School, Learning and Mental Health

A systematic review

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FOREWORD

The Health Committee at The Royal Swedish Academy of Sciences has initiated two State of the Science Conferences to address the following two questions: "Has the mental health of children and adolescents in Sweden changed over time?" and "Which are the causal relationships between mental health and academic achievement?"

The two conferences Trends in child and adolescent mental health and School, educational achievement and mental health among children and adolescents, take place in April 2010 and are following the model for State of the Science and Consensus Conferences set up by the NIH, the National Institute of Health at the US Department of Health and Human Services.

The NIH-model means that an independent panel of experts is evaluating the current level of knowledge related to questions formulated in advance in order to produce a formal written statement based upon systematic literature reviews, expert statements and open discussions.

The present report covers a mapping of and a systematic literature review on the theme: School, learning and the mental health of children and adolescents.

A group of experts, appointed by the Academy's Health Committee, and recruited from a group of highly qualified scientists representing different disciplines related to the topics, has been working with the report since the spring of 2008.

The Health Committee and its Planning Group are very grateful to the experts for their excellent achievements.

Arne Wittlöv   Per-Anders Rydelius
Chairman of the   Chairman of the Planning Group
Academy's Health Committee

ACKNOWLEDGEMENTS

SAMMANFATTNING

Rapporten presenterar resultaten från en systematisk översikt av forskning om skola, lärande och barns psykiska hälsa. Kungliga Vetenskapsakademiens Hälsoutskottet har givit uppdraget att genomföra en sådan översikt till en arbetsgrupp som har arbetat med uppdraget från hösten 2008 till mars 2009 (se avsnitt 1.2. för en förteckning över medverkande).

Det första syftet med översikten är att genomföra en kartläggning av forskning inom det breda fält som behandlar frågor om skola, lärande och barns och ungdomars psykiska hälsa. Det andra syftet är att genomföra en narrativ syntes av forskning som undersökt orsaksförhållanden mellan psykisk hälsa å ena sidan och skolresultat och lärande å den andra sidan. Det tredje syftet är att redovisa resultat från forskning som har studerat svenska barns och ungdomars erfarenheter och upplevelser av skola och undervisningssituationer.

För att uppnå de första två syftena genomfördes systematiska litteratursökningar i bibliografiska databaser av artiklar publicerade i vetenskapliga internationella tidskrifter inom olika discipliner. Det tredje syftet undersöktes med litteratursökningar av kvalitativa svenska studier i bibliografiska databaser.

Olika aspekter av psykisk hälsa och välbefinnande definieras i denna översikt som tillhörande fyra huvudgrupper:

- Internaliserande symptom: ängslighet, oro, depression, självskadebeteende.
- Externaliserande symptomer: hyperaktivitet, koncentrationsproblem, beteendestörningar.
- Andra psykiatriska symptom.
- Positiva aspekter av psyskisk hälsa: självuppfattning, välbefinnande.

Olika aspekter av skola och lärande definieras i denna översikt som tillhörande åtta huvudgrupper:

- Individens aktiviteter, resultat och lärande
- Gruppering och sortering av elever enligt olika kriterier
- Åtgärdssystem och speciella undervisningsinsatser
- Skolmisslyckande, skolk, avhopp
- Relationer i skolan: relationer mellan elever, mellan lärare och elever, skolklimat
- Skolorganisation, ledarskap, administration, utvärderingssystem
- Utbildningssystem: betyg, regler, stadieövergång
- Förändringar och reformer i utbildningssystem, komparativa studier

Kartläggning av forskningsfältet

Genom breda litteratursökningar i flera databaser identifierades 20584 referenser. För att inkluderas skulle en referens omfatta termer både avseende psykisk hälsa och välbefinnande å ena sidan och termer avseende skola och lärande å andra sidan. Vidare skulle undersökningarna omfatta personer i åldrarna 2 -19 år.

Av de identifierade referenserna var 792 forskningsöversikter, och dessa behandlades separat i en egen översikt. Bland de identifierade referenserna fanns också dubbletter som exkluderades, och ytterligare inklusionskriterier påfördes (publiceringsår 1999-2009, språk engelska, publicerad i tidskrift med refereeförfarande, inte interventionsstudie). Detta reducerade antalet referenser till 10717.

I det första steget granskades varje sammanfattning (abstract) av de 10717 referenserna av två medlemmar i arbetsgruppen, i första hand med avseende på studiens relevans för den systematiska översikten, men också med avseende på andra inklusionskriterier. Denna granskning resulterade i 1033 referenser som bedömdes som relevanta av minst en av de två bedömarna.

I det andra steget granskades de 1033 referenserna i fulltext, mot i huvudsak samma inklusionskriterier som i det första steget. För de studierna som uppfyllde inklusionskriterierna (N = 471) fyllde bedömarna i protokoll bland annat avseende vilka aspekter av psykisk hälsa och skola som studerats, vilka åldersgrupper som undersökts, och vilka metoder som använts. Bedömarna gjorde också en graderad relevansbedömning i två kategorier.

De 471 studier som uppfyllde inklusionkriterierna har analyserats med avseende på vilka egenskaper de har, och resultaten av denna kartläggning redovisas i avsnitt 2.6. En slutsats av kartläggningen är att det förekommer studier som har fokuserat på skolfaktorer på en individuell nivå, särskilt avseende elevernas prestationer och kompetenser i skolan, både socialt och ämnesmässigt. Organisatoriska aspekter av skolan och dessas samband med elevernas välbefinnande och psykisk hälsa är däremot inte väl representerade bland de granskade artiklarna (avsnitt 3).

Översikt av översikter

Som redan nämnts behandlades 792 litteraturöversikter separat. Av dessa uppfyllde 37 studier de uppställda innehålls- och kvalitetskriterierna. Forskningen kan sorteras kring tre huvudfrågor där en relativt betydande mängd av forskning har genomförts: relationer mellan självuppfattning och skolresultat, de reciproka relationerna mellan skolproblem och psykiska problem, och studier av skolfaktorer och dessas effekter på psykisk hälsa och läranderesultat (avsnitt 2.5).

Relationer mellan skolprestation och psykisk hälsa: en narrativ syntes

Det andra syftet med den systematiska översikten var att göra en syntes av resultaten kring effekter av skolprestation på psykisk hälsa, och av effekter av psykisk hälsa på skolprestation. Tidigare forskning har visat på samband mellan skolmisslyckande och psykisk ohälsa, men det finns flera tänkbara förklaringar av vad som ligger bakom dessa samband. En möjlig förklaring kan vara att skolmisslyckande leder till psykisk ohälsa; en annan kan vara att psykisk ohälsa leder till skolmisslyckande; och åter en annan kan vara att både skolmisslyckande och psykisk ohälsa orsakas av en gemensam bakomliggande faktor. Kartläggningen av forskningen hade visat på att det fanns ett relativt stort antal undersökningar som undersökte relationer mellan skolprestation och psykisk hälsa, så det bedömdes vara meningsfullt att genomföra en djupare analys i form av en så kallad narrativ syntes, där resultat från olika studier relateras till varandra.

Eftersom förutsättningarna för slutsatser om orsaksrelationer är bättre i undersökningar med longitudinell design än i många andra undersökningsuppläggningar valdes enbart sådana undersökningar ut. Vidare valdes undersökningar som bedömts ha hög relevans, och ytterligare ett krav var att studien skulle ha som syfte att studera relationer mellan skolprestation och psykisk hälsa. Dessa inklusionskriterier uppfylldes av 180 av de 471 undersökningar som ingick i fulltextgranskningen.

För dessa 180 studier genomfördes ytterligare relevans- och kvalitetsbedömningar, och ett detaljerat dataextraktionsprotokoll fylldes i. Protokollet för varje studie fylldes i av en bedömare, men kontrollerades av ytterligare minst en bedömare. För att en studie skulle inkluderas i den narrativa syntesen krävdes att det skulle finnas en initialmätning av utfallsvariabeln, och att studien på grundval av informationen i dataextraktionen bedömdes ha hög relevans och hög kvalitet. Sammanlagt 51 undersökningar av de 180 uppfyllde dessa krav och utgjorde grund för den narrativa syntesen.

Syntesen består av två huvuddelar. I den ena behandlas effekter av skolprestation på psykisk hälsa, och där undersökningarna huvudsakligen grupperats efter olika nivåer inom utbildningssystemet. I den andra delen behandlas effekter av psykisk hälsa på skolprestation, och i denna del är undersökningarna grupperade efter olika aspekter på psykisk hälsa. En huvudslutsats är att skolprestation och psykisk hälsa påverkar varandra ömsesidigt. Den narrativa syntesen ger också underlag för en lång rad mer konkreta slutsatser vilka sammanfattas nedan, efter att den andra systematiska översikten har beskrivits.

Barn och ungdomars erfarenheter av skola, välbefinnande och psykisk hälsa

Sökningar av litteratur om erfarenheter och upplevelser av skola och lärande bland svenska barn och ungdomar i olika databaser resulterade i cirka 500 referenser som genomgick abstrakt och titelgranskning. Av dessa granskades sedan cirka 100 referenser i fulltext. Översikten presenterar erfarenheterna av barn och ungdomar som rapporteras i 38 studier och som har relevans för översiktens tema om relationerna mellan skola och barns och ungdomars psykiska hälsa. Fyra huvudteman identifieras:

- generella erfarenheter av psykisk hälsa och skola: positiva och negativa känslor, självuppfattning, valsituationer
- skyddande erfarenheter av skola: aktiviteter, delaktighet, tillfredsställelse, kompetens, stödjande relationer med lärare, stödjande relationer med vänner
- riskfyllda situationer och faktorer i skolan: provsituationer, prestationskrav, stress, negativa bedömningar, skolsvårigheter, skolmisslyckanden, meningslöshet, otillfredsställande relationer med lärare, exkludering, trakasserier
- riskfaktorer på individnivå med implikationer för hälsa och skola: stigma, problematisk familjesituation, funktionsnedsättning, kroppsuppfattning

Slutsatser

På grundval dels av kartläggningen av forskning om skola, lärande och psykisk hälsa, dels av de två fördjupade översikterna kan följande slutsatser dras:

- Omfattningen av forskning som undersöker relationerna mellan olika aspekter av skola och psykisk hälsa är begränsad och i synnerhet gäller detta forskning som undersöker organisationsfaktorer och undervisningsfaktorer, aktiviteter, läroplaners utformning, resurser, specialpedagogiskt stöd, och olika former av betyg och bedömning.
- Tidiga svårigheter i skolan och i synnerhet läs- och skrivsvårigheter orsakar internaliserande och externaliserande psykiska problem.
- Svårigheter i skola och psykiska problem tenderar att vara stabila över tid.
- Skolrelaterade hälsoproblem tenderar att minska när eleverna börjar på gymnasiet och får tillgång till nya områden av aktiviteter, roller och valmöjligheter.
- Att genomföra stora ansträngningar utan att detta leder till resultat är relaterat till utveckling av depression.

- Problem i skolan med skolresultat och prestationer orsakar internaliserande symptom för flickor under tonåren.
- Det finns samband mellan olika typer av psykiska problem och de är också relaterade till ett brett spektrum av somatiska och psykosomatiska symptom.
- Internaliserande och externaliserande psykiska problem har negativa effekter på skolprestationer genom mekanismer som är delvis ålders- och genusspecifika.
- Kompetenser och prestationer i skolan är relaterade till psykisk hälsa.
- Goda resultat i skolan har en positiv effekt på självuppfattning.
- En god självuppfattning bidrar inte direkt till bättre resultat, men andra faktorer som är relaterade till självuppfattning (motivation och upplevd inre/yttre kontroll) påverkar lärande och resultat
- Relationer med klasskamrater och lärare bidrar till processer som kopplar skolmisslyckande till psykisk ohälsa. Relationer med kamrater och lärare kan också skydda mot utvecklingen av psykiska problem.
- Jämförelser med klasskamrater påverkar självuppfattningen, med effekter som varierar beroende på gruppsammansättning och typ av skola.

Implikationer

Implikationer av översiktens resultat för utformningen av det svenska skolsystemet diskuteras avslutningsvis.

Betydelsen av tidiga skolsvårigheter och upplevda misslyckanden för barnens hälsa gör det viktigt att upprätthålla en förskola av hög kvalité i alla kommuner och bostadsområden och att motverka tendenserna mot en ökad variation av den pedagogiska kvaliteten i förskola, vilket har uppmärksammats i nationella utvärderingar.

Det är viktigt att förskolan bidrar till att utveckla och stimulera barnens sociala, språkliga och kognitiva färdigheter och kompetenser, i syfte att förebygga framtida skolsvårigheter, men det är också viktigt att inte redan i förskolan introducera synsätt, aktiviteter och bedömningar som medverkar till att synliggöra vad som uppfattas som brister hos barnen.

Förskoleklassen är en skolform som introducerades 1996, som ett år mellan förskolan och skola. Denna organisatoriska lösning innebär för barnen flera byten mellan olika pedagogiska verksamheter och personal under kort tid. Med tanke på den betydelse som tidiga upplevda skolsvårigheter har för barnens fortsatta skolgång och för deras välbefinnande, är det viktigt att utvärdera och studera hur

övergången mellan förskola, förskoleklass och skola organiseras i kommunerna och hur den fungerar för eleverna.

Under de första skolåren kan det vara viktigt att undvika att elever upplever skolmisslyckanden. Möjliga insatser i detta syfte kan vara färre elever i de lägre årskurser, säkerställd hög kompetens kring läsinlärning och matematik för lärare, samt god tillgång till lärarresurser och specialpedagogiskt stöd under de första skolåren. Det är samtidigt viktigt att organisera det specialpedagogiska stödet på sätt som inte upplevs som stigmatiserande av eleverna.

Det är också viktigt att de individuella utvecklingplanerna utformas på ett sådant sätt att de ger reella möjligheter för en positiv utveckling av skolprestationerna, och inte helt lämnar över ansvaret för detta till eleven och föräldrarna.

Betygen i slutet av grundskolan och betygen i gymnasieskola behöver utformas på ett sätt som inte innebär underkännande av eleven, med de allvarliga konsekvenser för elevernas fortsatta yrkes- och utbildningssituation som detta kan medföra.

1 BACKGROUND

The current report describes results from a systematic review of research on school, learning and mental health, conducted on the initiative of the Royal Swedish Academy of Sciences.

1.1 Purposes

The field of research on relations between schooling and mental health is multi-disciplinary and not very clearly defined. Furthermore, previous systematic reviews have concluded that the amount of research, which investigates relations between different aspects of schooling and mental health, is limited. Thus, based on a mapping of research on relations between schooling and mental health, Harden et al. (2001) concluded that the research base was too limited to allow an in depth review of anything but young people's views on mental health and schooling. However, given that this mapping was restricted to include British research, and that the research base is likely to have grown considerably during the decade that has passed since this literature search was performed, it may be expected that a mapping of the international literature yields more relevant studies.

Thus, the first main purpose of the review is to conduct a mapping of research on relations between schooling and mental health. This involves investigating which different aspects of schooling and mental health have been focused upon, and which different combinations have been studied. Other characteristics of the research that are interesting to map, is to see which age groups have been investigated, and which research methods have been used.

