	Total number of reviews	Reviews with medium or high quality
1.	Effects of achievement and learning on mental health	*4*	2
2.	Effects of mental health on achievement and learning	*14*	12
3.	The effect of peer relationships on mental health	2	1
4.	The effect of teacher relationship on mental health	3	2
5.	Mental health as a factor affecting bullying, victimization etc and vice versa	2	1
6.	Aspects of school organization and mental health	3	2
7.	School environment, school connectedness and mental health	**9**	6
8.	Selection of school, environment and specific risk groups	4	1
9.	Demographic factors, achievement and mental health	*4*	2
10.	Other	7	6

Table 2 reveals that 22 reviews focus on the relations between achievement and mental health (4+14+4 reviews in categories 1+2+9). Focus on relations between aspects of the school environment and mental health (category 7) is represented in 9 reviews. The remaining categories (3, 4, 5, 6, 8, 9) contain too few reviews (4 of 37, 11%), and category 10 contain disparate focuses, especially if only studies with medium or high quality ratings are included.

2.2.3 In-depth data extraction

The quality rating, which excluded ten reviews of low quality (10/37), the low number of reviews in categories 3,4,5,6,8 (4 of 37, 11%) and the diversity of content in category 10 resulted in 22 (out of 27) reviews of medium and high quality that were categorized into:

> ➤ The causal relationship between achievement and mental health
> ➤ The causal relationship between school factors and mental health

The in-depth data extraction was performed by two individual reviewers, filling in a protocol (appendix 6.3) with detailed and specified information about relevance, aims, focus, sample and context, study method, sampling strategy, methods of data collection and analysis, results and conclusions and overall quality of review.

The six reviews investigating the relations between positive aspects of mental health and achievement and learning and the six reviews that focus on the indirect relations between school factors and mental health and learning will be presented in section 3 and discussed and synthesized in section 4. Ten reviews dealing with mental illness will not be accounted for in this thesis. Two of the reviews contained information relevant for both the issues and one was excluded as not relevant, in total ten reviews were in-depth extracted for data. A longitudinal design is a prerequisite in investigating causal relationships, thus how the reviews processed studies in relation to longitudinal design was investigated.

Table 3: Number of longitudinal and cross-sectional reviews respectively

Review	Longitudinal studies	Cross-sectional studies	Clear distinction longitudinal/cross-sectional	
			yes	no
Fletcher et al.	13			X
Harlen & Crick		19		X
Klassen, writing		16		X
Ma & Kishor	2	141		X
Suldo et al.				X
Feldman & Matjasko	23	13		X
Valentine et al.	61		X	
Maddox & Prinz	5			X
Klassen		22		X
LaParo & Pianta	70			X
Dewey	27	16		X

Table 3 indicate that causal relationships are possible to investigate from the included in-depth studied reviews (7 out of 11), however result must be considered with caution since all but one review, do not present a clear distinction between longitudinal and cross-sectional designs in presenting their result.

2.3 Overall quality

According to (Dixon-Woods & Fitzpatrick, 2001, p. 130) quality assessment is essential in systematic reviews, since the findings are the result of other researchers. The validity is accounted for by ruling out the studies (in this thesis, reviews) of low quality. Thus, based on an integration of recommendations for method quality indicators for systematic reviews

(Auperin, Pignon, & Poynard, 1997, pp. 215-225); (Schlosser, Wendt, & Sigafoos, 2007, pp. 138-150) all 37 reviews included for mapping were rated for quality according to the criteria displayed in Table 4. Ten reviews were ruled out as of low quality, leaving 27 reviews of medium to high quality for further data extraction. Of these 27 reviews, five had too disparate focuses, leaving 22 reviews in three categories for in-depth data extraction. The categories that emerged were 1. The relation between positive aspects of mental health and learning, six reviews, 2. The relation between mental health problems and learning, ten reviews, and 3. Indirect relations between school factors and mental health and learning, six reviews.

Table 4: Number of included reviews that satisfied each method quality criteria

	Criteria	Yes	No	Do not know
1	The authors describe how the quality of the review has been established	14	22	1
2	A system for rating quality has been used	7	30	
3	The review has an explicit aim and/or research questions	31	6	
4	Systematic review (yes responses to 1-3 above)	12	24	1
5	Search strategies are reported with search words and search strings for each data base	18	19	
6	Inclusion/exclusion criteria are explicitly stated	22	15	
7	A structured extraction protocol was used	12	23	2
8	The review contains a tabulated display of included studies	15	22	

Table 4 indicates that the quality of the included reviews when judged against these criteria is relatively low. Criteria 1 how review quality has been established is described by 38% (14/37) and criteria 2 usage of system for rating quality is found in 19% (7/37) of the reviews. In addition relatively few reviews 32% (12/37) have used criteria 7, a structured extraction protocol for included studies. In total 32% (12/37) were rated as systematic reviews, criteria 4. (Gustafsson, et al., 2010, p. 22)

In addition to rating each review with the quality criteria above the reviewers assigned an overall quality rating to each review. This overall quality rating was compared with the total quality score for each review. Thus it was possible to obtain a reliability estimate for the detailed quality ratings.

Table 5: Number of reviews assigned a high, medium or low overall quality score

Overall quality	High/	Medium	Low
Number of reviews	10	17	10

The detailed quality criteria was scored depending on whether the review met each of the eight quality criteria (table 4) with 1 = yes and 0 = no. The total quality score for each review was compared with the overall ratings into low, medium or high quality for the reviews made by the judges.

High quality reviews, average quality score 5,8 (yes on 2-8 criteria), are characterized by describing quality assurance procedures, having explicit inclusion criteria for studies, using an extraction protocol and displaying characteristics of included studies in tables. Reviews with low quality, average quality score 0.4 (yes on 0-1 criteria), are characterized by not having an explicit aim, not providing or providing inadequate information about time period covered, age span, number of studies included and countries represented. In comparison to reviews rated as low quality, medium quality reviews, average quality score 3,8 (yes on 1-7 criteria) more frequently report search strategies, inclusion criteria, and included studies are displayed in tables.

2.4 Content characteristics

In the following tables content characteristics of the reviews are displayed. Both frequencies for all included studies and only for those with medium or high quality are displayed. Selection criteria used and information provided in the reviews: Time period covered, age span for review, number of studies included in the reviews, countries represented in the review, focus of content of reviews, theories and type of explanatory models applied. All the data presented in section 2.4, as well as tables 11 and 12 in section 3.1 and 3.2, are collected from the work performed by Granlund et al. (2010), (Granlund, Allodi-Westling, Almqvist, Bertills, Eriksson, & Persson, 2010), which so far only has been published in Gustafsson et al. (2010, p.21-32.). Appendix 6.3 developed by Gustafsson, et al., 2010, was used in both investigations.

2.4.1 Time period covered

The time period covered in search of studies have been registered for each review. Some reviews have partly or totally covered more than one of the time periods. The total number of reviews displayed is therefore higher than the total number of studies included.

Table 6:   Number of reviews covering different time periods

Time period	-1985		1986-1995		1996-2008		No information	
Quality	In total	Medium High	In total	Medium High	In total	Medium High	In total	Medium High
Number	20	17	24	20	17	15	9	4

As displayed in table 6 many reviews cover the time span before 1985 and 1986-1995. The pattern is similar regardless if all reviews are analyzed or only reviews with medium to high quality.

2.4.2 Age span of children

The age spans of children on which each review have their focus have been registered.

Table 7: Number of reviews including children from different age spans

Agespan	2-5 years		6-9 years		10-15 years		16-19 years	
Quality	In total	Medium High	In total	Medium High	In total	Medium High	In total	Medium High
Number	8	4	23	16	30	21	26	19

As displayed in Table 7 many reviews cover the age spans from ten years and older. Few cover children in the lower age spans. The patterns are similar whether all reviews are displayed (36%) or only reviews with medium and high quality ratings (33%).

2.4.3 Number of studies included in the reviews

The number of studies that have been included in the reviews has been registered. In some reviews no specific number has been explicitly stated. If possible, the number of studies included in these reviews, have been inferred from table of included studies and/or the text and reference lists.

Table 8. Number of studies included in each review

Number of studies included	0-20		21-70		71-		No information	
Quality rating	In total	Medium High	In total	Medium High	In total	Medium High	In total	Medium High
Number	5	5	11 *	11	4	4	11	3

Table 8 indicates that many reviews include 21-70 studies. The number of studies included provides an indication on how broad search criteria that have been applied (higher number of included studies broader search criteria) and/or on how strict inclusion criteria that have been applied (low number of studies included more strict criteria). * plus six where only references were counted

2.4.4 Countries represented in the review

Values and attitudes toward school as well as school systems show variations between countries. Reviews may have a certain bias by being based primarily on studies representing a certain country. For each review included the text has been searched for information concerning from what countries included studies have collected their empirical data.

Table 9:   Number of reviews that have included studies from 1, 2 or 3 or more countries respectively

Number of countries represented	3 or more		2		1		No information	
Quality rating	In total	Medium High	In total	Medium High	In total	Medium High	In total	Medium High
Number	8	8	1	1	4	3	24	15

Table 9 shows that twenty four reviews have been assigned to the category "no information". The reference lists indicate that these reviews primarily or solely have used North American studies for their review. In all studies that have named more than one country as the basis for their review also North American studies are included. The result indicates a strong bias towards North American studies.

2.4.5 Focus of content

Type of relation between mental health and school factors studied

The reviewers have made a preliminary analysis of the content of the reviews based on two dichotomies. Firstly whether the focus of the review is on mental illness or positive aspects of mental health and secondly whether the focus of the review is information from individual children or on information from school level. In some reviews several of these aspects are in focus, thus the number of reviews in the table is higher than the number of reviews that have been analyzed. The definitions used by the reviewers for their judgments are provided here:

Mental health symptom = mental health is lack of symptoms such as internalizing or externalizing problems

Positive aspects of mental health = a continuum from little/low to good/high on characteristics such as self efficacy, sense of coherence, life satisfaction, control and quality of life.

Student = measure on individual level such as grade average, national test results, school connectedness, engagement in school

School = measure based on overall school/classroom phenomena such as atmosphere, group size, teaching method

Table 10:   Number of reviews with different focuses concerning perspective on mental health and level of phenomena studied

Relation in focus	Total number of reviews	Reviews with medium/high quality
Mental health symptom – student	24	18
Mental health symptom – school	16	12

Positive aspects of mental health - student	24	16
Positive aspects of mental health - school	15	8

The same pattern is displayed whether the total number of reviews or only reviews with medium to high quality ratings is analyzed. More reviews focus on data obtained from individual students than on data obtained on school level. In addition, there is a trend towards a stronger focus on mental health symptoms than on positive aspects of mental health.

2.5 Validity and Reliability

The overall quality of systematic reviews on the relationship between school climate factors, learning and mental health is rather low, as shown by the percentages of the following quality criteria.

1. 38% of the reviews (14/37) describe how quality has been established
2. 19% (7/37) systemize the rating of quality
3. 84% (31/37) have explicit aim and/or research questions
4. 32% (12/37) were rated as systematic reviews
5. 49% (18/37) report search strategies with search words and search strings
6. 59% (22/37) state inclusion/exclusion criteria
7. 32% (12/37) use structured extraction protocol
8. 40% (15/37) contain a tabulated display of included studies

Due to the overall low quality a decision was made to include only studies of medium or high quality. Ten reviews of low quality were excluded improving the quality considerably, although among the remaining 27 reviews of high and medium quality, only 11% (3/27) reached all the criteria for quality. Reliability was estimated by scoring the detailed quality score with 1 = yes and 0 = no. Average quality score for studies of high quality was 5,8 (2-8), for medium quality 3,8 (1-7) and for low quality 0.4 (0-1). To account for reliability each review was read, quality rated and extracted for data by two reviewers. In the abstract screening inter-rater agreement was 93,4% and in the full text screening 86%. There is a severe bias towards North-American studies to account for.

3. Results

In accordance with the definition of mental health, learning, achievement, school climate and (section 1.3), the concepts are complex and relate to each other in different ways depending on what aspect is studied. The aim of the current thesis is to study aspects of school climate

affecting positive academic outcomes, thus concentrating on the themes positive aspects of mental health and indirect relations. In the first case all the six reviews found deal with self concepts. Mental health seem to determine outcome. Since the measures of self-efficacy do not always follow the definition of self-efficacy, but include other self-beliefs they are too general to be reliable (Klassen, 2002, p. 195). The level of specificity is important when measuring self-efficacy in relation to achievement, the more specific task e.g. 30 min-essay, the better prediction of achievement (Valentine, DuBois, & Cooper, 2004, p. 128). Most frequently measured are results in reading, writing and mathematics or on tests. In the second case school factors may affect outcome positively or negatively. School factors are described either as relationships, teacher – student/ student – peer, or in terms of school atmosphere outside the classroom e.g. ethos, connectedness and involvement. The various concepts express students' general perception of school and factors important for the school climate. The reviews report a negative relationship between school factors and problems with mental health and a positive relationship between school factors and positive life outcomes. The facts that positive life outcomes are described in general terms, the reviews not making a clear distinction between longitudinal and cross sectional studies, and the small number of studies measuring school environment factors make it difficult to draw conclusions about causal relation between positive aspects of mental health/school factors and achievement/learning.

3.1 Positive aspects of self- efficacy

One category of studies focus on relations between positive aspects of achievement and learning and mental health. Six studies of medium or high quality were identified. Only one of Klassen's two studies (2002a, 2002b) is considered in this thesis, since the results are similar and one is referred to in the other.

3.1.1 Studies

Klassen (2002a) examines and summarizes self-efficacy related research on writing in early adolescence. Self-efficacy beliefs play a primary role in predicting student writing performance. Although no performance difference was found, boys tend to rate their confidence to complete a writing skill higher than girls. Schools and teachers need to increase students' self-efficacy as well as improve their skills and competence. Whereas a slight overestimation of writing skill is optimal for normal-achieving students, students with learning disabilities (LD) tend to over-estimate their skills. (Klassen, 2002, p. 189 f.)

Valentine et al. (2004) use meta-analysis to synthesize findings of the relation between self-beliefs and achievement from longitudinal studies. Self-efficacy belief studies are either based on the assumption that they predict positive outcomes or used to support the opposing view that have a more competitive approach to achievement e.g. graduation requirements. Efforts aimed at improving academic achievement should be designed in a way that also strengthens self-beliefs which in turn is beneficial for success in school. Conditions of importance are opportunities for students to master course material, provision of support for students' choice and involvement in learning activities, and individual adaption of tasks for facilitating success and limiting failure. Efforts considering these conditions are most beneficial when positive beliefs and feelings about self are tied to specifically targeted domains of school achievement. Global or general feelings about self in a wider context does not necessarily influence academic achievement positively. Hansford and Hattie confirm in their meta-analysis that academic achievement correlates with academic self-concept, but not with general self-concept. They also found a significant variation of association between self and achievement in secondary students, but not for preschool students. (Hansford & Hattie, 1982) see (Valentine, DuBois, & Cooper, 2004, p. 116). Another result of interest is that perceived self-efficacy is an especially valuable resource in school transitions, e.g. moving from middle school to high school, where a new physical environment, a new social structure and more difficult school work has a declining effect on self-efficacy (Simmons & Blyth, 1987, p. 1230).

In a meta-analysis by Ma and Kishor (1997) the relation between attitude towards self and achievement in mathematics is studied. They found statistically reliable data on a relation between self-concept and achievement in mathematics. The relation varies throughout school, but experience of self and achievement is of major importance in one particular period, junior high school when students are 12-13 years of age. At this age there is a decline in self-concept that negatively influence achievement in mathematics as a whole academic area. (Ma & Kishor, 1997, p. 99 ff.)

Whether testing raises standards or has a negative impact on motivation for learning is studied in a systematic review by Harlen and Crick (2003). The complex concept of motivation, the will to learn, encompasses self-esteem, self-efficacy, effort, self-regulation, locus of control and goal orientation. Older students (11 years old and older) understand grades better than younger students and attribute success to effort and ability whereas younger ones refer to external factors. Older students are also focusing on performance outcomes rather than learning processes, but show more test anxiety than younger ones. High achieving students

25

are less affected by grading than low achievers whose self-esteem is doubly disadvantaged. Being a "failure" impacts current feelings and lowers their already low self-esteem which reduces their future effort and success. Boys prefer hands-on tasks and problem-solving and girls are more likely to prefer "sequential" learning, that is when following clear instructions. Girls show more test anxiety and their self-esteem is affected by explaining success or failure in terms of internal attributes to a greater extent than boys. Feedback plays an important role in self-efficacy since it is judged from previous performance in a specific task and influences further willingness to invest effort in future tasks. Goal-orientation, effort and interest are connected to each other and feedback should be task related, non-ego involving and directed towards a feasible goal in order to promote effort and interest. Self-efficacy and achievement is promoted in conditions where the students can influence and are in control of their learning process, self-regulation and self-evaluation. (Harlen & Deakin Crick, 2003, p. 200 ff.)