The second main purpose of the review is to conduct in-depth syntheses of research concerning one or more issues. While choice of specific issues to be focused upon was to be determined on the basis of the results of the mapping, the planning committee for the review determined at an early stage that one set of problems to be analyzed was the effect of academic achievement on mental health, and the effect of mental health on academic achievement. Previous research has shown that academic achievement is associated with well-being and good mental health and that school failure may cause mental health problems. At the same time, there are findings which show that mental health may affect the educational results achieved by the students. Thus, research is available which shows that there are relations between academic achievement and mental health, but it is not clear in what way academic achievement affects mental health and vice versa. There also are reasons to believe that the relationships between school achievement and mental health are influenced by individual factors, such as vulnerabilities and abilities, and by environmental factors, such as parents' expectations and developmental experiences in the family environment as well as the functioning of the school system.

The main purposes of the in-depth narrative synthesis are to answer to the following

questions:

- Which are the causal relationships between mental health and academic achievement?

- How are these relationships influenced by other factors, both related to the individuals and their social background, and to factors in the educational environment (evaluation system, tests, grades, selection procedures, special educational system, teaching methods, and social climate).

- If the results from the mapping indicate that research is available to support in-depth reviews of other issues this will also be done if time and resources permit.

The third main purpose of the review is to review research which has investigated experiences and perceptions of Swedish children and adolescents concerning their mental health and well being, in particular as this is related to their school attendance and situation. One of the reasons for this was that the systematic review by Harden et. al (2001) strongly emphasized the ethical necessity to give space to children's and youths' own perspectives and perceptions about their health and well being. Another reason was that this would give an opportunity to investigate if conclusions from the in-depth review are applicable to the Swedish context.

The two first purposes were approached through a systematic search in bibliographic databases of international peer-reviewed research conducted within a large number of disciplines. The third purpose was investigated with a review of research using qualitative methods focussing on Swedish students' perceptions of school and mental health.

1.2 Organization and participants

The work has been conducted within a project group that was formed in August 2008 and which finished its work in March 2010. The project group included the following members:

Jan-Eric Gustafsson (chair), Professor of Education, University of Gothenburg.

Mara Westling Allodi (project coordinator), Associate professor of Special Education, Stockholm University.

Britta Alin Åkerman, Professor em. of Special education Stockholm University.

Charli Eriksson, Professor of Public health science, Örebro University.

Lilly Eriksson, PhD, Public Health Planning Officer, Swedish National Institute of Public Health

Siv Fischbein, Professor em. of Special Education, Stockholm University.

Mats Granlund, Professor of Psychology, Professor of Disability Studies, Jönköping University.

Per Gustafsson, MD, Associate professor of Child and Adolescent Psychiatry, Linköping University.

Sofia Ljungdahl, PhD, Public Health Planning Officer, Swedish National Institute of Public Health.

Terje Ogden, Professor of Educational Psychology, Director of Research, Atferdssenteret, Norway (until October 2009).

Roland S. Persson, Professor of Educational Psychology, Jönköping University (until August 2009).

The group scheduled monthly meetings or video-conferences to plan and discuss the strategies to employ. The results of the searches and documents produced were made accessible to the members through Internet resources.

The work on the two first purposes was conducted in several steps, and in each step the entire project group participated. In the first step, from August to December 2008, search questions and review protocols were developed, and tools for managing references and protocols were selected and developed. The searches in the bibliographic databases were performed January to March 2009. The abstract review, in which a first screening of references was made, began in March 2009 and was concluded in June 2009. The full text review started in July 2009 and was concluded in November 2009. In this step a further screening was made, along with coding of included references for the mapping. During the period October 2009 to February 2010 data-extraction was conducted of references potentially relevant for the second purpose. From January to March 2010 the narrative synthesis was conducted.

The work on the third purpose also was conducted in several steps, and the responsibility for all of these was taken by the project coordinator, associate professor Mara Westling Allodi.

In addition to work on these three main purposes, the project group has conducted several activities, which have not yet been reported in full. Thus, a review of reviews identified in the searches of bibliographic databases is being conducted by some of the members of the project group (Mats Granlund, Lilly Eriksson, Roland S. Persson, and Mara Westling Allodi), supported by PhD Lena Almqvist, Mälardalen University and Karin Bertills, Jönköping University. A background chapter describing Swedish educational reforms after 1945 has been written by PhD Mac Murray.

The work of the project group has been supported by a large number of collaborators:

Anna Björnberg, MS Library and Information, project assistant;

Jan Sydolf, MS History, project assistant;

Martin Angeland, project assistant;

Karl Berglund, project assistant;

Viveka Vessberg, librarian, Stockholm University;

Marie Lövgren, librarian, Stockholm University;

Lotten Häggström, librarian, Stockholm University;

Christine Wickman, information scientist , Karolinska Institutet; and

Susanne Gustafsson, librarian, Karolinska Institutet.

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Sten Anttila, PhD National Board of Health and Welfare.

2 LITERATURE SEARCH AND MAPPING

This chapter describes the search questions used, the searches carried out, and the mapping of the resulting references.

2.1 Defining the searches

The first step of the literature search was to define a set of search terms, and a logic to combine them. This is described below.

2.1.1 Aspects of mental health

Mental health and illness is a complex area, and all aspects of the constructs are not well defined. However, the group took its starting point in the definition proposed by the WHO (2003, 2005a). Child and adolescent mental health is defined as the capacity to achieve and maintain optimal psychological functioning and well being. This capacity is directly related to the competence achieved in psychological and social functioning. Child and adolescent mental health includes a sense of identity and self-worth; sound social relationships; the ability to be productive and to learn; and the ability to use developmental challenges and cultural resources to maximize growth.

Child and adolescent mental disorders manifest themselves in many domains and in different ways. A mental illness or disorder is diagnosed when a pattern of signs and symptoms is identified that is associated with impairment of psychological and social functioning, and that meets criteria for disorder under an accepted system of classification such as the International Classification of Disease, version 10 (ICD-10, WHO, 1992) or the Diagnostic and Statistical Manual IV (DSM-IV, American Psychiatric Association, 1994). A major distinction is made between externalizing and internalizing problem behaviours. Externalizing problem behaviour refers to behavioural problems, such as conduct disorders, aggressiveness, and antisocial behaviour, or attention deficit and hyperactivity. These kinds of behaviours consist of negative emotions directed against others, such as anger, aggression, frustration, and fear. The prevalence of externalizing disorders among children varies between 2% and 15%, depending on the definitional criteria (Hinshaw, 1992). In some definitions, externalizing problems include only antisocial behaviour, while in others hyperactivity and attention deficit are also included.

Internalizing problem behaviour, on the other hand, refers to emotional problems, like depression and anxiety. In internalizing problem behaviour, negative emotions are directed at oneself rather than others. Psychosomatic symptoms, such as headaches and abdominal pain, are also often seen as part of internalizing problem behaviour.

It has been recognized that there is a need to explicitly consider positive aspects of mental health, such as emotional, psychological and social well being. The indicators of

positive mental health are not so well established as are the symptoms of mental illness. Indicators at the individual level include measures of a sense of belonging, self-esteem, engagement, self-determination and control and quality of life.

WHO (2005b, 159-160) suggests that safe and supportive environments, and social and learning environment of high quality in which children's skills and accomplishments are acknowledged and valued, are indicators of positive mental health at the organizational level. In our conceptual framework, these factors were seen as aspects of the educational environment and were kept separate from the mental health aspects.

 It was thus decided that search terms would be identified that could locate research focusing on the following aspects of mental health:

- Internalising symptoms: anxiety, depression, self-harm

- Externalising symptoms: hyperactivity and concentration problems, conduct disorders

- Other psychiatric symptoms

- Positive aspects of mental health

2.1.2 Aspects of schooling and learning environments

The complexity of defining relevant aspects of schooling and learning environments is even greater than the complexity of defining mental health. Previous research has given indications of characteristics of educational environments that are more successful in introducing youth into adulthood, and in counteracting the negative effects of other external or background factors (Rutter, Maughan, Mortimore, & Ouston, 1979; Rutter & Maughan, 2002). It has been shown that harsh school discipline is not productive; instead frequent rewards, praise, and appreciation should be used. Schools should be aware of the importance of a pleasant and comfortable environment. Pupil participation and possibilities to take responsibility for their school lives as well as emphasis on academic matters and teacher expectations of student success with clear and attainable goals also contributes to better results. Teacher practices and school management must take into consideration mutual values and norms, and consistently work to realize these, thus the ethos of the school seems to be of great importance.

This research suggests search criteria focusing on aspects of the school and learning environment such as school climate, and relations among students and teachers. Search terms reflecting different aspects of academic achievement were also included, as were terms reflecting organizational aspects of the schooling.

Eight categories of indicators of the educational situation and learning environment were identified. They are structured with an order from the micro- to the macro-level that is broadly inspired by the bio-ecological model of Bronfenbrenner (1999, 2000)

- Factors related to individual activity, results, learning: achievement, results; teaching, instruction, teaching methods; curriculum goals, teacher behaviours,

independent work, homework , test, grades, assessment. summative evaluation, curriculum based assessment, national standards, high stakes, minimum competency testing.

- Factors related to grouping of students: selection, ability grouping, big-fish-little-pond effect, tracking system, elite classes, age-mixed groups.

- Factors related to special provisions: special education, individual plans, special education, inclusive education, referrals, labelling.

- Factors related to individual failure: school failure, drop out, truancy, school absenteeism, risk factors, perceived stress, adjustment.

- Factors related to relationships: Relations teacher-student, relations with peers; relations in school (climate, connectedness, belonging); bullying, victimization, violence, harassment in educational settings.

- Factors related to school organisation: organisation, leadership; management, administration, funding, accountability systems.

- Factors related to characteristics of the educational system: rules, reward, discipline or punitive systems, grade transition.

- Factors related to changes in the educational system: reforms, effects of reforms and changes.

To be included it was required that a reference had terms referring to some aspect of academic achievement, which restriction was imposed to increase the possibility to obtain a tractable number of references within the main scope of the review.

2.1.3 Population

The studies included were to investigate children and adolescents in the age interval 2-19 years, in educational contexts from pre-school to upper secondary education.

2.1.4 Design

Studies to be included were meta-analyses and systematic reviews, and empirical studies. Emphasis was put on studies with longitudinal design, even though this was not a requirement.

2.1.5 Criteria for exclusion

Studies reporting interventions are not included, since they are the object of another systematic review.

Studies concerned exclusively or principally with substance abuse were not included.

Studies with a selected population composed of only children and adolescents with a diagnosis were not included.

2.1.6 Criteria for inclusion

Research published in English in peer reviewed journals.

No limitation for publication years was applied in the literature searches. However, in a second phase, only references published from 1999-2009 were included.

2.2 Literature searches

The methodology of the literature search and the choice of tools was developed on the basis of previous experiences in the field. We took advantage of work done internationally, at the EPPI-Centre (e. g., Harden, et al., 2001), at the Social Care Institute for Excellence (SCIE; e.g., Coren & Fisher, 2006), and at the Centre for Reviews and Dissemination (CRD; Rodgers, Arai et al.). We also took advantage of work conducted in Sweden at the Swedish National Board of Health and Welfare, and at the Swedish Council on Health Technology Assessment (SBU).

During the fall of 2008, several preliminary literature searches were made in order to investigate indexing features of the bibliographic databases and the terms employed in the literature in order to optimize the search strategies. This made it clear that the search strategies had to be adapted to the logic of the different databases.

In collaboration with librarians at Stockholm University, the multiple databases CSA and EBSCO were searched. These databases cover research literature in broad social science fields, including education, psychology, sociology, management, social work, social psychology, among others.

At the Karolinska Institutet library the Medline database provided access to literature in the field of child and adolescent psychiatry, public health, paediatrics, and medicine. The search in Medline was made through OVID. Searches of the Psycinfo and Psycarticles databases also were made at Karolinska Institutet through OVID.

The complete search profiles are very long and complex. In order to save space they are not fully reported here, but are available in electronic form via the link www.buph.se, or via the authors of this report.

In the box below some details of the search results are described. The search profiles build upon the combination of four groups of terms covering a) mental health concepts; b) educational concepts; c) population and d) methodology.

1. Search in the databases ASSIA, Sociological abstracts, Social services Abstracts performed in CSA at Stockholm university (2009-03-13)

Terms	Number of References
Population	331163
Mental health	317700
Educational aspects	102564
Method	45415
Combined	4254
Exported (only peer reviewed)	3880

2. Search in EBSCO multiple databases: Academic Search Premier, Business Source Premier, Communication & Mass Media Complete, EJS E-Journals, ERIC, Research Starters – Business, Research Starters – Education, only peer-reviewed (2009-03-25)

Terms	Number of References
Population	1.703.189
Mental health	1.523.403
Educational aspects	1.579.480
Method	656.882
Combined (exported)	8494

3. Search in Medline through OVID (2009-02-27)

The database Medline was searched with different and adapted strategies that resulted in 3493 unique references

4. Search in Psycinfo, Psycarticles etc. through OVID (2009-2-27)

The search in Psycinfo contributed 3013 references.

The search profiles required that at least one term from each of the four groups of terms should be found. We adapted the sensitivity of the search profiles to the characteristics of the databases. For databases lacking a consistent indexing system, we used a broader search profile. In these cases, we searched the term not only as Descriptor or Subject, but also in Title and Abstract. When we thought we could trust the index system of the database, we made more specific search profiles.

We performed tests and analysed the lists of references in order to understand the outcomes of our search strategies, and adjusted the search profiles on the basis of these evaluations. In particular, the group decided to improve the educational and population terms referring to young children, in order to increase the sensitivity of the literature searches in the databases. The search profiles were finally optimized in cooperation with teams of librarians at Stockholm University (CSA and EBSCO) and at Karolinska Institutet (OVID). The list of references retrieved were successively exported to a database developed with RefWorks - an online research management, writing and collaboration tool which is available through Stockholm University.

The information and reference resources at Stockholm University and Karolinska institutet are valuable and powerful tools in performing literature searches. However, the search profiles that we developed were too complex for the capacity of the CSA database and we met several serious difficulties, and particularly so with functions to save searches and with functions to export references. This made it necessary to search Psycinfo and other databases with OVID instead.

In EBSCO it was possible to perform the complex literature search and to save it permanently. However, the automatic export function could not easily handle the amount of references that we wished to put in the databases in RefWorks. The export of references therefore required more time than planned.

The searches with OVID could be performed effectively and the direct export of references was successful. There also were several options available for the export that could be employed. On the basis of these experiences we can conclude that OVID had the capacity necessary to adequately support our searches, that EBSCO had the capacity but did not offer all the features that we needed, and that CSA did not have the capacity to perform the searches that we needed to do. However, we did search some databases with CSA, since they were not available with other means.

The searches in the bibliographic databases resulted in 20584 references that were exported to RefWorks (RW) (see the reference flow, Figure 2.1). From this collection of references, duplicates that could be identified with the duplicate search tools in RW were excluded (N=4320). We removed also 792 reports that were literature reviews, systematic reviews, meta-analysis, since these were to be analysed separately.

Some other categories of references were also excluded from the original set: reports that could be identified as written in another language than English (N= 145); not peer-reviewed (N=228); or lacking an abstract, even after manual searches for abstracts in the original databases and in journal sites (N=396).

Considering the large number of remaining references, papers published before 1999 (N=3995) were excluded as well. The exclusion of these references was based on the expectation that possible interesting studies that had been published before 1999 would be covered in the literature reviews (N= 792) that were to be reviewed separately.

After these removals, the set included 10717 references.

2.3 Abstract screening

The 10 717 references were screened for relevance on the basis of title and abstract by two reviewers for each abstract. This work was conducted during the period March to June 2009 by a group of ten reviewers belonging to the project group (see section 1.2).