The role of school-based extracurricular activities in adolescent functioning has been reviewed by Feldman and Matjasko (2005). One of their own investigations, the National Longitudinal Study of Adolescent Health, showed that 70% of the adolescents interviewed participated in at least one structured extracurricular activity. The most common and most commonly studied activity is team-sports participation, others are for example music, drama, vocational or newspaper clubs. The results refer to structured activities, as contrasted to unstructured activities which are neither regular nor supervised by an adult. The article focuses on patterns of participation, academic achievement, substance use, sexual activity, psychological adjustment, delinquency and young adult outcomes. Overall the study shows a positive association between structured extracurricular activity and positive adolescent functioning. School-based structured extracurricular activities provide adolescents with prosocial activities and supportive peers and adults. The participants are offered challenges, a sense of belonging and develop a social capital. Adolescents achieve higher self-esteem, less worry about the future and reduced feelings of social isolation. Positive outcomes include higher academic achievement and educational aspiration. (Feldman & Matjasko, 2005, pp. 159-210)

Table 11 Characteristics and results from reviews investigating the relations between positive aspects of mental health and achievement and learning. (Gustafsson, et al., 2010, pp. 25-26)

Review	Purpose	Number and context	Result relevant for this review	Authors conclusions
Klassen, R. (2002). Writing in early adolescence. A review of the role of self-efficacy beliefs. *Educational Psychology review*	This review attempts to explain the role of self-efficacy in a specific developmental period and in a specific domain. Another purpose is to examine the selected research for differences in self-efficacy beliefs associated with grade level, gender and disability	16 studies only representing the USA	Many measures of self-efficacy too general to be reliable. Self-efficacy beliefs play an important role in predicting writing achievement in early adolescence. Gender appeared to influence efficacy beliefs, but not performance, with boys ratings their writing confidence higher than girls	Adolescence is an important transition period. With physical, social and academic challenges resulting in a sense of loss of personal control for many young people. Belief in one's efficacy to perform academically is often depressed in that period, and writing tasks which demand the mustering together of a host of motivational beliefs and organizational skills, often suffers. Research that explores self-beliefs in this context builds understanding of the mechanisms that influence performance
Klassen, R. (2002). A question of calibration: A review of the self-efficacy beliefs of students with learning disabilities. *Learning Disability Quarterly*	To examine how students with learning disabilities-who have been shown to display poor task analysis and meta-cognitive skills – calibrate their efficacy beliefs with criteria tasks	22, primarily studies from the USA	Self-efficacy ratings were predictive of subsequent functioning and increase in conjunction with intervention and subsequent performance increases. Gender differences and differences between LD and non-LD students offered few obvious trends. Investigations into the domain of writing showed the most consistent problems with calibration. This is less obvious in mathematics	Some students with LD overestimate their efficacy to complete writing tasks
Valentine, J., DuBois, D., & Cooper, H. (2004). The relationship between self-beliefs and academic achievement. A meta-analytic review. *Educational Psychologist*	This article uses meta-analysis to synthesize findings of longitudinal investigations of the relation of self-beliefs to academic achievement	55 whereof 36 USA and 20 western countries	Among equally achieving students, having positive self-beliefs confers a small but noteworthy advantage on subsequent achievement measures relative to students who exhibit less favorable self-beliefs. Self-beliefs pertaining to the academic domain represent a more important influence on achievement than global or general beliefs and feelings about self. Level of specificity at which self-beliefs are measured is a more important consideration than the particular type of self-system component that such beliefs resemble	By addressing perhaps the most plausible rival hypothesis, that prior achievement causes both self-beliefs and later achievement, findings can be viewed as moving a significant step beyond prior reviews that have been limited primarily to a focus on the strength of concurrent relations between self and achievement measures. Overall there is encouraging evidence of a contribution of self-beliefs to achievement as well as a considerable potential for the magnitude of this potential to be underestimated due to various methodological limitations of extant studies

Review	Purpose	Number and context	Result relevant for this review	Authors conclusions
Ma,X., & Kishor, N. (1997). Attitude towards self, social factors, and achievement in mathematics: A meta-analytic review. *Educational Psychology Review*	Investigating the relationship between attitude towards self and social factors with achievement in mathematics	143 studies and 2 syntheses. Different ethnic groups and some variations in countries, however a USA dominance	The mean effect size (as expressed in the correlation between self-concept and achievement in mathematics) was 0.23. It suggests that the relationship between self-concept and achievement is statistically reliable. No gender differences, but age differences, junior high (12-13 years of age is especially important). A wide variation of the self-concept – achievement relationship across ethnic groups.	Self-concept has surfaced as a critical factor in a person's academic success Self-concept is content specific in its relation to achievement.
Harlen, W., & Crick, R. (2003). Testing and motivation for learning. *Assessment for learning*	To identify evidence of any impact of testing and other forms of summative assessment on students' motivation for learning	19 studies, 1 Canada, 1 Israel, 1 Morocco, 8 UK, 8 USA	1)What I feel and think about myself as a learner: precise/sequential learning disposition is related to high self-esteem and internal locus of control. Students who achieve low on test tend to develop lower self-esteem. Feedback in terms of grade difficult to understand, especially for young students, 2) The energy I put into the task: Feedback is a significant factor influencing willingness to invest effort in a task. Greater effort is associated with learning goals rather than performance goals. Promoting task involvement by giving task related, non-ego involving, feedback may promote the interest ad-performance of most students. Low achievers are affected negatively by testing. Girls are more likely than boys to have high self-esteem in class rooms favouring sequential learning. Teacher are affected by summative testing in the direction of spending more time of direct instruction related to tests and less time on learning through inquiry and problem-solving.	Draw attention to the small number of studies that were found to offer dependable evidence to address the question posed in this review. There are important reason for serious attention to motivation for learning as an outcome of education

Review	Purpose	Number and context	Result relevant for this review	Authors conclusions
Feldman, A., & Matjasko, J. (2005) The role of school based extracurricular activities in adolescent development: A comprehensive review and further directions. *Review of Educational research*	In this review we integrate findings from across sociology, education and psychology to provide a comprehensive picture of rates of school-based extracurricular activity participation, the consequences of such participation, and the current understanding of mediators and moderators of the effects of participation and to develop a more complete understanding of the link between activity participation and adolescent development.	45 studies, US studies only	Activity participation in structured activities has a positive relationship with both achievement, educational aspirations and psychological well being. These relationships are mediated by peer net works and supportive relations with adults	Activity participation has many positive influences on adolescent and young adult outcomes. However, it is necessary to measure activity participation in a thorough manner , to use a comprehensive theoretical frame work to model the influence of participation.

3.1.2 Summary

The studies in this section generally indicate that there is a positive relation between self-efficacy and academic achievement. There is a difference between academic self-efficacy and global self-efficacy. Academic self-efficacy refers to whether the student believes that he/she can perform and complete a school task and global self-efficacy refers to general feelings about self. When checking for variables connected to global self-efficacy most studies fail to demonstrate such a relation. The positive relation is statistically significant between academic self-efficacy and academic achievement in terms of academic self-efficacy in a specific school domain. (Klassen 2002, p. 193, Ma & Kishor 1997, p. 99, Valentine, DuBois D.L. & Cooper H 2004, p. 126)

One review reports links between a higher self-esteem and reduced rates of dropout and delinquent behaviors and lower rates of substance use. Structured extracurricular activities offering prosocial and supportive peers and adults seem to have an indirect effect of self-esteem on academic achievement, via gains in mental health. (Feldman & Matjasko 2005, p. 193)

3.2 Positive aspects of school climate

One category of studies focus on relations between aspects of the school environment and mental health. Six studies of medium or high quality were identified. An in-depth analysis ruled out one as not relevant to this thesis and added another previously mentioned, Harlen and Crick (2003) as giving additional information about school climate.

3.2.1 Studies

Effects of school-level changes on drug use and school-level influences on individual drug use are the aims of a systematic review by Fletcher et al. (2008). By examining the effect of changes in the school environment on substance use they suggest that actions to improve school ethos, student engagement and school relationship are associated with reduced drug use. School climate is expressed in terms such as ethos, engagement and participation. The west of Scotland study followed students from age 11 into secondary school and measured health behaviors at age 13 and 15. Disengagement, based on questions on liking school, feeling safe and being part of school, and poor teacher-student relationships were significantly associated with drug use at ages 13 and 15, but also regular drinking and smoking. Schools with poor school environment, pupil involvement, pupil engagement and teacher-pupil relations had poorer health outcomes, in terms of numbers of students smoking at 13 (West, Sweeting, & Leyland, 2004, p. 281 ff.). Individual level predictors were found

in the U.S. National Longitudinal Study of Adolescent Health. Students at age 15 who reported that they were treated fairly by their teachers, and felt that their teachers cared about them were significantly less likely to have tried or regularly smoked cannabis one year later. Teacher support was protective against getting drunk 2-3 times in the last month, having smoked on at least 20 times in the last month, and not using a condom when having sex for the first time (McNeely & Falci, 2004, p. 286 ff.). Other factors such as commitment and attachment to school, educational expectations, positive attitudes to school and extracurricular activities are also reported as being protective against substance use. (Fletcher, Bonell, & Hargreaves, 2008, pp. 209-220)