The abstracts were first sorted by publication year in seven sets (08-09; 07; 06; 05; 04; 02-03; 99-00-01) and then sorted alphabetically by title. This procedure made it possible to identify duplicates that had not been found previously, for instance because the author's name was missing. Each pair of reviewers received an assignment from every one of the seven sets, each one consisting of approximately 200-300 abstracts.

The protocols, instructions and procedures were first tested with the abstracts of papers that were identified as literature reviews (n=792) and a revised protocol was evaluated on a small sample of references.

Each reviewer filled out a protocol in table format for each abstract reviewed, deciding about inclusion and exclusion. If the abstract was included, information about mental health aspects, educational aspects, methodology and sample was entered as well. If the abstract was excluded, the reviewer entered the code or codes for the applicable exclusion criterion (Not English, Not peer-reviewed, Not children or adolescents, Not focus on school and health, intervention study). All the completed protocols from the two reviewers were stored in a common workplace storage in Mondo/Sakai and the inclusion codes were registered in user-defined fields in RefWorks.

The agreement between the reviewers in their judgements about inclusion and exclusion has been calculated for each set of abstracts. The average agreement within pairs of reviewers was 93.4%.

References that were included by at least one of the reviewer were included in the full text screening (N = 1033).

2.4 Full text screening

In the next step, the 1033 references remaining after the abstract screening were screened for relevance on the basis of scrutiny of the full text of the references. This work was done during the period of July to November 2009, by a group of nine reviewers from the project group (see section 1.2). The references were divided into seven lists with about 150-200 in each, on the basis of publication year and were sorted alphabetically by author name.

The references were available to the reviewers online through RefWorks via links to Stockholm University library databases and services. The other documents, protocols and materials produced by the group members were stored and made available online through the common workplace/storage Mondo/Sakai at Stockholm University. References that were not available online were ordered as paper copies through the Karolinska Institutet library or Stockholm University library and sent directly to the reviewers.

Figure 2.1 Flow of literature from the literature searches to the mapping phase
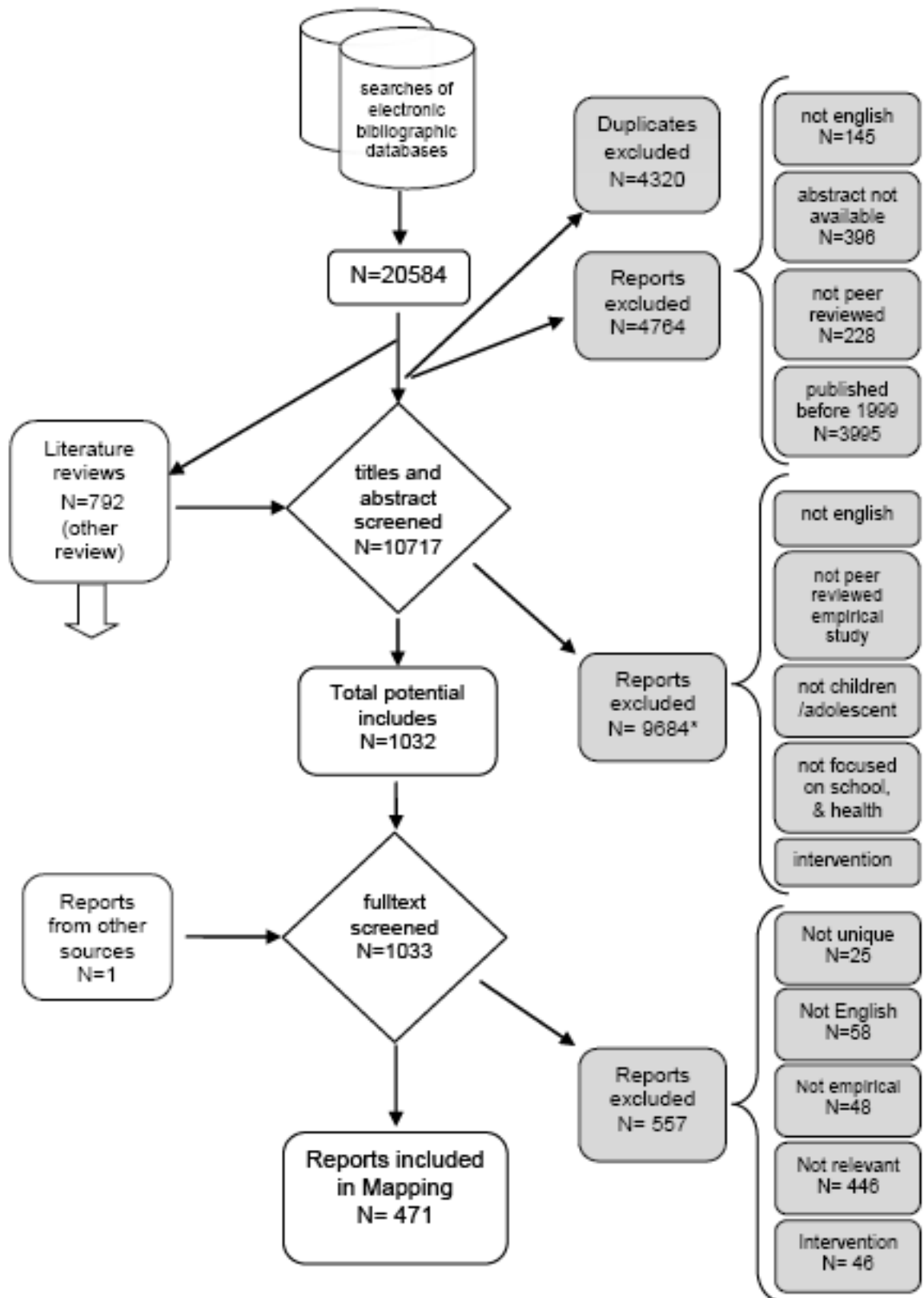
*more than one reason of exclusion is possible, but the majority of the
excluded articles do not have a specific focus on mental health and school

The reviewers worked pair wise on the references in the first group of about 200 references and compared their results in order to calibrate their evaluations. The members of the pairs then proceeded individually in their review of references, splitting the groups between them. However, in order to keep evaluation standards calibrated a subset of references from each group was evaluated jointly. The reviewers evaluated on average 100 articles each (Min = 33, Max = 198).

On the basis of the protocols completed by the reviewers, more than 50 percent of the references were excluded, mainly because their content was not judged relevant for the scope of this review (N= 446) and, to a lesser extent, because of other criteria (see Figure 2.1). If the reference did not meet at least one of the required inclusion criteria, it was excluded. All the codes from the protocols, both included and excluded, were registered in the database in RefWorks and were also imported into SPSS in order to make possible further analysis.

Characteristics of the included references (N = 471) are described in section 2.6. The next section presents a short report from the systematic review of the 792 reviews that were identified among the retrieved references.

2.5 Review of reviews: quality and contents

One aim of the "review of reviews" was to analyze the quality and content of previous reviews, in order to gain knowledge about aspects of form and content important for the current review. As has already been mentioned the searches identified 792 titles/ abstracts. One additional review was identified later and added. The abstracts were reviewed for relevance using an inclusion/exclusion protocol. This step resulted in 148 included reviews. These were read in full-text by a special group of reviewers using an exclusion/inclusion protocol developed for rating of reviews. Altogether 37 out of the 148 reviews (25%) were included for further quality rating and mapping. These studies were 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.

2.5.1 Quality of the included reviews

Based on an integration of recommendations for method quality indicators for systematic reviews (Auperin et al, 1997; Schlosser et al, 2007) all 37 reviews included for mapping were rated for quality according to the criteria displayed in Table 2.1.

Table 2.1 Number of included reviews that satisfied each method quality criteria

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

Table 2.1 indicates that the quality of the included studies when judged against these criteria is relatively low. Few studies describe how review quality has been established, and very few (7 out of 37) have used a structured system for rating quality of reviewed studies. In addition relatively few studies (12 out of 37) have used a structured extraction protocol for included studies. In total 12 out of the 37 reviews were rated as systematic reviews.

In addition to rating each review with the quality criteria above the reviewers assigned an overall quality rating to each review. This overall method quality rating was used to classify the reviews as high, low or medium in method quality. The overall classification was in the next step used to compare low method quality reviews with medium and high method quality reviews in terms of the type and quality of the content presented in the reviews. For all 37 reviews information was collected regarding time period covered by the review, age span of target groups of children, number of studies included in the reviews, countries represented in the reviews, assessment and statistical methods used in the included studies, and statistical methods used in the included studies. The proportion of reviews with low versus medium or high method quality providing these types of information was compared.

2.5.2 Age spans of children

The age spans of children on which each review have their focus are displayed in Table 2.2.

Table 2.2 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 seen in Table 2.2 many reviews concerning mental health and school factors cover the age spans from 10 years and up. Few cover children in the lower age spans.

2.5.3 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 2.3 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

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.

2.5.4 Measures and statistical methods used in included studies

Less than 50% of the studies provided information on the measures and/or on the statistical methods used in the included studies. Thus, the reviews in general provided little opportunities to draw causal conclusions about the relations between school factors and mental health.

2.5.5 Contents of the reviews

A preliminary analysis of the content of the reviews based on two dichotomies was made. First, if the focus of the review was on symptoms of problems with mental health or positive aspects of mental health. Second, if the focus of the review was on information from individual children or on information from school level. The result revealed that more reviews focus on data obtained from individual students than on data obtained on school level. In addition, there was a weak trend for more high method quality reviews focusing on problems with mental health than on positive aspects of mental health.

The reviewers wrote free text summaries of which relation between school factors and mental health that were the focus of the review. The summaries were categorized independently by two judges based on the same criteria that were used in reviewing individual empirical studies. The categories used for school factors were: achievement,

peer relations, teacher relations, bullying/victimization, school organization, school environment, specific risk groups and demographic factors. Certain summaries could be assigned to more than one category. The categorization revealed that many reviews focused on the relations between achievement and mental health. In total 22 of the 37 reviews whereof 16 with a medium or high quality had this focus. Relatively many reviews also had a focus on the relations between aspects of the school environment and mental health (9 whereof 6 with moderate to high method quality). Few if any reviews had their focus on the other categories.

2.5.6 Summary of the review of reviews

The review of reviews shows that the research performed within the scope of the present study can be grouped around three main themes: the relationship between positive aspects of mental health (e.g. well being, self-concept) and learning; the reciprocal relationship between problems with mental health and schooling; and the study of the indirect relations between school factors, mental health outcomes and learning outcomes. In the first case the mental health aspects are seen mainly as determinants of learning outcomes; in the second case the main concern may be to examine the consequences of general educational experiences as attainment and failure, but also of specific features as tests and methods, on negative aspects of mental health of the students (e.g. anxiety, depression). In the third case the school factors are seen as mediators or moderators of outcomes both on mental health and achievement. The conceptualisations emerging in these reviews contributed to an understanding of the characteristics of this field of knowledge and these insights have been considered in the subsequent phases of the main literature review process.

The four reviews displayed in table 2.4. that focused on the relations between self-beliefs and achievement provide a consistent picture in that positive (high/strong) self-beliefs predict subsequent achievement in general and in writing and mathematics especially. The review by Valentine et al. (2004) as well as the one authored by Ma and Kishor (1997) suggest that the 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. The more the self-belief instrument focuses on specific aspects of self-beliefs, e.g. skills in mathematics, and/or specific situations, e.g. test taking, the better self-beliefs predict subsequent achievement. These results indicate that students must be supported in evaluating their own skills in relation to important individual topics in school. The mechanisms through which self-beliefs act on subsequent achievement is not clearly described in the reviews, thus it is difficult to draw any conclusions about how students' self-beliefs can be supported and intervened with. The two reviews displayed in table 2.4. that focused on any impact of forms of summative assessment on students' motivation for learning (Harlen & Crick, 2003) and the impact of participation in school-based extracurricular activity on adolescent development (Feldman & Matjasko, 2005) provide more diverse information concerning the relations between positive aspects of mental health and achievement. Harlen and Crick (2003) do not explicitly discuss achievement.

Table 2.4 Characteristics and results from 6 reviews investigating the relations between positive aspects of mental health and achievement and learning

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 representing the USA	Many measures of self-efficacy are 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 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 35 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.	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
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	The mean effect size was 0.23. It suggests that the relationship between self-concept and achievement is statistically reliable. No gender differences, but age differences, junior high (14–15 years 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 it's relation to achievement.

Reference	Aim	Studies	Results	Conclusions
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 Marocco, 8 UK, 8 USA	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 grades is difficult to understand, especially for young students. Feedback is a significant factor influencing willingness to invest effort in a task. Greater effort is associated with learning goals than with performance goals. Promoting task involvement by giving task related, non-ego involving, feedback may promote the interest ad performance of most student's. Low achievers are affected negatively by testing. Girls are more likely than boys to have high self-esteem in classrooms favouring sequential learning. Teachers are affected by summative testing in the direction of spending more time of instruction in activities 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
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.	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 networks 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 framework to model the influence of participation.

Table 2.5 Characteristics and results of the 10 reviews focusing on problems with mental health and achievement

Review and type of mental problem	Purpose	Number and context	Result relevant for this review	Authors conclusions
Mental Health overall DeSocio, J, & Hootman, J (2004) Children's mental health and school success. The Journal of School Nursing	To examine the current state of children's mental health, its impact on school success, and the implications for school nursing	Not stated. US studies	Bidirectional links for most mental health outcomes, described as degree of symptoms, between mental health and achievement	The review supports the confluence of school performance concerns with emerging and existing mental health problems in children. Youth with school problems and those who fail or drop out of school are at greater risk for poor mental health outcomes
Trout, A., Nordness, P., Pierce, C., & Epstein, M. (2003). Research on the Academic Status of Children with Emotional and Behavioral Disorders. A review of the literature from 1961 to 2000. Journal of Emotional and Behavioral Disorders	A comprehensive examination of the current state of the literature on the academic status of students with emotional and behavioural disorders (EBD).	65, Reference list indicate primarily USA studies	Few studies separate ethnicity and gender. No conclusion about SES can be drawn. Few studies of EBD student in main stream settings. Outcomes often measured with tests rather than grades. Little information about students that perform on grade level. In the 23 comparisons to students without disabilities students with EDB generally performed less well that their peers without disability	This review further supports the notion that students with EDB are often academic underachievers.
Anxiety Hembree, R. (1988) Correlates, causes, effects and treatment of test anxiety. Review of Educational research	To integrate the findings of the research on test anxiety, regarding its nature, effects, and treatment.	562 Primarily US studies but also studies from countries with English as native language	Test anxiety and performance are significantly related at grade 3 and above. The relationships are inverse and tend to be stronger for worry than emotionality. No differences appear between males and females.	Test anxiety causes poor performance. This conclusion follows from the finding that better performance accompanies TA reduction
Ma, X. (1999) A meta-analysis of the relationship between anxiety towards mathematics and achievement in mathematics education. Journal for Research in Mathematics	What is the relationship between math anxiety and math achievement?	26 USA, but also New Zealand, Lebanon, Australia, Thailand, Israel	The common populations correlation for the relationship between anxiety toward mathematics and achievement in mathematics was-.27. The relationship between mathematics anxiety and mathematics achievement is consistent across gender groups, grade level groups, ethnic groups, instruments used to measure anxiety and years of publication	This meta analysis shows support for the findings of significance of the relationship between mathematics anxiety and mathematics achievement for school students. Reduction in anxiety may cause improved mathematics achievement
Suicide and depression Evan, H., Hawton, K., & Rodham, K. (2004). Factors associated with suicidal phenomena in adolescents: A systematic review of population based studies. Clinical Psychology Review	A systematic review of the evidence for specific risk and protective factors for suicidal phenomena in adolescence based on community studies	USA and UK studies	A significant but indirect association between achievement and suicide attempts. Poor school attendance was associated with both suicide attempts and suicide ideation. A negative attitude towards school and school work was associated with an increased prevalence of suicidal phenomena. A strong relationship between poor peer relationships and suicidal ideation. For suicide attempts there was an association with problems in relationships with peers	The findings in this review indicate a likely association between suicidal phenomena and many school related variables (achievement, attendance, attitude toward school. An intervention program aimed at parents have often focused on children's academic performance, they may well have an impact on suicidal phenomena.