Results from a literature review by Suldo et al. (2006) of correlates between life satisfaction and academic achievement fails to prove a positive relation. However their research on life satisfaction highlights school climate as a predictive factor in determining school satisfaction (as opposed to global or life satisfaction). In an examination of school climate in relation to school satisfaction with 16000 students aged 11,13 and 15 in Finland, Latvia, Norway and Slovakia the largest predictors of students' school satisfaction were being treated fairly, supportive teachers and feelings of safety at school (Samdal, Nutbeam, Wold, & Kannas, 1998, p. 389 ff.). One aspect of school climate related to adolescents' overall or global life satisfaction is the finding in one study that high teacher support is characteristic for very happy youth (Suldo & Huebner, 2006, p. 196). This study used well-validated and specific scales of both teacher support and life satisfaction, however the authors point out that perceived well-being should be examined in relation to other aspects of school climate (e.g. safety, relationship among peers, fairness and the degree of order and structure within a school system) and internationally in order to gain results possible to generalize. School is important to children's global life satisfaction, the strongest relation is connected to factors such as students' perception of academic ability, teacher support and overall satisfaction with school. (Suldo, Riley, & Shaffer, 2006, pp. 567-582)

Feldman and Matjasko's (2005) review of the role of extracurricular activities includes studies that describe extracurricular activities as a key setting in understanding adolescent development. A setting where identity is expressed and explored and where you find friends and discover preferences. What you do outside school impacts in various ways the classroom climate. Participation in school-based extracurricular activities structures individuals' time and kind of values and norms (Eckert, 1989) see (Feldman & Matjasko, 2005, p. 162). Extracurricular activities, in terms of involvement in schooling, provides a challenging setting outside the classroom that helps students to maintain contact with the school environment (Finn, 1989, s. 128 f.). Case studies of nine high-achieving economically

disadvantaged female urban high school students, reported that these young women identified extracurricular activities, among other factors as being extremely influential to their academic success by enabling them to develop supportive networks of high-achieving peers and adults (Reis & Diaz, 1999, p. 53). Extracurricular activities are bridge-building in the sense that teachers and students share the same interest, meet outside school and give them something apart from school-work to talk about. (Feldman & Matjasko, 2005, pp. 159-210)

School bonding, or perceived connection to school that youth experience is reviewed by Maddox and Prinz (2003). The authors accede to the social development model, which establishes school bonding as a protective factor promoting positive life outcomes through its effects on opportunities for prosocial interactions. The social development model states its developmental considerations. In preschool ages, family is important for children to learn the rules for and skills to socialize. By entering school, children become socially influenced by school, family and peers. In adolescence there is a major transition with opportunities for both prosocial and antisocial involvement, peers become more influential and a student with a prosocial family and prosocial school bonds may have antisocial peers. Promoting family and school bonds is a protective factor for prosocial interactions. Within the concept of school bonding lies aspects of attachment, commitment and involvement. Attachment to school, i.e. feelings about school and degree of care, and attachment to personnel, teachers as well as administrators. School commitment refers to a personal investment concerning beliefs and behavior. Beliefs about future achievement and good grades and behavior e.g. homework completion. School involvement is a behavioral connection to the institution, e.g. extracurricular activities. Measuring school bonding is complex and the variation in measurement makes it difficult to evaluate the research. The authors conclude that when examining school-bonding, factors such as gender, culture and socio-economic status should be considered. (Maddox & Prinz, 2003, pp. 31-49)

Dewey (2008) establishes that school type and school climate is positively related to greater substance use due to the number of risk factors students are exposed to. However when considering demographic variables and neighborhood, peer and family variables, i.e. dangerous surroundings, anti-social peers and poor family bonds, school may function as a protective factor. (Dewey, 1999, pp. 177-225)

The above mentioned review by Harlen and Crick (2003) contains aspects of school climate relevant for this study. The existence of the tests creates a classroom climate that has a considerable effect on self-esteem and locus of control. In classrooms where students are encouraged to evaluate their work rather than its features e.g. neat, right and feel that they are in control over their work, task- or learning-goals promote self-efficacy and achievement

(Perry, 1998, p. 723 ff.). Whereas boys prefer hands-on experiences and problem-solving tasks, girls are more likely to have a higher self-esteem in classrooms where the dominant teaching strategy is sequential learning, i.e. to have clear directions to follow and a more test-orientated approach. When students get older and stakes are raising teachers that use to help their students to learn, i.e. formative assessment, tend to interact assessment with their students in a summative, performance-related way. In other words teachers become more test orientated and spend less time on inquiry and problem-solving. Students are apt to adapt to the subtle change in criteria and judge their own work accordingly. The findings suggest positive action towards a practice with teaching styles which include the promotion of a learning goal orientation, cultivation of interest instead of grades, teaching approaches that encourage collaboration among students, explanation of reason for tests, provision of feedback and broadening the range of information about a student's progress. (Harlen & Deakin Crick, 2003, p. 201)

3.2.2 Summary

The studies in this section give support to a relation between school climate and learning. School climate is expressed in terms such as school ethos (Fletcher, Bonell, & Hargreaves, 2008, p. 209), school-bonding (Maddox & Prinz, 2003, p. 31) and school satisfaction (Suldo, Riley, & Shaffer, 2006, p. 570) all the terms include students' perception of connection to school. School attachment, school commitment and school involvement refer both to students beliefs and behaviors. All the reviews report the importance of supportive teachers. Teachers influence adolescents' well-being in many different ways, by being supportive adults (Feldman & Matjasko, 2005, p. 189), role-models (Maddox & Prinz, 2003, p. 32), protective guardians (Dewey, 1999, p. 217), caring and fair (Suldo, Riley, & Shaffer, 2006, p. 571 f.), and by their teaching styles (Harlen & Deakin Crick, 2003, p. 199 f.).

Table 12 Characteristics and results of the 6 reviews that focus on the relation between school factors, mental health and achievement and learning (Gustafsson, et al., 2010, pp. 29-30)

Review	Purpose	Number and context	Result relevant for this review	Authors conclusions
Fletcher A., Bonell C., Hargreaves J. (2008). School Effects on Young People's Drug Use: A systematic Review of Intervention and Observational Studies *Journal Of Adolescent Health*	Identify effects of school-level changes on drug use Explore possible mechanisms by which school-level influences on individual drug use might occur.	10 USA, 3 internation al studies; Australia, The Netherland s, Scotland	Interventions studies: there is a causal association between changes in the school environment (ethos, engagement, participation) and reduction of risk behaviour and drug use, especially for boys and especially for early interventions in secondary school. Observational studies (a large number of): disengagement from school and poor teacher-student relationship were associated with subsequent drug use, and risk behaviour. Low school connectedness, truancy and suspension were associated with higher rates of drug use 2-4 years later. The processes cannot be exhaustively described.	Fill an important research gap by systematically reviewing high-quality quantitative studies examining school effects on young people's drug use as well as those examining how individuals' drug use relates to their experiences of, and attitudes to, school.
Suldo S., Riley K., Shaffer E. (2006). Academic Correlates of Children and Adolescents' Life Satisfaction *School Psychology International*	Literature review to provide a comprehensive summary of the multiple school-related correlates of life satisfaction. Also intended to identify limitations in existing knowledge for future studies	Not stated, many American (more than 150 schools), UK, Norway, Finland, Latvia, China, Japan	Being treated fairly, supportive teachers and feelings of safety are important components of school climate No relationship intelligence – global happiness Life satisfaction - academic achievement, teacher support and perceived academic competence need further information about specific populations and cross-cultural research before making definitive statements.	Students' perception of academic ability, teacher support and overall satisfaction with school strongly related to children's global life satisfaction. Researchers should describe the academic environments.
Feldman, A., Matjasko, L. (2005). The Role of School-Based Extracurricular Activities in Adolescent Development: A Comprehensive Review and Future Directions *Review of Educational Research*	Review literature on school-based activity participation patterns focusing on academic achievement, substance use, sexual activity, psychological adjustment, delinquency and young adult outcomes.	USA, Sweden (1)	Structured school-based extracurricular activity participation is associated with positive adolescent developmental outcomes: • Higher academic performance • Reduced rates of dropout • Lower rates of substance use • Less sexual activity among girls • Better psychological adjustment (higher self-esteem, less worry regarding the future, reduced feelings of social isolation) • Reduced rates of delinquent behaviour (criminal arrests,	There is evidence that activity participation has positive influence on development and outcome. Extent of impact needs refined inquiry. Suggest a comprehensive theoretical framework to include social networks and supportive adult relationships.