Reference	Aim	Number / Countries	Findings	Conclusions
Antisocial behaviour Brier, N. (1995) Predicting antisocial behaviour in youngsters displaying poor academic achievement: A review of risk factors. Developmental and Behavioural Pediatrics	To examine factors that are believed to effect the risk of an anti-social outcome in youngsters who are failing at school	Not stated	Hyperactivity, distractibility, ridgidity, and impulsivity linked to both delinquency and poor academic outcome. Low intelligence (especially verbal) affect prosocial aspirations in regard to education.	Among youngsters failing at school those with the strongest risk for delinquency are characterized by overactive temperament, relatively low intelligence, negative school attitude and parents who demonstrate inadequate supervision.
Drug and substance use Fletcher,A., Bonell, C., & Hargreaves (2008) School effects on young people's drug use: A systematic review of intervention and observational studies. Journal of Adolescent Health	Examined the hypothesis that school institutional factors influence young people's use of drugs	13 USA, Australia, and Netherlands.	Intervention studies provide some evidence that there is a causal association between modifying the school environment to increase student participation, improve relationship, promote a positive school ethos and address disaffection and truancy and a reduction in student drug use and other risk behavior. A lack of effect on girls that might be caused by statistical power problems. Longitudinal studies show that disengagement from school and poor teacher – student relations were associated with subsequent drug use and other risky behaviors after adjustments for students demographic characteristics, SES and prior drug use.	The studies reviewed offer reasonably consistent evidence in favor of school effects on rates of drug use among students
Dewey (1999) reviewing the relationship between school factors and substance use for elementary, middle school and high school students. The Journal of primary Prevention	A summary of school-related correlates and risk factors that have been shown to relate to substance use in elementary, middle and high school populations.	43 Not explicitly stated	The majority of reviewed research indicated a causal sequence whereby substance use preceded and was a risk factor for negative school related consequences such as lower grades, higher rates of absenteeism, lower educational expectations and high rates of drop out. However a number of studies established a reverse order of GPA, high school non-completion etc acting as risk factors for drug use.	The statistical relationships found in the reviewed analyses, however strong, suggestive, or consistent, can establish an antecedent, but not a causal connection.. However, the fact that these relationships are consistent and have been shown to be stable over two decades suggests these variables' stability as risk factors and their viability as targets for preventive work
Conduct problems/class room behavior Gaddy, G. (1988) High School order and academic achievement	Looking at the evidence on order and achievement for high school students.	Number not specified. Studies from the USA and UK	There is no clear causal relationship between order and achievement but some indications that order, if combined with an academic focus of the school, promotes achievement. This tendency is much stronger on individual level but probably exists also on school level	More research is need on school level focused on the causal relationship between order and achievement. These studies need to be longitudinal and have more stringent ways to collect data and treat data
Bender, W.N, & Smith, J.K (1990) Class room behavior and children and adolescent with learning disabilities. A meta analysis. Journal of Learning Disabilities	To compare the classroom behaviours of children and adolescents with learning disabilities to children without learning disabilities	25 Not explicitly stated as deduced from reference list North American studies	For on-task behavior the analysis demonstrated an average discrepancy of slightly over one SD between the groups. About the same effect size for off-task behavior, conduct disorder, shy/withdrawn and distractibility. Results were about the same independent of study quality. Differences a bit larger if based on teacher ratings than if based on observations.	1) Children with LD have a higher probability to behave disruptively in the class room 2)The magnitude of the differences indicate that both teacher ratings and observations can be used when identifying these children 3) The ratio of children with learning disabilities should not be too high in regular classrooms

Table 2.6 Characteristics and results of the 6 reviews that focus on the indirect relations between school factors, and mental health and learning

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, Australia, The Netherlands, Scotland	Interventions studies: there is a causal association between changes in the school environment (ethos, engagement, participation) and reduction of risk behavior 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 behavior. Low school connectedness, truancy and suspension were associated with higher rates of drug use 2-4 years later.	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	Students' perception of academic ability, teacher support and overall satisfaction with school strongly related to children's global life satisfaction.
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	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.
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. This in turn affects attitudes 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

Reference	Aim	Location	Findings	Conclusion
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 climate (teachers, peer students, environment, undisciplined atmosphere) plays an important role in substance use, but considering neighborhoods, 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)	Provides empirical support that defining and assessing "readiness" in other terms than skills and abilities would add important information to current practices

They describe the effect of forms of summative assessment on motivation for learning. In the reviewed articles it is difficult to discriminate descriptions of motivation from descriptions of achievement, because changes in achievement are seen as indirect indications of changes in motivation for learning. Thus, the review provides indirect indicators of mental health factors that are important for achievement. The authors use terms such as self-esteem, locus of control and self-efficacy in their results and discussion sections, which makes it possible to relate the results to the reviews focused on self-beliefs. Concerning personality precise/sequential learning disposition in students is related to high self-esteem and internal locus of control. Concerning classroom factors, feedback is a significant factor influencing students' willingness to invest effort in a task. In addition, greater effort is associated more with learning goals than performance goals. The review focusing on frequency of participation in extra-curricular school activities (Feldman & Matjasko) tries to relate participation in extracurricular activities both to achievement and psychological well-being. One problem is that participation in activities can be seen as a sign of well-being. Accordingly, investigating the relationship between participation and well-being is partly circular. However, a relatively strong relation between participation in extracurricular activities and achievement is also reported. This relationship is mediated by peer networks and adult support.

The review results displayed in table 2.5. indicate that several types of problems with mental health are related to achievement and learning. Whether these relations are causal and the direction of such cause-effect relations are less evident. However, several of the reviews (e.g DeSocio et al, 2004; Dewey, 1999; Hembree, 1988; Ma, 1999, and Trout et al. 2003) conclude that there are causal relations between mental health problems and achievement and that these relations are bidirectional. The same patterns is seen independent of type of mental health problem (mental health overall, anxiety, depression, conduct problems) This indicates that it may be more a matter of mental health problems interfering with learning and achievement and vice versa, than that there exist specific relations between mental health and achievement and learning. An alternative explanation is that studies of the relations between mental health problems and achievement require more concrete and specific measures of how aspects of mental health problems functionally interfere with learning and achievement (Dewey, 1999; Ma, 1999) as well as a broader span of achievement measures (Trout et al, 2003). Most mental health measures are related to diagnoses, e.g. ADHD, depression and conduct disorder, rather than how symptoms related to these diagnoses functionally interfere with learning. Most achievement outcomes employed in the studies are represented by result on tests and/or reading, writing and mathematics. Few achievement outcomes concern other subjects, e.g. science, wood craft and social sciences, and relatively few concern actual grades.

In several of the reviews in table 2.6. that focus on the indirect relations between school factors and mental health, both classroom factors and other school factors are included. Concerning classroom factors the two most frequently mentioned are teacher-student relationship and student-peer relations. Three reviews (Dewey, 1999; Fletcher et al, 2008; Suldo et al, 2006) report that teacher-student relations are related to low drug use and global life satisfaction, and one study reports that the quality of peer relations is related

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to low drug use. It is however from these studies difficult to draw any conclusions about causality and the direction of cause-effect relations. The relatively few review results related to classroom factors as well as the lack of studies allowing causal conclusions to be made indicate that future research need to focus on longitudinal studies investigating the relations between class room factors and mental health. Five of the six reviews displayed in table 15 (except for LaParo et al.) explicitly discuss the relation between school factors outside the classroom and mental health. They use partly different terms such as ethos, participation, school climate, school connectedness, school attachment and school bonding. These terms seem to be partially overlapping conceptually and are difficult to discriminate. It might be, as for self-evaluations, that it is more important to define the ecological level at which they are measured than to define what kind of student school perception they stand for. Presuming that the concepts are all aiming at approximately the same environmental level, the discussed terms are describing a student's general perception of school, in one way or another. Common to the reviews are that they report a negative relationship between these school factors and problems with mental health, and a positive relationship between these factors and positive life-outcomes. It is however difficult to draw any conclusions about causality. There are at least two reasons for these difficulties, the first is that few of the reviews makes a clear distinction between longitudinal and cross sectional studies. The second is that the positive life outcomes are described in general terms. There seem to be few, if any, good alternatives to achievement in describing functioning in school that does not overlap with terms classified as positive aspects of mental health.

2.6 Mapping

We now go into the mapping of empirical studies identified in the full text review. Of the 1033 references that were full-text screened, 471 were deemed by the reviewers as falling within the scope of this review (see Figure 2.1) and potentially relevant for data-extraction. A description of the characteristics of the studies that resulted from the analysis of the completed protocols is presented in this section (the protocol employed for the full text screening is available in the Appendix, section 8.1).

2.6.1 Purpose of the reports

The purposes of the papers were classified by the reviewers according to nine defined purposes and an open alternative to be defined. The same paper could be classified with as many purposes that were relevant.

The most frequent purpose identified by the reviewers was "Effects of mental health on achievement and learning" (P2 in the protocol) which was found in more than half of the papers (N=255). Many papers, about a third, were concerned with the effects of background factors on mental health and achievement (P9) (N=160). The purpose of investigating the effects of achievement and learning on mental health and well being is present in about a third of the papers (N=153). The other purposes were all represented by a number of references in decreasing order from peer effects on mental health (P3,
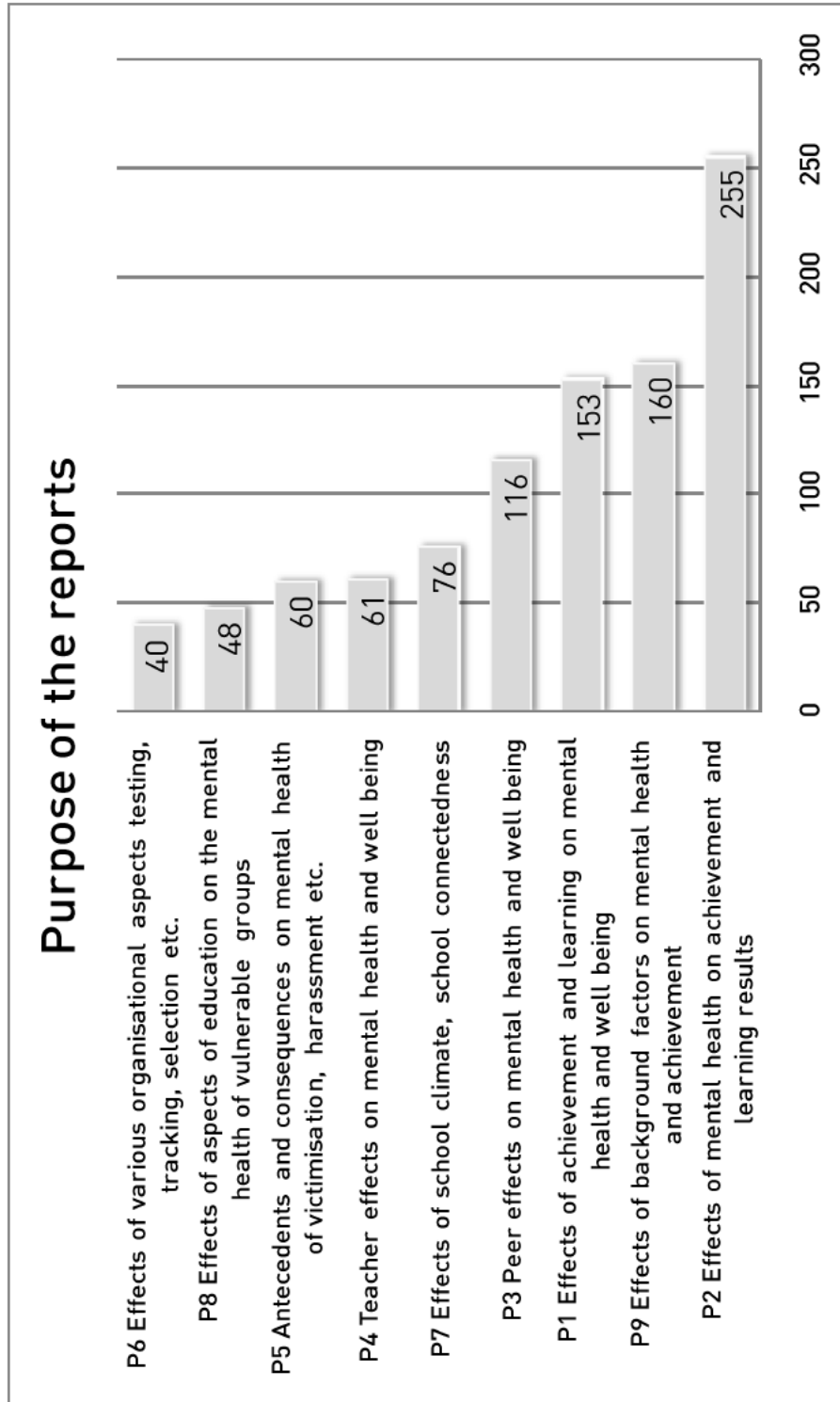
Figure 2.3. Reports included in the mapping phase (N=471) and their distribution according to kind of purpose (more than one purpose is allowed for the same report)

about a quarter), to effects of school climate (P7, present in 16 percent of the papers), teacher effects on mental health and well being, and antecedents and consequences of victimisation (P4 and P5, identified in 12 percent of the papers).

The least represented purposes were the effects of educational aspects on the mental health and well being of risk groups (P8) and the effects of various organisational aspects (P6). These were identified in about 10 percent of the included papers.

For the intent of this review it is a positive result that all the purposes are represented by a number of papers and that the two purposes that correspond to the main theme of the review are well represented in the included papers. The papers with the purpose of studying the effects of background factors are concerned with the study of confounders, from the point of view of the aims of this review.

We looked at the combinations of purposes with cross tabulations. About 35 % of the papers having the purpose P2 (effects of mental health on achievement) have also been identified with the purpose P9 (effects of background factors). About 30% of the reports having the purpose P1 (effects of achievement on mental health) also have P9. More than 50% of the papers having the purpose P1 (effects of achievement on mental health) were also identified with the purpose P2 (effects of mental health on achievement), meaning that these two purposes are relatively often treated in the same studies. P3 and P5 proved to be purposes that are partially but not completely overlapping. In fact, just about 20% of the papers having P3 (effects of peers) was identified also with P5 (effects of victimisation), while the overlap between P4 (teacher effects) and P7 (climate effects) was somewhat higher, about 50%. In summary, the analysis of the review shows that the categories of purposes that we identified in the protocol were relevant for this set of referencesand that there was a certain overlap between the categories of purposes, but they apparently also served to identify distinct types of studies.

2.6.2 Mental health and well being aspects

The aspects of mental health and well being were categorised in the protocol with 23 codes. The reviewers were instructed to identify all the possible relevant themes that were presented in the reviewed study. The occurrence of these categories in the included references is presented in Figure 2.4.