			antisocial behaviour)	
Review	**Purpose**	**Number and context**	**Result relevant for this review**	**Authors conclusions**
Maddox S. & Prinz R. (2003). School bonding in children and adolescents: Conceptualization, Assessment, and Associated Variables *Clinical child and family psychology review*	To review conceptualization, measurements, theories of school bonding	Not stated. Mainly American, one from New Zealand	School-bonding is a multidimensional concept. The social development model establishes school bonding as a protective factor promoting positive life outcomes through its effects on opportunities for pro-social interactions. External constraints, demographic factors and individual factors affect the youth's opportunities and skills for involvement. This affects amount of reinforcement, which promotes attachment (to school and people). This in turn affects attitudes (self-beliefs) and subsequent behaviors e.g. academic performance	In prevention programs: Conceptualization of school bonding should include the domains attachment to school, attachment to personnel, school commitment, and school involvement Family factors, gender, cultural, SES, developmental effects should be considered.
Dewey, J.(1999). Reviewing the Relationship Between School Factors and Substance Use for Elementary, Middle and High School Students *The Journal of Primary Prevention*	Review school-related variables (such as academic performance, absenteeism, and noncompletion) related to substance use.	Mostly the USA, 1 West Germany (Berlin), 1 Canada (Calgary)	Greater number of risk factors connected to increased substance use. Higher grades – lower drug use and vice versa Several studies indicate causal relationship between GPA, absenteeism, educational aspirations, noncompletion and substance use, others don't. School type and climate; continuation (behavioural problems) school students had a higher risk factor score and more risk factors than regular school students. School climate (teachers, peer students, environment, undisciplined atmosphere) plays an important role in substance use, but considering neighbourhood, peer and family variables, school functions as a mediator.	The statistical relationship can establish an antecedent, but not a causal connection
La Paro K., Pianta R. (2000). Predicting Children's Competence in the Early School Years: A Meta-Analytic Review *Review of Educational Research*	Estimate cross-time relations between children's early school outcomes and measures of their skills and abilities in preschool or kindergarten.	USA	Early assessments make small to moderate effects to the predictability of children's early school success. Effect size moderate for predicting academic/cognitive assessment (explains 25% of the variance) Effect size small for predicting social/behavioral assessment. More influenced by environment.	Provides empirical support that defining and assessing "readiness" in other terms than skills and abilities would add important information to current practices

3.3 Risk factors as indicators of poor mental health

Five of the studies also deal with risk factors, the outcomes of which are indicators of poor mental health. Since risk factors are important for the conclusion, although not the target of this thesis, a bulleted list of the results found in these reviews will follow.

- High levels of school bonding are associated with lower levels of antisocial behavior, substance use and delinquency (Maddox & Prinz, 2003, p. 45).
- School functions as protective against drug use, when considering demographic, neighborhood, peer and family variables, i.e. dangerous surroundings, anti-social peers and poor family bonds. School type and school climate is important, the higher number of risk factors the higher positive correlation to substance use (Dewey, 1999, p. 216).
- There is a causal relationship between school experiences and attitudes, and risk behaviors and drug use (Fletcher, Bonell, & Hargreaves, 2008, p. 218).
- Structured extracurricular activities are associated with lower drop-out rates, substance use, delinquency and less sexual activity among girls (Feldman & Matjasko, 2005, p. 193). Adolescents with bad parental relationship, who perceived high levels of support from their activity leader reported lower levels of depressed mood (Mahoney, Schweder, & Stattin, 2002, p. 69).
- Teachers' teaching style has great impact on students' perceived self-efficacy. A summative, performance related teaching style boosts low self-esteem. A formative, task- and learning-centered teaching style promotes self-efficacy. The feeling of being a "failure" has negative effects on mental health of students. Conditions increasing self-efficacy in students' effort and achievement are self-regulation and self-evaluation. A student being able to influence his/her learning and properly evaluate his/her achievement perceives self-efficacy (Harlen & Deakin Crick, 2003, p. 197 ff.).

4. Discussion

This study shows that:

- The overall quality of systematic reviews is low
- Self-efficacy need to be measured on specific tasks
- Mental illness may be caused by school failure
- Transitions are problematic

- A positive school climate promotes achievement and good mental health
- Improving school achievement is jointly connected to promotion of self-efficacy and developing a good school climate

The findings of the twelve medium-high quality literature reviews (and other reviews) will be presented in accordance with the areas focused on when the Swedish National Agency for Education measures school climate: individual level, physical environment and school work. However, physical environment will not be dealt with since there are no findings to report about the physical environment. The reason for this is probably due to the search criteria used to identify relevant studies for the relation between school, learning and mental health. There is reason to believe that a search for the relation between school, learning and physical health would have resulted in relevant findings but that is not the aim of this study.

4.1 Content and quality

The quality of systematic reviews dealing with the relation between school climate, learning and mental health is notably low. In fact only 32% were rated as systematic reviews. High quality reviews are characterized by describing quality assurance procedures, systemizing the rating of quality, having explicit aim/or research questions. In addition high quality reviews report search strategies, have explicit inclusion/exclusion criteria for studies, use an extraction protocol and report a tabulated display of characteristics e.g. time period covered, age span, number of studies included and countries represented of included studies. Medium quality reviews lack half of the criteria and low quality reviews contain research questions at the most. Self-efficacy beliefs play an important role in predicting academic achievement in specific domains (Ma & Kishor, 1997, p. 99); (Valentine, DuBois, & Cooper, 2004, p. 126). By using task-specific measures the predictive power can be improved (Klassen, 2002, p. 193). One gap in literature is that there are no findings of measuring other skills than taking tests, reading, writing and mathematics. Measuring skills in e.g. Physical Education, Art and Music would add valuable information to research on self-efficacy. Problems in school may cause mental health problems (Fletcher, Bonell, & Hargreaves, 2008, p. 218); (Dewey, 1999, p. 216) and a positive school climate promotes achievement and good mental health (Maddox & Prinz, 2003, p. 32); (Dewey, 1999, p. 217); (Harlen & Deakin Crick, 2003, p. 199 f.). Efforts aimed at improving achievement should not only focus on achievement, but include efforts of promoting self-efficacy e.g. mastering of course material, understanding learning goals as well as consider school-climate factors e.g. school ethos (Harlen & Deakin Crick, 2003, p. 201 f.).

4.2 Current state of knowledge concerning causal relation

The fact that the studies do not report accurate information about study design (longitudinal/cross-sectional) and study delay make it difficult to draw conclusions about causal relations, for which longitudinal studies are required. In order to make conclusions about causality future research need to focus on longitudinal studies with a relatively long delay (>12 months).

4.3 Important school climate factors for positive outcome

4.3.1 Individual level

In accordance with Bandura's Social Learning Theory of self-efficacy there is a positive relation between self-efficacy and academic achievement. Academic self-efficacy is tied to specifically targeted domains of academic achievement e.g. completing a writing task, finding the solution to an equation (Ma & Kishor, 1997, p. 99); (Valentine, DuBois, & Cooper, 2004, p. 126). The contrasting global self-efficacy, general high thoughts and feelings about self do not directly influence academic achievement (Suldo, Riley, & Shaffer, 2006, p. 574 f.), however other factors related to global self-efficacy such as motivation and locus of control affects school achievement positively (Harlen & Deakin Crick, 2003, p. 202); (Feldman & Matjasko, 2005, p. 193). Thus, sufficient support can not be found in the happy-productive worker hypothesis, which proposes that "happy" students perform better, since it does not cover the complexity of learning, self-efficacy has a major impact on your ability to perform specific tasks, but minor effect on your general academic achievement.

Levels of self-efficacy and association between self and achievement vary depending on age. Secondary students show the strongest and preschool students the weakest association between self and achievement. Older students understand grades better but show more test anxiety than younger. School transition with new environment and social structure have a declining effect on self-efficacy that negatively influences achievement, especially at the age of 12-13 (Harlen & Deakin Crick, 2003, p. 202); (Ma & Kishor, 1997, p. 109); (Valentine, DuBois, & Cooper, 2004, p. 126). Gender differences found in the reviews display that boys rate their confidence to complete tasks higher than girls (Klassen, 2002, p. 186), although no performance differences were seen. Boys prefer hands-on tasks and problem-solving whereas girls prefer sequential e.g. multiplication table and following clear instructions. Girls show more test anxiety than boys and pay internal attributes to success and failure (Harlen & Deakin Crick, 2003, p. 197). A slight over-estimation of ability is promoting normal

achieving students, whereas students with a learning disability generally over-estimate their skills with loss of self-esteem as a result (Harlen & Deakin Crick, 2003, p. 172); (Klassen, 2002, p. 195).

Self-efficacy includes both the will and the skills to succeed. Self-efficacy is promoted when a student put energy, effort and interest into school work. In order to achieve this, provided feedback should be task related, non-ego involving and goal-orientated (Harlen & Deakin Crick, 2003, p. 191). As mentioned above there is a difference between academic self-efficacy and global self-efficacy. Academic self-efficacy is tied to specific domains such as reading, writing and calculation skills. The findings that factors such as motivation and locus of control affect school achievement positively (Harlen & Deakin Crick, 2003, p. 193); (Feldman & Matjasko, 2005, p. 192) and that factors such as school experiences and attitudes may have negative effects on outcome (Fletcher, Bonell, & Hargreaves, 2008, p. 218) imply that studies investigating practical – aesthetic subjects such as art, drama, music, physical education, home economics and woodwork would have contributed to a more nuanced result. Unfortunately there are no references to such studies, however this is supported by the review of qualitative reports of Swedish students' perceptions of mental health and schooling where doing meaningful things and creative activities are school factors described as protective and illustrated by the quote:

"The teachers are kind and all the children are helpful. I call to my friends and we play, when I come to the school and I'm scared. We are lucky because we work a lot with visual arts. I'm in the chorus: we sing a lot there. We paint quite a lot here because our teacher loves it, and we too" (Gustafsson, et al., 2010, p. 131)

4.2.2 School work

There is a relation between school climate and academic and mental health outcomes, a relation that may work both positively and negatively. Students' perception of being part of and able to connect to school is a vital factor of school climate that affects academic skills and mental health. Overall satisfaction with school reflects students' beliefs as well as their behaviors. School is an important arena since it meets all children and therefore it is an eligible setting for prevention work. This is seen in the studies dealing with risk factors for a poor mental health outcome. School type and school climate is important. A school of bad quality with poor school-student connectedness, increase the number of risk factors with negative life outcomes as a result; higher levels of substance use, risky behaviors, delinquency, drop-out rates, depressed moods (Maddox & Prinz, 2003, p. 45); (Dewey, 1999,

p. 216); (Fletcher, Bonell, & Hargreaves, 2008, p. 218); (Feldman & Matjasko, 2005, p. 193); (Mahoney, Schweder, & Stattin, 2002, p. 69). The role of extracurricular activities and efforts to improve school ethos, school-bonding and school satisfaction has proved connection to school to be a protective factor promoting positive life outcomes, mainly due to its opportunities for prosocial interactions and supportive peers and adults (Feldman & Matjasko, 2005, p. 181); (Fletcher, Bonell, & Hargreaves, 2008, p. 217); (Maddox & Prinz, 2003, p. 45); (Suldo, Riley, & Shaffer, 2006, p. 577).

One major finding in this study is the unanimous appraisal of a good teacher. Teachers share a considerable amount of time with students and own the possibility to influence their pupils in their development. Teachers shoulder a great responsibility, especially when considering the possible bad effects of a bad teacher on the impact of future academic and mental health outcomes. A good teacher treats the students fairly, provides the students with a feeling of being cared about, supports the students, meets the students in their after-school activities, keeps contact with the students' home and protects the students from risky neighborhoods and behaviors (Feldman & Matjasko, 2005, pp. 188-200); (Fletcher, Bonell, & Hargreaves, 2008, p. 214); (Maddox & Prinz, 2003, p. 41); (Suldo, Riley, & Shaffer, 2006, p. 571). The good teacher uses a goal-orientated teaching style where interest and motivation is cultivated, peers collaborate, the reasons for tests are explained and feedback is provided (Harlen & Deakin Crick, 2003, p. 192).

Transitions may be problematic with a new environment and social structure. The transition dealt with in the current study is early adolescence, ages 12-13 (Harlen & Deakin Crick, 2003, p. 202); (Ma & Kishor, 1997, p. 109); (Valentine, DuBois, & Cooper, 2004, p. 126). In Bronfenbrenner's bioecological model the exosystem expands at this age influencing the child in different directions. A new school context, with new friends in combination with higher academic challenges at the time when physical, social and mental changes within the individual occurs may well result in personal loss of control and declining self-efficacy. Serious attention must be paid to this transition. The factors reducing the negative and promoting the positive impact on academic skills revealed in this study are much related to teachers. A good teacher and a good school climate provide opportunities for student to master course material, provide students with support in making choices, manage to involve students in learning activities and individualize learning limiting failure and promoting success (Valentine, DuBois, & Cooper, 2004, p. 129 f.). A goal-orientated teaching-style is preferable to a competitive test-orientated way of teaching. Motivation should be cultivated, in which students develop self-assessment skills, learning progress is conveyed by assessment

and evaluated by feedback. Feedback should be related to the task, not involve personal attributes and directed towards a feasible goal (Harlen & Deakin Crick, 2003, p. 191). School climate is important in terms of quality and atmosphere. A bad quality school may have disastrous effects on students' academic skills (Dewey, 1999, p. 216 f.); (Feldman & Matjasko, 2005, p. 200); (Fletcher, Bonell, & Hargreaves, 2008, p. 214); (Maddox & Prinz, 2003, p. 41) whereas good quality schools affect academic skills crucially. A good quality school holds teachers and personnel who are caring, fair and supportive and host students who perceive a sense of belonging and connectedness. There is a strong relation between school, learning and mental health. Negative experiences of school and feelings of being a "failure" remain stable all through school and into adulthood (Gustafsson, et al., 2010, p. 105). Efforts aimed at improving academic achievement should be designed and performed in combination with strengthening of self-efficacy. Attention needs to be paid to prosocial activities, safety, structure and order (Suldo, Riley, & Shaffer, 2006, p. 578).

Considering transitions and school quality, in relation to academic skills and in the reflection of the Conservation of Resources (COR) theory, where stress occurs when resources are threatened or lost there is a call for policy makers to assure quality and guarantee smooth transitions not only for adolescents but also for school beginners. According to this theory early school failure increases the risks of future failure with negative effects on mental health. Recourses may be skills, self-efficacy, being a student, friends or effort and time put into school work. Given the results of this thesis the uttermost important finding is that there is a close relationship between school, learning and mental health. Thus interventions should not be aimed at improving achievement *or* self-efficacy *or* school climate, but a combination of achievement, self-efficacy *and* school climate in which students find motivation and perceive a sense of connection.

4.3 Limitations

There is a severe North-American bias. All reviews contain North-American studies, references to international studies can be found in 7 of 12 medium to high quality reviews used in this thesis, only western countries are represented. One review contains a Swedish study, about extra-curricular activities.

Measures of self-efficacy are too general to fully realize the power of evidence. The closer task-specific measure, the larger predictability of outcome. Hence, when measuring self-efficacy, rather construct an instrument measuring the specific task than copying an instrument from previous studies. The most frequently measured tasks are connected to skills

in test-taking, reading, writing and mathematics. Other skills such as Art, Music and Physical Education, i.e. skills that may compensate academic self-efficacy with general high feelings of self, would add positively to current research on self-efficacy.

When measuring school climate other variables such as family factors, gender, socio-economic status, cultural and developmental factors need consideration, this is not always the case in the current study. Unfortunately there are no studies found neither on the classroom climate nor on teaching methods. Such studies would have contributed valuable information to this thesis.

4.4 Conclusion

High quality studies are characterized by describing quality assurance procedures, reporting search strategies, having explicit inclusion criteria for studies, using an extraction protocol and displaying characteristics such as time period covered, age span, number of studies included and countries represented of included studies in tables. Measures of self-efficacy are too general to be reliable. There are no findings of measuring other skills than taking tests, reading, writing and mathematics. Problems in school may cause mental health problems and a positive school climate promotes achievement and good mental health. In order to make conclusions about causality future research need to focus on longitudinal studies.

There is a positive relation between self-efficacy and academic achievement. Academic self-efficacy refers to whether the student believes that he/she can perform and complete a school task and global self-efficacy refers to general feelings about self. The positive relation is statistically significant between academic self-efficacy and academic achievement in terms of academic self-efficacy in a specific school domain. Perceived self-efficacy is an especially valuable resource in school transitions, e.g. moving from middle school to high school, where a new physical environment, a new social structure and more difficult school work has a declining effect on self-efficacy. Structured extracurricular activities offering prosocial and supportive peers and adults seem to have an indirect effect of self-esteem on academic achievement, via gains in mental health. Links between a higher self-esteem and reduced rates of dropout and delinquent behaviors and lower rates of substance use indicate that participation in structured extracurricular activities help creating positive spirals with positive academic outcome and mental health as a result.

The studies give support to a relation between school climate and learning. School climate is expressed in terms such as school ethos and school satisfaction, all the terms include students' perception of connection to school. School attachment, school commitment and school

involvement refer both to students beliefs and behaviors. A supportive teachers is of vital importance. Teachers influence adolescents' well-being by being supportive adults, role-models, protective guardians, caring and fair and by their teaching styles.

Above all this study shows that self-efficacy is a factor of vital importance for positive outcomes, academic achievement and good mental health, thus efforts aimed at improving academic achievement should include promotion of self-efficacy and creating a positive school climate in which students find motivation and perceive a sense of connection. Good teachers are the prerequisite of accomplishing such efforts.

4.5 Future studies

Connection to school and students' perceptions of school work are important for their achievement, learning process and positive mental health outcome. Future studies would benefit from using instruments with constructs measuring students' perceptions and feelings of connection and school work.

Attending a good quality school is of major importance for positive outcomes. Classification and assessments of quality is an issue of consideration for policy makers. The impact of a good teacher is a major concern for teachers' training.

Compulsory school, meeting all students is an arena well suited for interventions and prevention of health. The PISA- results show declining achievement results in natural science, Mathematics, reading writing and language among Swedish school children. This is a matter of concern, but the current thesis shows that school, learning and mental health are closely related. Action is needed, but efforts aimed at improving achievement should be performed in combination with work on helping students' understand and interpret their learning process as well as on a continuous work with a positive school climate. This raises the question who is there to teach health in Swedish schools? There are school health personnel, how much of their time is spent on prevention? There is a Swedish school subject called Physical Education and Health, how much time is spent on physical health in comparison to other aspects of health? Another recently introduced "subject" in many Swedish schools is Livskunskap (life literacy). To be noted is that there is no education needed for teachers to teach Livskunskap. In what ways should health be taught and by whom?