The most frequently represented themes are the positive aspects of mental health defined as self-perception, self-esteem, and self-concept (C4b). These aspects were identified by the reviewers in more than 35 % of the references. Among the frequently identified aspects we find, in descending order, internalising symptoms C1a, (mood, depression), externalising symptoms C2f, (antisocial disorder, violence) C2d (conduct disorder) and internalising C1b (anxiety). These aspects were identified in about 25 % to 35 % of the references.

A second group of mental health aspects was identified in less than 20% and more than 10% of the references. These are the other externalising aspects defined in the protocol
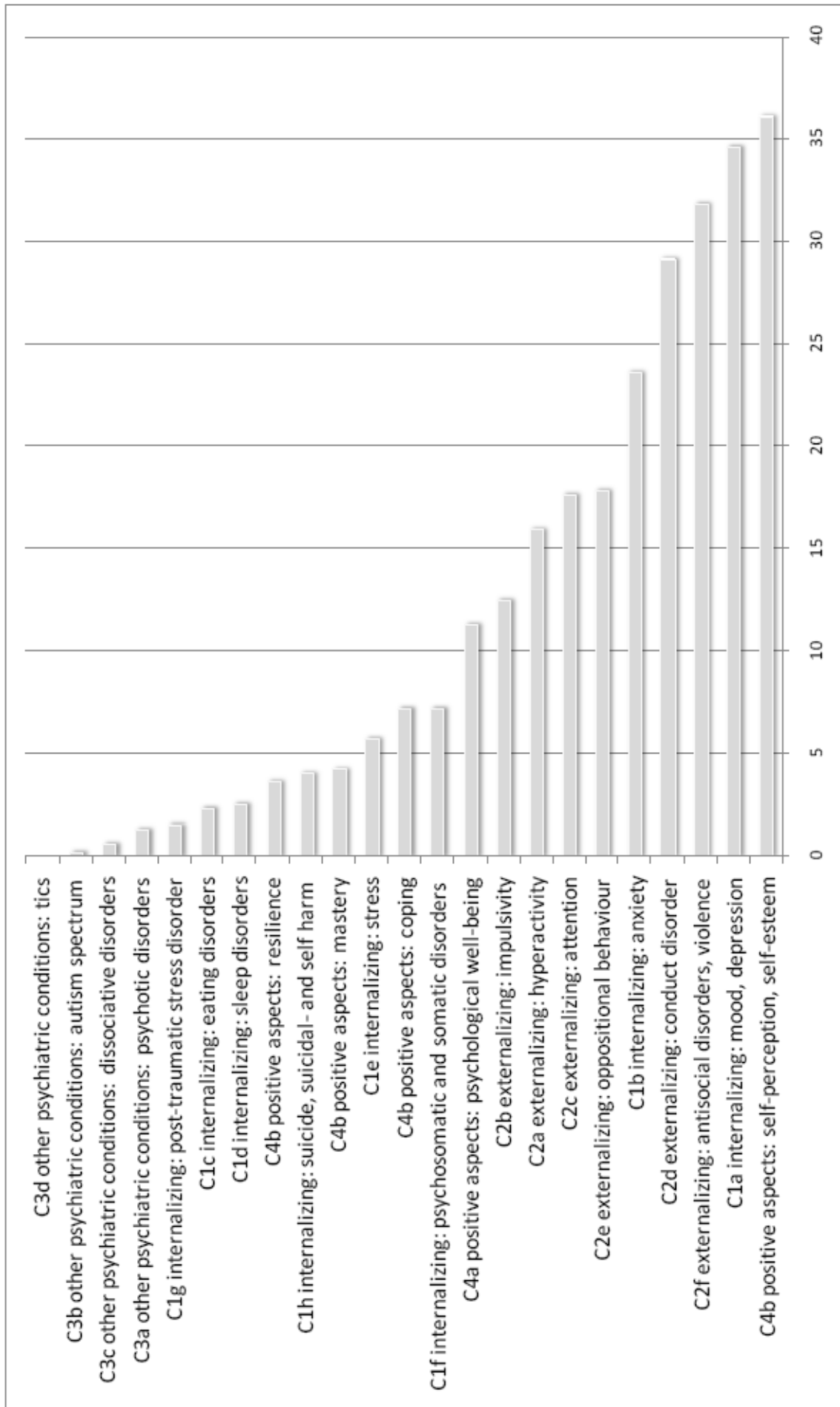
Figure 2.4. Occurrence of each mental health aspect in the papers included in the mapping (N=471), in percent (more than one aspect was allowed)

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as attention (C2e), hyperactivity (C2c) and impulsivity (C2b) and also a positive aspect: well being (C4a).

A third group of mental aspects was identified in just more than 5 % of the references: coping (C4b) and the internalising aspects psychosomatic disorder (C1f) and stress (C1e).

The categories in the group Other psychiatric symptoms (C3) were not well represented among the references. One of these, tics, was not represented at all. An explanation of the low number of references coded with C3 is that during the abstract review and the full text review we required a normal population or at least a comparison group, if the study had a special population.

Rotated component matrix				
	1	2	3	4
C1a internalising: mood, depression		.56		
C1b internalising: anxiety	.43	.53		
C1d internalising: sleep disorders		.53		
C1e internalising: stress		.55		
C1f internalising: psychosomatic symptoms		.65		
C1h internalising: suicidal- and self harm		.40		.41
C2a externalising: hyperactivity	.79			
C2b externalising: impulsivity	.74			
C2c externalising: attention	.73			
C2d externalising: conduct disorder	.62			
C2e externalising: oppositional behaviour	.61			.
C2f externalising: antisocial disorders, violence				.64
C4a positive aspects: psychological well-being			.61	
C4b positive aspects: self-esteem, etc.			.	-.58
C4b positive aspects: coping			.61	
C4b positive aspects: resilience			.41	
C4b positive aspects: mastery			.57	

Table 2.7 Rotated component matrix of the mental health aspects identified in the included articles (N=471). The mental health aspects with means below 0.04 are excluded from the analysis. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization (only loadings >0.40 are showed)

In order to describe how the mental health aspects co-occur in the included articles, we performed factor analyses of the codes (see Figure 2.4) from the full text protocols. In the factor analysis we exclude the mental health aspects with means below 0.04. We retained in the factor analysis 17 of 23 mental health aspects.

The total variance explained is about 44 per cent. The first factor explains about 16% of the variance and all the externalising aspects except C2f (antisocial, violence) load on this factor. However, anxiety also has small loadings on the first factor. The second factor explains about 10% of the variance and all the internalising mental health aspects load on this factor. The third factor explains about 8 % of the variance and all the

positive mental health aspects load on this factor. The fourth factor explains about 8% of the variance and antisocial disorders load on this factor, along with suicidal and self-harm behaviour (C2d, C2e). The fourth factor is also negatively related to aspects of self-concept and self-esteem (C4b). This mean that the papers that are related to violence and antisocial disorder are not concerned with self-concept and self-esteem.

It is quite interesting to see that the first three factors quite closely correspond to the three major aspects of mental health: externalising, internalising and positive aspects. There is also some overlap between these major categories. Anxiety can be identified in references that focus on externalising mental health aspects, but apparently not on those on antisocial disorders. Suicidal and self-harm behaviour can be related also to the externalising theme antisocial disorders and violence. The fourth factor is characterised mainly by externalising mental health aspects, but also of an internalising suicidal and a positive aspect. Nevertheless, this pattern suggests that this type of research tends to represent each of the major areas of mental health with multiple indicators, but that there is not so much overlap between the aspects. However, to investigate how the different aspects of mental health combine in different studies an analytical technique which uses the individual paper as a unit, such as cluster analysis, would be more appropriate.

2.6.3 Educational characteristics

The educational characteristics were categorised in the full text protocol with 17 categories sorted into seven main groups (D1-D7). The definition of the categories build on the identification of the educational process and its outcomes as complex phenomena that can be investigated at the individual level, at the level of the interaction between teacher and student, at the level of didactic activities, at the level of interaction in the group of students in the class and in the school, at the level of the school organisation and management, and at the level of the national regulations (curriculum, grades, modality of selection).

Furthermore, a range of combinations of approaches in the study of educational processes are possible: for instance the phenomenon of student failure can be considered as an outcome at the individual level of an interaction between individual factors and the educational system. However, some studies falling in this category may have a main interest in the identification of risk factors at the individual level, while others are interested in which features of the educational system may contribute to an undesirable increase of school failure at the national level. Other studies may have an interest in the consequences of the experiences of school failure for the individual.

Group D1 was related to individual aspects and related concepts of the educational process that are used in the research in this field and that the studies are indexed with (achievement, teaching, instruction, teaching behaviour, goals, homework, independent work, test, grades, evaluations). D2 is concerned with issues of selection and ability grouping; D3 with special educational issues as referral, labelling, individual plans, inclusive education; D4 with school failure, drop out, truancy, perceived stress, school adjustment; D5 with the relationship in the educational environment (teacher-students, peers, school climate, harassment); D6 treats organisational aspects as leadership,

Figure 2.5 Occurrence of each educational themes in the studies included in the mapping (N=471) in percent.
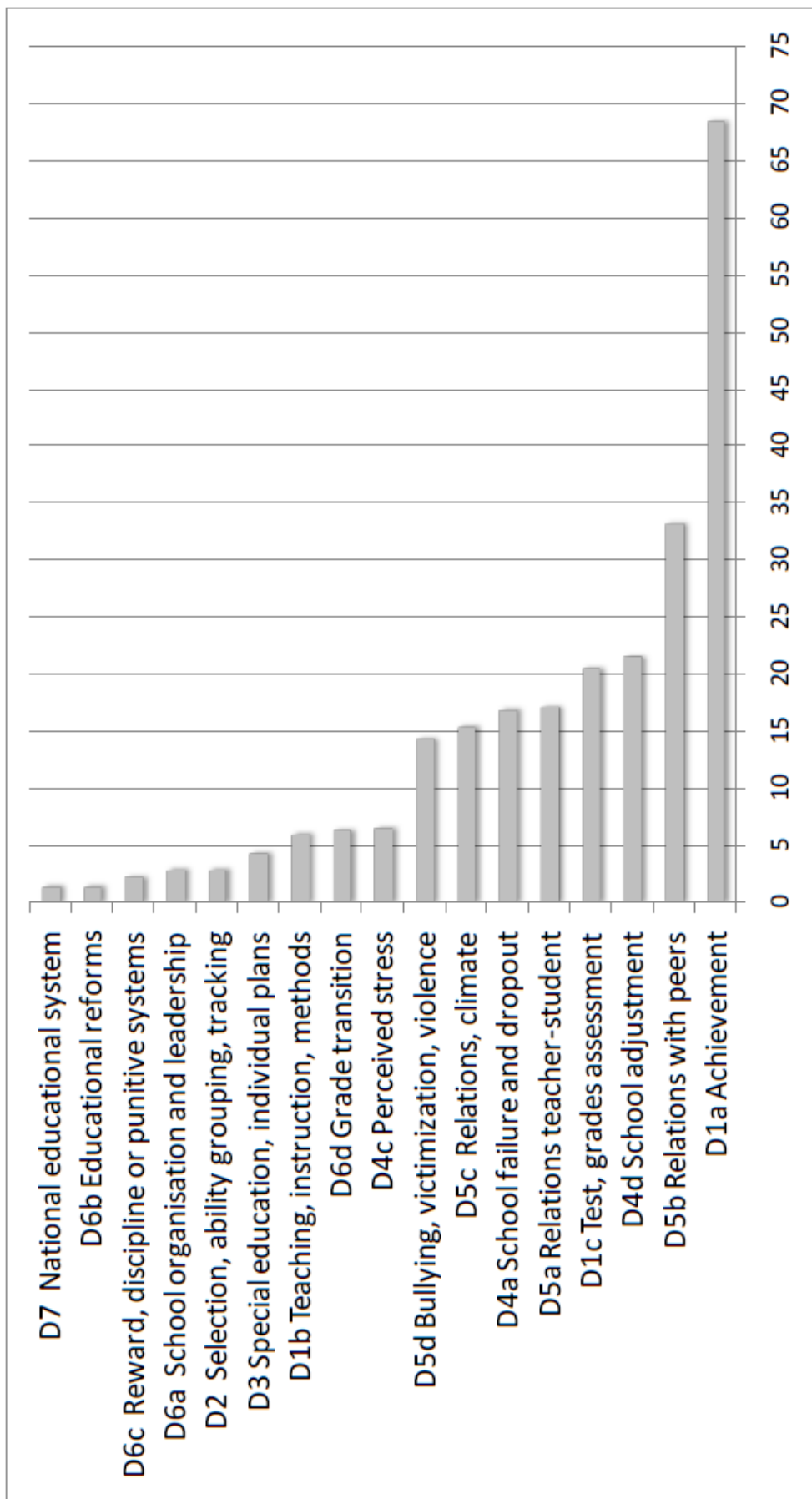
management, funding, accountability systems, educational reforms, reward and discipline, grade transitions. D7 is concerned with the educational system in a broad sense at the national level; international comparison also fit in here.

The instructions asked the reviewers to code each study with all the appropriate codes. The content of the categories was discussed at the group meetings.

The most common educational theme in the studies reviewed was Achievement (D1a). This may mean that some measure of student achievement is employed in the study, not necessarily that the main focus of the study is on the learning process as such. The second most common theme was Relations with peers (D5b) that was identified in more than 30 % of the references.

A third group is constituted by themes that were identified in about between 20% and 15% of the references. They are the following, in descending order: School adjustment, Tests and assessment, Relations teacher-student, School failure, Relations and climate, Bullying and victimisation. A fourth group is represented by themes that appear in more than 5% of the references: Perceived stress, Grade transition, Teaching and instruction. The last group includes six themes that were identified in less than 5% of the references: Special education, Selection and ability grouping, School organisation, Reward and discipline, Educational reforms, National educational systems.

Table 2.8. presents the results of a factor analysis conducted in order to investigate co-occurrence of different educational aspects in the studies. The total variance explained by this analysis is 63 per cent, and each of the six factors explain about 10 per cent of

	1	2	3	4	5	6
D1a Educational aspects: Achievement		-0.77				
D1b Educational aspects: Teaching, instruction, methods	0.80					
D1c Educational aspects: Test, grades assessment			0.56			
D3 Educational aspects: Special education, individual plans			0.83			
D4a Educational aspects: School failure and dropout						0.81
D4c Educational aspects: Perceived stress					0.82	
D4d Educational aspects: School adjustment				0.78		
D5a Educational aspects: Relations teacher–student	0.78					
D5b Educational aspects: Relations with peers				0.73		
D5c Educational aspects: Relations climate, connectedness						0.52
D5d Educational aspects: Bullying, victimization, violence,		0.70				
D6d Educational aspects: Grade transition					0.65	

Table 2.8 Rotated component matrix of the Educational aspects identified in the included articles (N=471). The mental health aspects with means below 0.04 are excluded from the analysis. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization (only loadings >0.40 are showed).

the total variance.

Teaching, instruction &methods and Relations teacher-student have high loadings on the first factor, so this may be interpreted as a classroom teaching factor. The second factor contrasts Achievement and Bullying, victimization, violence, which indicates that these aspects are not included in the same paper. On the third factor Special education, Tests, grades and assessment load highly. School adjustment and Relations with peers load highly on the fourth factor, which could represent the broad theme of social achievement. The fifth factor loads on Stress and Grade or school transitions while School failure and dropout and Relations climate &connectedness load highly on the sixth factor. This factor analysis gives indications about how the educational themes that are present in the references are combined together. It seems therefore that the following themes could be identified: Teachers and teaching; Peer victimisation; Assessments and provisions; Social adjustment; Changes and transitions; and Failure and participation.