"The most important thing at school is that you feel that you are welcome, that you have friends and that you are respected as you are" (Lundberg, 2006, p. 20)

4.6 Acknowledgement

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6. Appendix

6.1 Protocol Abstract

A Studiekarakteristika	Alla inklusionskriterier krävs: A1, A2, A3
A1	Språk: engelska
A2	Peer reviewed
A3	Har ett fokus på minst en faktor relaterad till skola och lärande och minst en faktor relaterad till psykisk hälsa/välbefinnande
A4	Artikeln saknar koppling mellan skolfaktorer och faktorer relaterade till psykisk hälsa Artiklar som som inte kopplar en aspekt av skola/lärande till en aspekt av psykisk hälsa **exkluderas** Exempel: artiklar som fokuserar huvudsakligen på psykisk hälsa i familjen, föräldrar, community, vänner utanför skolan ingår inte; artiklar som fokuserar huvudskaligen på missbruk ingår inte Artiklar som exkluderas av denna anledning behöver inte kodas i alla fält som följer: skriv bara A4 i A-fältet i tabellen, hoppa över de andra fälten (BCDE) och skriv X i rutan Exkludering
A5	Studien exkluderas p.g.a. populationen inte uppfyller våra krav. Exempel: om fel åldersgrupp (adults, college students) eller om specifika grupper utan jämförelse med normal population (enbart elever med ADHD)-----> studien exkluderas. Skriv A5 i A-rutan och skriv X i den följande rutan
Första urval	Inkludering /Exkludering

X	Exkludera
I	Inkludera
	Skriv X i rapporttabellen om studien ska exkluderas Skriv I i rapport tabellen om studien ska inkluderas De följande koder (BCDE) ska uppges endast för de artiklar som inkluderas
B	(utgår i denna granskningsmall)
C Psykisk hälsa	**Minst ett kriterium krävs**
C1	internaliserande besvär *mood, depression, anxiety, eating disorders, sleep disorders, stress, psychosomatic and somatic disorders and symptoms, post-traumatic stress disorder*
C2	hyperaktivitet och uppmärksamhetsproblem *problems regarding attention, impulsivity and hyperactivity*
C3	norm- och regelbrytande beteende *oppositional behaviour, conduct/antisocial problems, violence*
C4	självdestruktivitet *suicide, suicidal- and self harm behaviours*
C5	andra psykiatriska besvär *psychotic problems, autisms spectrum problems, dissociative problems, attachment problems, personality problems*
C6	positiva aspekter av psykisk hälsa/ mediatorer /determinanter av psykisk hälsa *psychological well-being, self-perception and self-esteem,*

	self-efficacy, self-concept, coping, resilience, supportive relationships/loneliness, mastery
D Skola och lärande	**Minst ett kriterium krävs**
D1a	Lärande *(achievement, results, skills)*
D1b	Undervisning, arbetssätt *(instruction, teaching methods, curriculum goals, teachers behaviors, independent work, homework etc.)*
D1c	Prov, betyg och bedömning *(testing, grades, summative evaluation, curriculum based assessment, standards, high stakes, minimum competency testing)*
D2	Differentiering *(selection, ability grouping, big pound effect, track system, elite classes, åldersintegrering)*
D3	Särskilt stöd, individuell utvecklingsplan *(special education, inclusive education, special needs, referral, labeling)*
D4a	Individuella faktorer *(ability, background, giftedness)*
D4b	Individuella riskfaktorer *(drop out, truancy, school absenteism, school failure, victimization)*
D5a	Relationer i skola *(teacher-students relationships, peer relations, cohesion,*

	school climate, school connectedness, classroom climate)
D5b	Säkerhet och regler i skolans miljö *(bullying, violence, safety, rules, disciplinary measures, expulsion, punishment)*
D6	School organisation *(skolövergång, stadieindelning, leadership, educational reforms, management, administration, funding, accountability)*
D7	National educational system, reforms, komparativa studier
D8	Annat
E. Typ av studie **Studiens klassifikation**	**Dokumentation**
E9a	Systematic review
E9b	Meta-analysis
E9c	Literature review
E9d	annan översikt

6.2 Protocol: Full text

Fulltextgranskning

Författare: _____

Titel: _____

Tidsskrift: _____

Volym, nr, sidor: _____

Översiktens kvalitet			
1. Beskriver författarna kvalitetssäkringsmetoder för urval t.ex. två bedömare, granskningsprotokoll	Ja	Nej/ osäker	Kommentar/Specificering
2. Använder sig författarna av ett skattningssystem, t ex skalsteg för att bedöma kvalitet?	Ja	Nej	
Om ja, vad utgör hög resp. låg kvalitet?	Kommentar:		
• Beräknas interbedömaröverensstämmelse i bedömningarna i så fall för hur stor andel av bedömda studier?			
3. Finns det ett tydligt syfte och frågeställning/ar?	Ja	Nej	
4. Är översikten systematisk (kräver ja på de första tre frågorna)?	Ja	Nej	
5. Rapporteras sökmetoder tydligt med sökord och sökordskombinationer för varje databas?	Ja	Nej	
6. Är urvalskriterier tydligt definierade?	Ja	Nej	
7. Beskriv primärstudiernas urvalskriterier t.ex population, typ av skola, skolorganisation…	Beskrivning:		
8. Finns det ett utarbetat granskningsprotokoll?	Ja	Nej	
9. Finns det en tydlig tabell över inkluderade studier som gör det möjligt att jämföra studier?	Ja	Nej	

10. Vad är din bedömning av artikelns kvalitet? Dålig--------Acceptabel------------Hög	Kommentar/Specificering			

<table>
<tr><td colspan="5" align="center">Detaljerade urvalskriterier</td></tr>
</table>

11. Vilken tidsperiod täcker översikten?	Tidsperiod:			
12. Vilka åldrar ingår i studien? (mer än ett alternativ är möjligt)	2-5 år	6-9 år	10-15 år	16-19 år
13. Vilka inkluderingskriterier anges (t.ex. population, land, typ av studie, viktigaste variabler)	Beskrivning:			
14. Hur många studier är inkluderade i översikten?				
15. Vilka länder representeras i översikten? Ange antal studier per land	Beskrivning:			
16. Vilken typ av studier inkluderas? **Kvantitativ**, specificera om möjligt designer t ex komparativ, korrelationsstudie, longitudinell **Kvalitativ**, t ex grounded theory	Beskrivning:			

<table>
<tr><td colspan="5" align="center">Översiktens fokus</td></tr>
</table>

Definitioner:
psykiska symtom = psykisk hälsa är frånvaron av symptom t ex utåtagerande, depression
hälsa = karaktäristika kontinuum från låg/lite till bra/mycket t ex självkänsla, självbild, self-efficacy
elev = mått/fenomen på individnivå t ex betyg, resultat på nationella prov, school connectedness, delaktighet i skolan, engagemang i skolaktiviteter, skolk
skola = mått/fenomen som beskriver klassrum, lärare eller skola t ex klassrumsatmosfär, undervisningsmetod, gruppstorlek

17. Vad är översiktens viktigaste fokus för att beskriva relationen psykisk hälsa-lärande? (Flera kombinationer av nedanstående är möjliga)				
1. psykiska symtom – elev **2. psykiska symtom – skola** **3. hälsa – elev** 4. **hälsa – skola**	**1**	**2**	**3**	**4**

<div align="center">Teori och förklaringsmodell</div>

18. Finns någon explicit teori? I så fall vilken?	Ja	Nej		
	Beskrivning:			

19. Fokuserar teorin på	Arv	Miljö	Både arv och miljö	
20. Förklaringsnivåer	Individ	Klassrum	Skola	Nation

21. Om översikten redogör för forskningspersonerna/respondenterna som ingår i inkluderade studier: Beskriv: typ av deltagare t.ex. elever/barn, lärare, skolledare	Beskrivning:

22. De mått som använts i studierna finns tabellerade i översikten?	Ja	Nej	Beskriv typer av mått

23. Om ja. Beskriv typ av mått t ex observationer (fria eller strukturerade), frågeformulär (standardiserade, kritererelaterade), intervjuer	Beskrivning:

24. Redogör översikten för analysmetoder som använts i de inkluderade studierna	Ja	Nej	

25. Om ja. Beskriv typ: **Kvantitativt** t ex faktoranalys, korrelationsanalys, regressionsanalys **Kvalitativt** t ex innehållsanalys, diskursanalys	Beskrivning:
26. Beskriv de slutsatser som dras i översikten. Relatera slutsatsen till relationen mellan psykisk hälsa och lärande	Beskrivning:

6.3 Protocol: In-Depth

Systematic overview review

Educational achievement and mental health among children and adolescents

General school factors and mental health among children and adolescents

Data Extraction Protocol [2]

Section A: Administrative details	
A.1 Name of the reviewer	
A.2 Date of the review	
A.3 Please enter the details of this paper	Title: Journal: REF ID: Authors: Year:
Section B: Relevance	
B.1 Please evaluate the overall relevance of the review for the specific aims of this systematic review	o High relevance – main topic of review o Medium relevance – important but not explicit o Low relevance – not main topic
B.2 If the study has low relevance, please specify the reasons of your assessment	*Example:*

---

[2] Detta protokoll används på översikter som uppfyller följande krav:
1. inkluderas efter fulltextgranskningen som acceptabel eller hög kvalitet
2. behandlar :"Effects of achievement and learning on mental health and well being" och/eller "Effects of mental health on achievement and learning results" (kodas med P1 och /eller P2 i fulltextprotokollet).
Behandlar: "Effects of school climate, school connectedness, belongingness and similar on mental health and well being" (P7 i fulltextprotokollet)

N.B A study rated at B.1 with "3.Low relevance" will be excluded and no further extraction is to be made	
Section C: Study aims and rationale	
C.1 What is the purpose of the overview?	
C.2 Please give details of the theories referred to or the conceptual models used? (include references if applicable) *e.g. Risk for depression is presumed to be cumulative with each failure contributing incrementally to children's views regarding their own lack of competence (Cole, 1990)*	
C.3 What are the research questions of the review? *Explicitly stated specify*	
Section D: Study mental health focus	

D.1 Please describe in more details the specific mental health phenomena or factors with which the study is concerned. *Specify: e.g. depression* Internalizing behaviour; mood, depression; anxiety; eating disorders; sleep disorders; stress; psychosomatic and somatic disorders and symptoms; post-traumatic stress disorder; suicide, suicidal- and self harm behaviours; externalizing behaviour hyperactivity; impulsivity; attention; conduct disorder; oppositional behaviour; antisocial disorders, violence other psychiatric conditions psychotic disorders, autism spectrum, dissociative disorders; tics; positive aspects of mental health; psychological well-being; self-perception, self-esteem, self-efficacy, self-concept; coping; resilience; mastery; others: Aggression, maternal attachment, shyness, withdrawnness, loneliness.	
D.2 Are the mental health factors seen as contributing to effects on learning and achievement/school factors?	Yes No
D.3 Are the mental health factors seen as affected by educational factors?	Yes No
Section E: School and achievement	

E.1 Which phenomena /factors in educational settings are addressed in the study? achievement, results;, teaching methods; instruction, curriculum goals, teachers behaviors, independent work, homework test, grades assessment testing, grades, summative evaluation, curriculum based assessment, national standards, high stakes, minimum competency testing; selection, ability grouping, tracking selection, ability grouping, big-fish-little-pound effect, track system, elite classes, age-mixed group; special education, individual plans special education, inclusive education, referral, labelling; school failure and dropout, truancy, school absenteeism, school failure, other risk factors; perceived stress; school adjustment; relations teacher-student; relations with peers relations in the broader group or educational setting (climate, connectedness, belonging); bullying, victimization, violence, harassment in educational settings; school organisation and leadership management, administration, funding, accountability systems; educational reforms reward, discipline or punitive systems grade transition national educational system, reforms, effects of reforms and changes	
Section F: Sample and context	
F.1 What is the number of studies in the overview? *Specify information about the studies included(type of measures, number of participants etc)*	
F.2 Country or countries for studies included?	

F.3 What is the educational setting of the included studies? More than one can be indicated	o Kindergarten: 2-5 o Primary School: 6-9 o Middle school: 10-13 o Junior high school: 14-15 o Secondary school: 16-19
Section G: Study Method	
G.1 What is the time span of the review? *Explicit in years*	
G.2 Please describe search strategies (search words, data bases etc)	
G.3 Describe methods for extracting data (protocols etc)	
Section H: Sampling strategy	
H.1 Are the authors trying to produce information about causal relationships?	Yes No
H.2 Do authors have inclusion criteria for study populations (SES, mothers' educational level etc.)	Yes No
Section I: Methods – Data Collection	

I.1 Do authors require specific types of measures to include studies, if so specify (standardized tests, observations...)	o Self-completion questionnaire Specify instrument(s) o Curriculum based assessment Specify instrument(s) o Observations and assessments Specify instrument(s) o Teachers' ratings Specify instrument(s) o Parents' ratings Specify instrument(s) o Other, specify
I.2 Do the authors describe any ways they have addressed the repeatability or reliability of their decisions regarding inclusion and or extraction (inter-rater reliability etc)?	Yes No
Section J: Methods – data analysis	
J.1 Do authors require specific statistical data for inclusion of study ? *Please specify*	

J.2 Control for bias from confounding variables?	- Race - Sex - Family status - Age - SES (income or class) - Education - Health status - Pre-intervention score on outcome measure - Other, what?
Section K: Results and conclusions	
K.1 What are the relevant results of the study as reported by the authors?	
K.2 What do the authors conclude about the findings of the study?	

K.3 Which answers does the study offer to the review question?	
Section L: Quality of study: description	
L.1 How are school factors and out of school factors, e.g. family, described?	
L.2 Is the overview replicable?	Yes No If No specify:
L.3 Does the overview have selective reporting bias? (only US studies, only English language) *Specify*	
Section M: Overall quality of study	
M.1 See earlier ratings of aspects of quality and overall rating	

Bilaga 1

Litteratursökning

Syfte och frågeställningar:

What is the quality and content of previous systematic reviews on school, learning and mental health? What is the current state of knowledge concerning causal relationships between school climate, learning and mental health according to systematic reviews? What factors in the school climate can be identified as vital for positive outcomes and good mental health?

Vilka sökord har du använt?

(Positive) Mental health
School climate
Self-efficacy beliefs
Mental health School climate longitudinal children adolescents
School climate self-efficacy
Learning self-efficacy

Var har du sökt?

ASSIA
ERIC
PSYCINFO
MEDLINE
PUBMED
Google scholar

Sökningar som gav relevant resultat

"mental health" and "school climate" and "systematic review"
("mental health" or self*) and (child* or adolescent* or school*) and "systematic review"
"mental health" and self*

Google Scholar: "school climate" learning "mental health", self-efficacy, "mental health" "academic achievement", "after-school activities" learning achievement,

Kommentarer

Uppsatsen baseras på en översikt över systematiska översikter. Majoriteten av referenserna är hämtade från inkluderade översikter av medel och hög kvalitet. Litteratursökningen har utförts av projektkoordinatorn i samarbete med bibliotekarier vid Stockholms universitet och är mycket omfattande. Exempel på söksträng som använts: Search Query #5 (academic achievement*) or (academic overachievement*) or (school achievement*) or (scholastic achievement*) or (mathematics achievement*) or (reading achievement*) or (science achievement*) or (achievement measures) or ID=(student performance) or DE=performance or (student attitudes*) or (student characteristics*) or (student engagement*) or (student records*) or (educational attainment level) or (ability level) or (mathematical ability) or (reading ability) or (verbal ability) or (spatial ability) or (cognitive assessment) or (cognitive

ability) or (writing skills) or (language proficiency) or (school learning) or (school completion) or (school graduation) or dropout or competence or (minimum competence test) or testing or (test taking) or (test scores) or (academic learning) or (aptitude or grading or (academic underachievement) or (failure or (academic failure) or (school retention) or DE=(educational standards) or (educational measurement) or grading) or DE=(grade point average) or testing or (educational testing) or (educational assessment) or (student improvement) or DE=(achievement gains) or (knowledge level) or grades or (graduation rates) or (student outcomes) or (student results) or (achievement test) or (performance tests) or (low achievement) or (reading achievement) or (reading skills) or literacy or DE=(school attendance) or DE=(learning disabilities) or AB=(learning ability) or dyslexia or (learning difficulties) or (school truancy) or (school phobia) or (school absenteism) or (school refusal) or (school non-attendance) or (grade level) or (school dropouts*) or dropout) or DE=(underachievement) or DE=(low achievement) or DE=(precocious development) or DE=(academic achievement motivation) or DE=(academic aptitude) or DE=(achievement motivation) or DE=(achievement potential) or DE=(creativity) or DE=(gifted) or DE=(expertise) or DE=(academic aptitude) or DE=(academically gifted) or DE=(gifted) or DE=(ability grouping) or DE=(inclusive*) or DE=(attendance) or DE=(skills) or DE=(cognitive skills) or DE=(communication skills) or DE=(coping skills) or DE=(interpersonal skills) or DE=(literacy skills) or DE=(social skills) or DE=(thinking skills) or DE=(social cognitive 10

skills) or DE=(pre-academic skills) or DE=(peer relations) or DE=(friendship) or DE=(peers) or DE=(peer relationship) or DE=(friendship) or DE=(ability grouping) or DE=(inclusive*) or DE=(attendance) or DE=(skills) or DE=(cognitive skills) or DE=(communication skills) or DE=(coping skills) or DE=(interpersonal skills) or DE=(literacy skills) or DE=(social skills) or DE=(thinking skills) or DE=(social cognitive skills) or DE=(pre-academic skills) or DE=(peer relations) or DE=(friendship)