2.6.4 Background and context

Section G in the full text protocol was introduced in order to assess if the studies reviewed made comparisons between groups or took into account individual, background and context characteristics that could be moderators of the relationship between mental health and educational variables. Out of the papers reviewed in full text, 295 are concerned with differences among students, such as differences in ability and background, gender etc. There are 106 papers that are concerned with individual risk factors, pre-term born, malnutrition, abuse and neglect, and violence. There are also 66 papers that are identified as investigating other differences (for example: twin studies, urban and rural schools, race and ethnicity).

2.6.5 Method
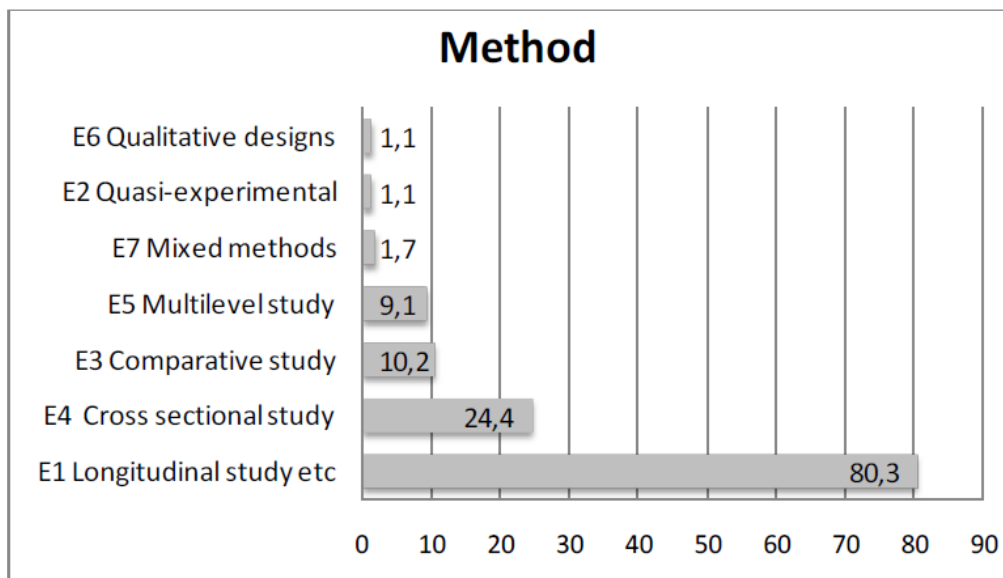
Figure 2.6. Occurrence of each type of methodology in the studies included in the mapping (N= 471) in percent.

The literature searches included longitudinal studies as a search term, even though this was not a requirement. The high presence of longitudinal studies is therefore expected. In this section the papers could also be classified into more than one category. Out of 43 papers identified as using a multilevel approach, 34 used a longitudinal approach. A large part (41 of 48) of the studies with a comparative approach is also longitudinal.

2.6.6 Age and type of school
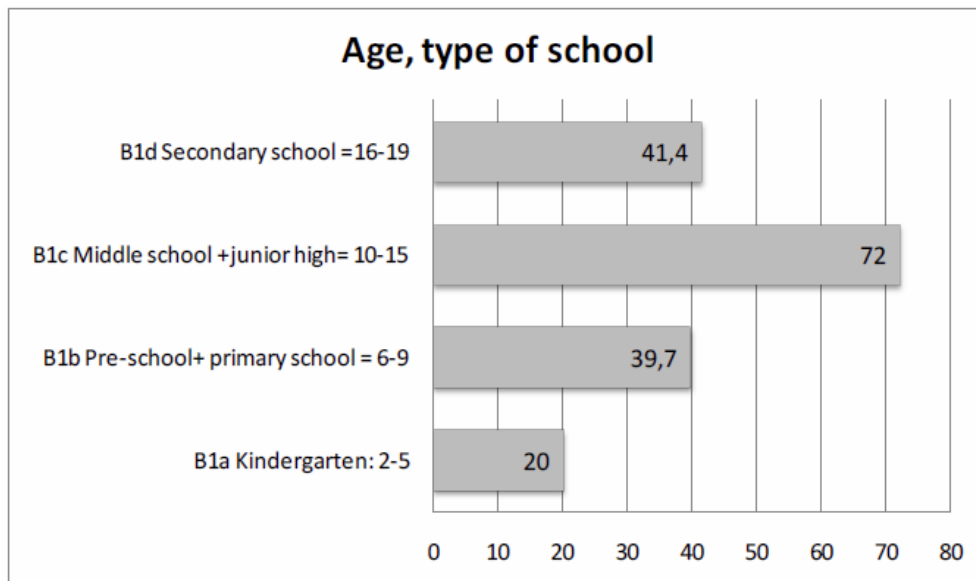
Figure 2.7 Occurrence of papers with participants from various ages and type of schools (N= 471) in percent.

The largest age group/type of school was students aged 10-15 (B1c) and attending middle school and junior high school. This age group of students was focussed upon in 72 % of the papers. The age groups 6-9 and 16-19 were represented in about 40% of the papers. The age group 2-5 was represented in about 20% of the papers.

2.6.7 Relevance

The reviewers were asked to evaluate the relevance of the report examined for the specific purposes of this review with two questions. The reviewers identified 284 studies with a specific focus on themes that are highly relevant for the systematic review and 362 as having only a broad relevance.

2.6.8 Context of the study

The major part of the included papers describes studies from USA (63%). The remaining 37% describe studies from 30 different countries. Canada is the second largest contributor of included studies (5.5 %). Great Britain, Australia, Finland, China and Sweden contribute with a relatively great amount of studies among the other countries. The Netherlands, Norway, Germany, Belgium, New Zealand and Greece contribute between 10 and 3 papers, while the other 16 countries contribute one or two papers.

2.6.9 Publication Year

The papers included were distributed over the ten years 1999-2009, but with a clear pattern of increase over time. During the years 1999-2002, between 20 and 30 papers were published each year that met the search terms and the inclusion criteria of this review. From the years 2006-2008 there were 70 and 80 references each year. This trend may be due to both a general increase in the number of articles published each year, and to an increase in the interest in the issues that are the object of this review.

Country	N
USA	300
Canada	26
United Kingdom	17
Australia	15
Finland	14
China	12
Sweden	12
Netherlands	10
Norway	9
Germany	8
Belgium	7
New Zealand	7
Italy	5
Multiple	4
Greece	3
Chile	2
France	2
Slovenia	2
Korea	2
Israel	2
Spain	2
Denmark	1
Austria	1
W. Indies	1
Croatia	1
Turkey	1
Singapore	1
Yemen	1
Mexico	1
India	1
Taiwan	1

Figure 2.8 Distribution of the references included per publication year (N= 461, data from 2009 omitted because limited to two months, N=10)
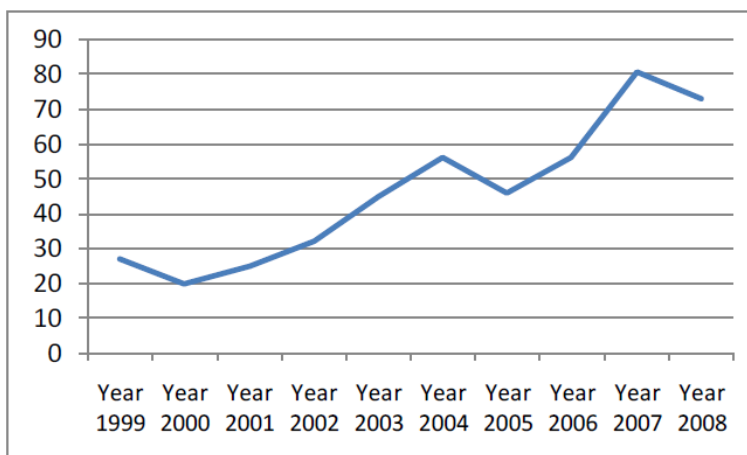
Table 2.9 References included (N=471) sorted by country of provenience

2.6.10 Clusters

The combinations of contents of the studies included in the mapping have been analysed by means of cluster analysis. A solution with 12 clusters, computed with the k-means program in SPSS, is presented here to give a picture of how the mental health factors and the educational factors combine in the literature included in this review.

The themes of academic achievement and self-concept were common in the most of studies and accordingly they are present in almost all the clusters to somewhat varying degrees.

Cluster	Description	N=
1	Mental health and academic achievement	45
2	Anti-social behaviour and social achievements in educational settings	68
3	Assessment, self-concept and depression	15
4	Transitions, social relationships and depression	12
5	School failure, social relationships and mental health	30
6	Teaching, relationships with teachers and self-concept	43
7	Achievements in several domains and well being	115
8	Stress, anxiety and school failure	34
9	School climate, adjustment and anti-social behaviour	42
10	Educational factors (teacher, climate, methods) school failure, stress & well being	11
11	Self-concept and academic achievements	48
12	Mental health and social relationships in educational settings	5
Valid		**468**
Missing		**3**

Table 2.10 Clusters of the references included in the data-extraction

In the first cluster of references, we find studies that are concerned with a wide range of internalizing and externalizing symptoms and also with academic achievement, school failure and adjustment. About 10 per cent of the references were grouped into this cluster.

In the second cluster the studies consider the symptoms of anxiety, hyperactivity, attention, and above all anti-sociality in combination with social relationships and achievements, in particular with peers (about 15 %).

The studies in cluster 3 form a small group (3 %) concerned with above all depression and self-concept, but also anxiety and to a certain degree other symptoms; among the

educational factors the most prevalent is test and assessment and to a lesser degree stress, peer relationships and victimization.

Cluster 4 is also a small group, characterised by studies concerned with depression, anxiety and other symptoms - but not with self-concept - and with relationships with peers, assessments and grade transitions among the educational factors.

Cluster 5 includes studies focussing on school failure and adjustment, together with relationships with teachers and peers including victimisation, in combination with several mental health factors, except for the positive mental health indicators. This cluster comprises 6 % of the references.

Cluster 6 is concerned with achievement, teaching and teachers factors in combination with self-concept, coping and depression among the mental health factors (less than 10%).

Cluster 7 is a quite large group of references (about 25 per cent) that treat social and academic achievements and assessments, and among the mental health aspects well being and self concept are the most frequent of all.

Cluster 8 has a main focus on educational aspects as school failure, grade transition, peer-relationships and on mental health aspects as anxiety, depression and stress.

Cluster 9 has a focus on school climate and adjustment among the educational factors and on self-concept and anti-social behaviour among the mental health aspects (8 %)

The quite few studies in cluster 10 consider several aspects of educational settings (related in particular to relationships with teachers, to teaching methods, failure, and school climate) and just some aspects of mental health: in particular stress, psychosomatic symptoms, well being and self-concept.

Cluster 11 is characterized by studies that focus only on the themes of anti-social behaviour, self-concept and academic achievement (more than 10 % of the studies).

Finally, the few studies in cluster 12 consider several internalising and externalising mental health symptoms and several educational factors but mainly those concerned with relationships, except those related to academic achievement.

2.7   Discussion and Conclusions

From the mapping of the literature we can draw the conclusion that there seems to be a large enough amount of literature to review that is concerned with what can be defined as the individual level of the educational factors, namely, the students' academic and social achievements and failures.

The different mental health factors seem to be well represented among the references, with the exception for the group that was defined as other psychiatric symptoms (autism spectrum, psychosis, etc.). One reason for this may be found in the inclusion criteria adopted in the review, requiring the presence of a comparison group in the case of studies with a special population. It is possible that studies investigating the links between school and mental health factors that are concerned with these other psychiatric symptoms do not include comparisons groups. Another possible explanation is that the longitudinal studies do not consider this group of symptoms. This may in turn be because children with these symptoms were not attending school in regular settings in the past. This situation has changed during the last years and in many educational systems, students with autism spectrum disorders now attend regular schools and classes. Future longitudinal studies therefore need to consider this group.

References that treat mental health factors and educational factors at the organisational or national level (D6, various characteristics of the educational system, D7, reforms, etc.) are present in the material, but only to a very limited extent. We can conclude that these aspects are not sufficiently well represented to allow for this review to answer questions concerning educational aspects at the system level.

Another field that is not well represented is the educational organisational level. There are many studies that are considering individual factors, and there is also a certain amount of studies that are considering the relationships at the classroom level, but studies that examine the higher organizational levels are very scarce. Since it is well known from organisational research in other sectors that different aspects of the work environment (management, values, goals) influence the well-being and health of the employees, such research is needed in the educational area as well.

It may be noted, however, that quite a few of the references are concerned with relations among different aspects of mental health and academic achievement, which should provide an adequate material of studies to be discussed in the narrative synthesis.

3 DATA EXTRACTION AND APPRAISAL OF QUALITY AND RELEVANCE

We now turn to the second purpose which is conduct an in-depth review to answer to the following questions:

- Which are the causal relationships between mental health and academic achievement?
- How are these relationships influenced by other factors, both related to the individuals and their social background, and to factors in the educational environment (evaluation system, tests, grades, selection procedures, special educational system, teaching methods, social climate).

First of all, it can be concluded that the mapping has shown that a substantial number of references investigate effects of academic achievement on mental health and/or effects of mental health on academic achievement, which indicates that an empirical basis is available in the form of published papers which satisfy the inclusion criteria that we have applied so far. However, before we go any further into this literature we need to discuss the nature of the research problem and the methodological requirements it poses.

3.1 Methodological issues in the study of relations between academic achievement and mental health

For a long time, research has demonstrated that a relationship exists between mental health and academic achievement. Thus, problem behavior is associated with low academic achievement (Hinshaw, 1992), as is depression (Asarnow et al., 2005; Chen et al., 1995; Marmorstein & Iacono, 2001) and anxiety disorders (Stein & Kean, 2000; Woodward & Fergusson, 2001; Kessler, 2003). Mental illness is also related to premature termination of education (Kessler et al., 1995), and educational disparities due to mental illness persist through life (Miech et al., 2005).

Four different causal models may explain these relations (Hinshaw, 1992). According to the first model one or more factors (e.g., poor attention or a troubled family environment) influence both mental health and academic achievement. This model implies that the relation between mental health and achievement is spurious, because the correlation is due to a common cause, such as cognitive ability or environmental influences. Second, it may be that achievement-related problems cause mental health problems. For example, school failures may lead to loss of self-esteem and depression. According to the third model, mental health problems influence academic achievement. For example, disruptive behaviours might decrease focus on learning activities, thereby worsening school performance. The fourth model states that academic achievement and mental health cause each other in a reciprocal relation. For example, school failure may cause problem behaviour, which in turn causes further deterioration of school performance in a negative feedback loop.

These four models are not easy to distinguish from one another in empirical research, and there is considerable controversy about which of these four models provide valid

explanations of observed correlations between mental health and academic achievement. The fact that the distinction between these four models is a considerable simplification does not make things any easier. There is thus evidence that a causal effect is often due to indirect chain effects (Rutter, 1994) and complex mediating mechanisms. Thus, different forms of mental health problems may cause one another, and academic achievement may be causally involved in these relations. For example, conduct problems may cause achievement problems; these may in turn affect self-esteem negatively, which may cause depression. This sequence of causal relations implies that we will observe a correlation between conduct problems and depression. Furthermore, Rutter (2009) identified ten different ways in which risk mechanisms for mental disorders may be conceptualized, and simple additive effect models fail to capture many of these mechanisms.

As has been observed many times before (e.g., Hinshaw, 1992) great methodological challenges thus are encountered in research aiming to make causal inferences about relations between mental health and academic achievement. It is generally agreed that randomized experimental designs provide the strongest basis for causal inference, but we do not have any such studies in our set of references. One reason for this is that intervention studies are not within the scope of this review because another review has that focus. Another reason is that many of the questions we ask have not been studied experimentally, and cannot be studied experimentally for ethical reasons.

Natural experiments and estimations with instrumental variables provide the next best basis for credible causal inference (Feinstein et al., 2006). However, there are very few such studies available in this area of research.

Longitudinal designs also offer possibilities, under certain conditions, to make inferences about causality (e.g., Hinshaw, 1992; Loeber & Farrington, 1994), even though it must be realized that the complex nature of the phenomena investigated makes it necessary to be careful in design, analysis and interpretation of longitudinal research. Indeed, Hinshaw (1992) concluded a review of longitudinal studies on relations between externalizing problem behaviour and achievement with the statement:

> … the material covered herein underscores the potential complexity of causal mechanisms underlying the association of interest. Given the interactions and transactions among social, familial, linguistic, and neurobehavioral variables that may culminate in the overlap between underachievement and externalizing behavior, teasing apart the effects of any single background factor is likely to be quite difficult or even misguided. The challenge for the field is to derive explanatory models with sufficient rigor and complexity to handle the diversity of causal factors. (Hinshaw, 1992, p. 151)

It is, however, our expectation that there has been a development both when it comes to the conduct of longitudinal studies, and when it comes to explanatory models since the Hinshaw (1992) review was published. The number of longitudinal studies has increased, and suggestions for design improvements by Hinshaw (1992), Rutter (1994) and others should have increased the quality of the studies. Great progress has also been made in development of analytical techniques appropriate for longitudinal designs,

such as latent variable growth curve modeling techniques (e.g., Muthén, 2004). Because of the progress that we expect has been made, the in-depth review will take advantage of the large number of longitudinal studies that resulted from the search.

It should be noted, however, that not all studies based on longitudinal data necessarily support causal inference. Hinshaw (1992) emphasized that a good longitudinal study of relations between mental health and achievement should include assessments of achievement and mental health at initial as well as follow up periods. Such designs allow analyses that focus on change in both independent and dependent variables, and such analyses have the advantage that time-invariant omitted variables do not bias the results. Hinshaw (1992) also emphasized that an adequate longitudinal design should include measures of relevant antecedent variables, in order to be able to control for common causes. It also is necessary to use analytical techniques that take advantage of the longitudinal design in statistically appropriate ways.

However, even longitudinal studies that satisfy these requirements may fail to yield correct inferences. One reason for this is that there may be problems of measurement due to scale problems and to random and systematic errors. There also are problems of construct validity and of the degree of specificity of measures and effects (Hinshaw, 1992). Measures of positive aspects of mental health, in particular, are afflicted by such conceptual problems.

The mapping reported in chapter 2 illustrates the great heterogeneity within the domains of mental health and academic achievement, and the studies also are heterogeneous in many other respects, such as age groups investigated, language and culture. The relatively limited number of studies in combination with this heterogeneity precludes use of quantitative techniques of meta-analysis for the in-depth review. Instead a narrative synthesis has been attempted. Even though this syntheses has not managed to follow the recommendations for the conduct of narrative syntheses made by Popay et al. (2005), we have tried to relate theoretical notions in the literature to the empirical findings in the reviewed studies.

3.2 Studies included in the data extraction

From the 471 articles that were included in the mapping we selected a subset of studies to be included in the data extraction. One criterion for inclusion was that the study should have as an aim to study either effects of academic achievement on mental health, or effects of mental health on achievement or both (i.e., P1 and/or P2 according to the mapping). A second criterion for inclusion was that the study according to the judgement of relevance should have a specific focus on the issues of the review. The third criterion for inclusion was that the study should have a longitudinal design.

When these three criteria were applied 180 references were included.

3.2.1 Description of the studies

In the following section, some descriptions of these 180 selected studies are presented.

The 180 references included in the data-extraction, were published in 95 different journals, representing the following disciplinary areas: developmental psychology, child and adolescent psychiatry, educational and social psychology, educational research, youth and adolescent research, sociology, public and community health, pediatrics, criminology, and health economics (see Table 3.1)

Periodical	N
Child development	14
Developmental Psychology	12
Journal of educational psychology	9
Development and psychopathology	7
Journal of Youth & Adolescence	6
Journal of Child Psychology & Psychiatry & Allied Disciplines	4
Journal of Clinical Child & Adolescent Psychology	4
Criminology	3
Health economics	3
International Journal of Behavioral Development	3
Journal of abnormal child psychology	3
Journal of Adolescent Health	3
Journal of Adolescent Research	3
Journal of Emotional & Behavioral Disorders	3
Journal of School Psychology	3
Prevention Science	3
Social Development	3
Social Forces	2
American Educational Research Journal	2
Archives of Paediatrics & Adolescent Medicine	2
British Journal of Educational Psychology	2
Cognitive Therapy and Research	2
European Psychologist	2
Journal of Adolescence	2
Journal of Clinical Psychology	2
Journal of Educational Research	2
Journal of Learning Disabilities	2
Journal of Personality	2
School Psychology Quarterly	2
Social Development	2
Social problems	2
Social science & medicine	2
Social Science Research	2
Sociology of Education	2

Table 3.1 Number of references for different journals among the references included in the data-extraction; only journals with more than one contribution are presented in the table.

The data sources of the references included in the data extraction are presented in Table 3.2 below. However, the distribution of these references among the databases has to been regarded as indicative, since a large amount of duplicates were removed from the retrieved references.

Database	N
PsycInfo	58
Medline	44
CSA*	32
Academic Search Premier	25
EJS E-Journals	10
Psycarticles	8
ERIC	2
Business Source Premier	1

*CSA includes: ASSIA, Applied Social Sciences Index, Abstracts Social Services Abstracts, Sociological Abstracts

Table 3.2 Number of references from different databases

The large number of journals and the variety of disciplines that they represent, show that the issues that are considered in this review are focussed upon in various fields of knowledge and research. However, a core area can be identified, where the density of references is higher, consisting essentially of developmental psychology and psychopathology, together with educational psychology.

However, it is also important to emphasize the large number of disciplines contributing research, such as sociology, epidemiology, educational research, youth studies, criminology, health economics, paediatrics and learning disability studies. This result confirms that the broad literature search strategies adopted were necessary to cover the whole field of relevance.

3.2.2 Data-extraction procedures

Each reviewer was assigned 15-20 references to extract data from, a few from each publication year. The reviewer completed for each reference a protocol that was developed for this purpose (see the data-extraction protocol in section 5.5. in the Appendix).

The data-extraction protocol is structured with the following sections:
Section A: Administrative details
Section R: Relevance
Section B: Study aims and rationale
Section C: Study mental health focus
Section D: School and achievement
Section F: Sample and context
Section H: Study Method
Section I: Methods, groups
Section J: Sampling strategy
Section K: Methods – Data Collection
Section L: Methods – data analysis
Section G: Results and conclusions
Section M: Quality of study: description
Section N: Overall quality of study

The first step of the data-extraction was to evaluate if the study met the additional inclusion criteria specified for the data-extraction. The first criterion was that the study should have a "high" relevance with respect to the review question specified for the narrative synthesis. Studies that were not rated high were not included in any further data-extraction.

The second criterion was that there had to be at least two measurements of the outcome variable, an initial measurement and follow-up measurements. If the study did not have at least two measurements of the dependent variable, the relevance of the design of the study for this review was evaluated as "low". It should be pointed out that it was not necessary that the variable was measured with exactly the same instruments at the different occasions, but if academic achievement was the outcome considered in the study an initial measure for instance of cognitive ability should be present.

Of the 180 studies considered, 60 were evaluated as having low relevance for the purposes of this review, either because of their focus or because an initial measure of the outcome variable was lacking, 51 were judged as having medium relevance and 69 high relevance (see Figure 3.1).

The data-extraction protocol asked a series of questions about the methodology of the study and asked for a further evaluation of the quality of the study based on these methodological evaluations. Out of the studies that went through a full data-extraction, 44 were evaluated as having medium quality and three low quality.

The following chapter presents a narrative synthesis of the studies included in the data-extraction that got the evaluation "high" with respect to relevance and quality (N= 51). We expect that these references have the characteristics (content, focus, design, method, quality) that are required to answer the questions of the present study. However, even though the studies satisfy strict methodological requirements, it is not possible to claim that all of them allow causal inferences for reasons discussed above.

Reports included in
Mapping
N= 471

Potential included
in data-extraction
N= 180
D1A=achievement
E1= longitudinal method
F4A=specific focus

Reports not
included in
Data-
extraction*
N=291

not D1A
achievement
N=151

not E1
longitudinal
study N= 93

Not F4A
specific focus
N=189

Reports included in
the narrative
synthesis◇N=51

Reports not
included in
the narrative
synthesis*
N=129

Low relevance
or not relevant
design
N=60

Medium
relevance
N=59

Method=Medium
or low quality
N=47

Schooling as
determinant of
mental health

Mental health as
determinant of
schooling

1. Trajectories
of development

4. Effects of
peers and
teachers

6. Effects of
internalizing
behaviour

7. Effects of
externalizing
behaviour

2. Effects of
early school
achievement

5. Effects of
school
retention

8. Effects of
positive mental
health factors

3. Effects of
achievement in
adolescence

*More than one reason of exclusion is allowed
◇ the same reference can be reported within more than one of the 8 themes

Figure 3.1 Literature flow from mapping to narrative synthesis

4 SCHOOLING, ACADEMIC ACHIEVEMENT AND MENTAL HEALTH: A NARRATIVE SYNTHESIS

As is clear from previous chapters, mental health is a complex phenomenon defined by several different aspects, and it is reasonable to expect that the relations to academic achievement are quite different for different aspects. The narrative synthesis is organized in such a manner that a basic division is made between studies that investigate academic achievement as a determinant of mental health on the one hand, and studies that investigate mental health as a determinant of academic achievement on the other hand. The first category of studies has been grouped according to different aspects of schooling, and the second category has been group according to which aspect of mental health (internalizing problems, externalizing problems, and positive aspects of mental health) is studied.

4.1 Schooling and academic achievement as determinants of mental health

There are numerous theories about how schooling and academic achievement can influence mental health. In this context it is not possible to discuss all these, but we will briefly refer some important theories and models.

Frydenberg (2008) summarized previous research on the main sources of stress in the life of adolescents by identifying three main categories of concerns: things that relate to success and failure at school, peer and family relationships, and social issues such as the environment, poverty and unemployment. Frydenberg also emphasized that these stresses and strains vary according to age, context and culture. It is, nevertheless, of great significance as a starting point for this review that things that relate to academic achievement is identified as one of the main sources of stress, and also that the importance of this source varies as a function of individual and contextual factors.

Negative effects of school failure on mental health may be accounted for in terms of theories of stress. The concept of stress seems to have been borrowed from the field of physics, and represents the situation when an object breaks or is deformed by forces of outside pressure. One example of an influential model is the transactional view of stress (e. g., Lazarus, 1991), which regards stress as occurring when there is an imbalance between the perceived demands of the environment and the perceived resources of the individual.

A more recent conceptualization is the Conservation of Resources (COR) theory developed by Hobfoll (1989, 2001). According to this theory individuals strive to retain, protect and build resources in order to maximize coping capacity and limit psychological distress. Stress occurs when resources are threatened or lost. Hobfoll (1989) thus defines psychological stress as a reaction to the environment in which there is loss of resources, or a lack of resource gain following investment of resources. Both perceived and actual

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loss of resources, or lack of gain of resources, is sufficient for producing stress.

Resources are defined as objects (e.g., possessions), personal characteristics (e.g., problem solving skills, mastery, self-esteem, learned resourcefulness), conditions (e.g., being a student), and energies (e.g., social networks, time). Different kinds of environmental circumstances may threaten people's resources, and cause loss. Loss is important for two reasons. The first is that resources have instrumental value in themselves, and the second that they have symbolic value in helping to define for people who they are.

According to COR theory effects of resource loss and resource gains are asymmetrical. Thus, one first principle of the theory is that resource loss is disproportionally more salient than is resource gain, so given equal amounts of loss and gain, loss will have more impact. Furthermore, resource gain is more important in the context of resource loss than in non-threatening situations. A second principle of COR theory is that people must invest resources in order to protect against resource loss and to recover from resource loss. One implication of this principle is that those with lower resources are more vulnerable to resource loss and less capable of resource gain. They are likely to take a defensive position to guard their resources, and they are least successful under high stress conditions. Another implication is that initial loss increases the likelihood of future loss, and that initial resource gain increases the likelihood of future resource gain. This causes loss cycles and gain cycles, but because loss is more potent than gain, loss cycles will have greater impact than gain cycles.

While there is a considerable amount of supportive evidence for the principles of COR theory in research on adults (e.g., Hobfoll, 1989, 2001), the amount of research conducted in school contexts is limited. However, the COR theory is a simple, comprehensive and powerful theory which has several attractive features when accounting for effects of schooling and academic achievement on mental health. The theory thus emphasizes the dynamic nature of development of resources and stress, and it integrates notions of positive aspects of mental health with notions of mental health problems. Furthermore, as was emphasized by Frydenberg (2008, p. 8), the theory makes it possible to identify resources which are malleable and which have broad application, and which therefore are interesting targets for intervention. High self-esteem, optimism, and good problem-solving skills are examples of such resources mentioned by Frydenberg (2008, p 8).

There is also a tradition of research which has viewed academic and social difficulties as stressors that cause depression, anxiety and dysphoric mood states. Cole (1991) has proposed a competency-based model of depression. The fundamental idea is that depressive symptoms in childhood reflect underlying views of low self-competence. These views are based on the acquisition of positive or negative feedback about performance in a particular domain. Such domains include, for example, academic performance, social acceptance, athletic competence, personal conduct, and physical appearance. According to the Cole model, repeated exposure to negative feedback in a wide variety of domains inhibits the emergence and differentiation of positive self-schemata.

Some of this negative feedback comes from self-evaluations based on social comparisons. Another source of information consists of the responses from others. Teachers, parents, peers, and others develop expectations about a child, which they directly and indirectly convey to the child. Such feedback increases the likelihood that the child will act in a manner that confirms these expectations, as has been observed in the research on self-fulfilling prophecies. Cole (1991) also referred to theories within symbolic interactionism, which claim that what children believe about themselves results from their perception and subsequent internalization of others' appraisals. A personal evaluation by peers, teachers, parents, and other significant persons are conveyed to the child and shapes the child's self-image. Frequent positive feedback promotes the development of positive self-schemata that inhibit the emergence of depression. Frequent negative feedback inhibits the development of such schemata, which potentially predisposes the child for depression.

In the somewhat similar dual-failure model, Patterson and Stoolmiller (1991) proposed that development of depressive symptoms among young schoolchildren occurs as a function of both academic failures and rejection among peers. In particular, they argue that children with externalizing behaviour problems run a risk of being rejected by their peers, which in combination with academic failure increases the risk for development of depressive symptoms. This model thus posits a mechanism through which externalizing behaviour problems cause development of internalizing problems.

Relations between externalizing behaviour and academic underachievement have been in focus in much research. Reviews by Rutter (1974) and Hinshaw (1992) concluded that children with externalizing problems are over-represented among children with learning disabilities, poor grades, and grade retention. Hinshaw (1992) also concluded that in early and middle childhood, there is a link between hyperactivity-inattention and underachievement, while by adolescence there are links between antisocial behaviour and underachievement.

Hinshaw (1992) observed that alternative causal models to explain these links have rarely been rigorously tested. He gave several reasons for this, such as the difficult methodological and conceptual issues involved in linking the domains of externalizing behaviour and academic achievement, inadequate assessment of antecedent variables in the designs, insufficient control of correlated predictors and of antecedents, and the lack of prospective longitudinal studies. He also noted that measurement issues concerning both domains offer great challenges.

However, in the review Hinshaw (1992) observed that there are some suggestions of causation from one domain to the other. For example, early reading failure may predispose to subsequent increases in externalizing behaviour. There also are suggestions that a subgroup of children with reading failure without early externalizing behaviour problems may develop delinquency by late adolescence. Hinshaw (1992) emphasized that that there may be distinct causal mechanisms for different subgroups of children, and research strategies are needed that can uncover subgroups with different developmental trajectories.

We now turn to a presentation and discussion of longitudinal studies satisfying the inclusion criteria, and which focus on effects of schooling and academic achievement on mental health.

4.1.1 Trajectories of development of academic achievement and mental health

One group of studies investigates the development of mental health and academic achievement from early years throughout the school system (see Table 4.1). These studies often aim to identify relations between development in the two areas, and to determine the actual direction of relationship between mental health and academic achievement. The broad, open and complex character of these studies makes it appropriate to present them first.

Study	Study purpose	Main conclusion
Roeser, R. W., Eccles, J. S., & Freedman-Doan, C. (1999). Academic functioning and mental health in adolescence: Patterns, progressions, and routes from childhood	To describe different patterns of adjustment during adolescence with respect to academic motivation and mental health	Four main patterns of school adjustment and mental health could be discerned
Dodge, Greenberg et al. (2008). Testing an idealized dynamic cascade model of the development of serious violence in adolescence	To test a dynamic cascade model of the development of violence in adolescence	There are relations between early externalizing problems, school failure, anti-social behaviour, in particular regarding the influence of academic and social failures.
Masten, A.S., Hubbard, J.J. et al. (1999). Competence in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence	To study how intellectual functioning and parenting quality relate to multiple dimensions of competence over time from childhood to late adolescence, particularly in the context of adversity. To study how resilient adolescents differ from maladaptive peers who have not succeeded in the context of adversity and from competent peers who are also successful but have not experienced serious adversity?	Four main conclusions were drawn: (a) The development of competence is related to psychosocial resources, (b) good resources are less common among children growing up in the context of adversity, (c) if reasonably good resources are present, competence outcomes are generally good, even in the context of chronic, severe stressors, and (d) maladaptive adolescents tend to be stress-reactive and have a history of adversity, low resources, and broad-based competence problems.
Masten, A.S., Burt, K.B. et al. (2004). Resources and resilience in the transition to adulthood: Continuity and change	To study if resilience in early adolescence endures to adulthood and if it is possible to predict resilience that emerge in young adulthood, despite maladaptation in early adolescence.	Success in developmental tasks over time was associated with not only a history of success in earlier tasks but also a set of resources in childhood and early adolescence. These resources were related to young adulthood competence in developmental tasks, but these effects were largely mediated by competence along the way.

Table 4.1 Studies of trajectories of development of achievement and mental health

These studies are discussed in detail below.

4.1.1.1 Studies

Roeser et al. (1999; ID3031) investigated children's academic motivation and mental health as a way of describing different patterns of adjustment during adolescence. The original sample consisted of 875 elementary school-aged children in three cohorts, their parents, and their teachers. The children and their families were contacted 6 years later with a follow up the next year. The children were then in grades 8, 9, and 11. A total of 491 children participated in all three waves of measurement.

Cluster analysis was used to delineate patterns of academic functioning and mental health during eighth grade. Four equal-sized clusters were identified. Some children were doing consistently well or consistently poorly across the academic and emotional domains of functioning (well-adjusted and multiple problems groups, respectively). Other children could be characterized as having mild difficulties in only one or the other of these domains of functioning during eighth grade (the poor motivation and poor mental health groups). The children in the four clusters were followed up in high school and the concurrent and predictive validity of the clusters was investigated.

Children in the multiple problems group showed long-term continuity in terms of their poor academic motivation, low grades, and low self-esteem during the years between elementary and high school. One interesting finding was that their mental health actually improved across the transition to high school and there was no decline in self-esteem or achievement during this transition.

The poor school motivation group without accompanying psychological distress showed declining perceptions of their academic competence and value of the school between elementary school and the later grades of middle school. Roeser et al. (1999) observed that declines in these children's self-perceptions of competence occurred before declines in their academic values, and suggested that children who increasingly experience difficulty in school over time start to devalue school as a way of protecting their self-esteem.

For the children in the poor mental health group who showed continued school motivation to learn there were no long-term trends in academic motivation or self-esteem, and the level of emotional distress in this group of adolescents was stable over time. Roeser et al. (1999) suggested that these adolescents' difficulties arose in the early adolescent period, during which time data was not collected. However, they observed that these adolescents, along with the poor motivation group, are likely to go unnoticed in their emotional difficulties, because they are not failing academically and they are not acting out.

It must be observed that even with the wealth of information collected for this study it still is limited by the fact that the clustering of students was based on the information that was available in grade eight. It thus is reasonable to expect that further relations

and patterns could have been identified if an even better coverage of the school years had been possible.

Dodge et al. (2008; ID8441) investigated factors influencing the development of antisocial behaviour from age 5 to 18. They identified several domains of predictors (early adverse context, harsh and inconsistent discipline, school social and cognitive readiness, early externalizing behaviour problems, school social and cognitive failure, parental monitoring and communication, and deviant peer associations), which were hypothesized to operate on antisocial outcomes by directly influencing the next domain in the hypothesized temporal sequence. This next domain both mediates the impact of the prior domain and causes further antisocial development in an incremental manner.

The study included 387 children, who were selected to represent the population of a set of schools, along with 367 high-risk children who were oversampled. Weighting was used in the analyses to reflect the oversampling of high-risk children. Beginning in kindergarten and lasting through grade 11, annual measurements were collected from multiple sources that included the teacher, the peer group, administrative school records, the mother, the child, and interviewer ratings. Data was analyzed with path modelling techniques.

Each of the seven predictor domains was significantly related to adolescent violence, and all temporally adjacent domains were significantly related to each other. Each succeeding domain not only mediated the preceding domain, but it also provided a significant increment beyond the previous domain in enhancing the prediction of violence outcomes. In particular it was found that school failure was a significant predictor of adolescent violence and lack of parental monitoring. School failure also partially mediated the prediction of adolescent violence from early externalizing problems, and it significantly incrementally predicted adolescent violence, controlling for childhood externalizing behaviour problems.

Masten, Hubbard et al. (1999; ID5217) investigated the development of resilience, focusing on how resilient adolescents differ from maladaptive peers. A sample of 205 children (114 females, 91 males; 27% minority) was recruited in elementary school and was followed over ten years. Three major domains of competence (academic achievement, conduct, and peer social competence) were assessed from childhood through adolescence, along with aspects of adversity and major psychosocial resources. Both variable-centred and person-centred analyses were conducted to test the hypothesized significance of resources for resilience.

The two analytical approaches gave similar results and supported the importance of IQ and parenting as resources for the development of competence and as protective factors with respect to the development of prosocial behaviour in a high adversity context. IQ was a significant predictor of social competence in childhood but not so in adolescence. The combination of low IQ and high adversity was related to conduct problems that were evident in childhood and worsened over time. The analyses also identified a group of maladaptive youth which differed from resilient youth in current and past resources,

and in psychological well-being. The maladaptive adolescents tended to have a history of adversity, low resources, and broad-based competence problems.

These findings suggest that good parents and cognitive skills are general advantages for development that may be particularly important for overcoming serious chronic adversity.

Masten, Burt et al. (2004; ID 4848) examined patterns of continuity and change in adaptive behaviour over the transition to adulthood with a focus on the adaptive resources. This study extended by ten years the examination of competence, adversity, and resilience in the ten-year longitudinal study by Masten, Hubbard et al. (1999) described above. The assessments were focused particularly on the quality of competence in multiple domains; lifetime adversity, disadvantage, or stressful life events; and differences in the children or their families that might account for good versus poor adaptation.

From the study four main conclusions were drawn: (a) the development of competence is related to psychosocial resources; (b) good resources are less common among children growing up in the context of adversity; (c) if reasonably good resources are present, competence outcomes are generally good, even in the context of chronic, severe stressors; and (d) maladaptive adolescents tend to be stress-reactive and have a history of adversity, low resources, and broad-based competence problems.

4.1.1.2 Discussion

The four studies presented above all demonstrate that there is considerable consistency from childhood into young adulthood in the presence of problems both in the area of mental health problems and in the area of academic achievement. However, the studies investigate somewhat different aspects of the process of development, and they propose somewhat different mechanisms to account for the relationship between mental health and academic achievement.

According to Roeser et al. (1999) an important mediator of the continuity of problems for the multiple problems group is the child's internalization of negative self-perceptions of academic competence, negative feelings of self-worth, and a sense of school as uninteresting and unimportant. Children in the multiple problems group did not necessarily show any cognitive deficits compared to children in the other groups during first grade, which suggests that it was not low intelligence that accounts for the long-term difficulties. Roeser et al. (1999) suggested that it was inappropriate skills and behaviour rather than general cognitive incompetence that set in motion the maladaptive trajectory of development. Poor skills could lead to failure, frustration, poor conduct, teacher disapproval, and so on. It also is interesting to note that the self-esteem of the multiple problems group improved in the transition to high school. Roeser et al. (1999) argued that as a means of protecting their self-esteem and emotional well-being, they may have turned to their peers and to engagement in antisocial activity in forming a view of their worth and self esteem.

Dodge et al. (2008) relied on a dynamic cascade model to account for the development of chronic violence in adolescence. The model posits incremental roles of numerous life experience factors as causes of development, and they showed that each succeeding domain not only mediated the preceding domain, but that it also provided a significant increment beyond the previous domain in enhancing the prediction of violence outcomes. Thus, an early social context of disadvantage predicts harsh and inconsistent parenting. This predicts social and cognitive deficits, which predicts conduct problem behaviour, which predicts elementary school social and academic failure, which predicts deviant peer associations, which ultimately predicts adolescent violence. They interpreted this patterned sequencing as being consistent with a dynamic model specifying reciprocal impact of parenting on peer relations and peer relations on subsequent parenting, as well as reciprocal influences between the self and the environment. The model thus explains how early risk is realized across time and also how each new developmental era affords new risk.

In the two studies by Masten et al. (1999, 2004) the concept of resilience plays a central role. The term resilience is used to refer to the finding that some individuals have a relatively good psychological outcome despite suffering risk experiences that would be expected to have disastrous effects.

The Masten, Hubbard et al. (1999) study demonstrates that resources in the form of general intellectual skills and good parenting protect against negative effects of adverse conditions on conduct and prosocial behaviour. This result is in agreement with Hobfolls theory that resources in the form of problem-solving skills and a social network provide protection against consequences of loss. Similarly, Masten, Burt et al. (2004) concluded that psychosocial resources are important for resilience in young adulthood.

4.1.2 Effects of early academic achievement

The search resulted in several studies dealing with early school failure. Several of these studies investigated effects of different kinds of reading problems, as is clear from Table 4.2. Much previous research has shown early reading instruction to be crucial for school outcomes (e. g., Maughan, Hagell, Rutter and Yule, 1994). It has also been demonstrated that there is an overlap between reading and behaviour problems, which will tend to decrease achievements further for children with reading problems (Rutter et al., 1970).

The studies in this group are presented and discussed below.

Study	Study purpose	Main conclusion
Halonen, A., Aunola, K., Ahonen, T., & Nurmi, J. E. (2006). The role of learning to read in the development of problem behaviour: A cross-lagged longitudinal study	To study whether children's problems in the acquisition of pre-reading and reading skills predict their subsequent externalizing and internalizing problem behaviour, and whether children's externalizing and internalizing problem behaviour predict the emergence of reading difficulties	Slow progress in learning to read predicted an increase in internalizing problem behaviour both during the preschool year and in first grade. Children's internalizing problem behaviour also predicted subsequent problems in reading performance both during the transition from preschool to primary school and in primary school
Morgan, P. L., Farkas, G., Tufis, P. A., & Sperling, R. A. (2008). Are reading and behaviour problems risk factors for each other?	To examine if reading problem in first grade was related to behaviour problems in third grade; and if behaviour problems in first grade related to reading problems in third grade.	Children with reading problems in first grade were more likely to display poor self-control, externalizing behaviour problems, and internalizing behaviour problems in third grade.
Ackerman, B. P., Izard, C. E., Kobak, R., Brown, E. D., & Smith, C. (2007). Relation between reading problems and internalizing behaviour in school for preadolescent children from economically disadvantaged families.	What are the relations between reading problems and internalizing behaviour reported by teachers	The results tie reading problems to emotional distress in school and support conclusions about the direction of effects and the internalization of academic difficulty for disadvantaged children.
Herman, K. C., Lambert, S. F., Ialongo, N. S., & Ostrander, R. (2007). Academic pathways between attention problems and depressive symptoms among urban African American children	To investigate the relationship between attention problems, academic competence and depressive symptoms	A relation between inattention problems and depressive symptoms was found
McIntosh, K., Horner, R. H., Chard, D. J., Boland, J. B., & Good, R. H. I. I. I. (2006). The use of reading and behaviour screening measures to predict nonresponse to school-wide positive behaviour support: A longitudinal analysis.	To what extent do early academic and behaviour deficits contribute to continued behaviour problems in the future	Both reading and behaviour variables predicted the number of discipline referrals received in fifth grade.
Fleming, C. B., Harachi, T. W., Cortes, R. C., Abbott, R. D., & Catalano, R. F. (2004). Level and change in reading scores and attention problems during elementary school as predictors of problem behaviour in middle school.	How are attention problems and poor reading ability associated with problem behaviour	Academic difficulties are causally related to problem behaviours. The relation may be direct, and also be indirect through a chain of events.
Trzesniewski, K. H., Moffitt, T. E., Caspi, A., Taylor, A., & Maughan, B. (2006). Revisiting the association between reading achievement and antisocial behaviour: New evidence of an environmental explanation from a twin study.	To examine the question of educational difficulties and antisocial behaviour using reading achievement as a measure of educational difficulties. To examine common developmental-antecedent and causal explanations (1) evaluates three competing hypotheses (2) presents nationally representative findings and (3) uses a twin design to allow consideration of a genetic contribution to both reading achievement and antisocial behaviour	There is a reciprocal causal relationship between achievement and antisocial behaviour at the beginning of school. The relation between boys' reading achievement and antisocial behaviour is primarily due to environmental factors that are common to both.
Grimm, K. J. (2007). Multivariate longitudinal methods for studying developmental relationships between depression and academic achievement	Compare three bivariate longitudinal models for investigating the relation between academic achievement and development of depression	Different methods answered partly different research questions. The bivariate latent difference growth score was most appropriate for investigating causal relations
Bennett, K. J. et al. (2003). Does low reading achievement at school entry cause conduct problems?	To estimate the magnitude of risk associated with reading problems, after controlling for important confounders	The study provides support for the hypothesis that there is a causal effect of reading achievement on conduct disorders

Table 4.2 Studies of effects of early academic achievement on mental health.

4.1.2.1 Studies

Halonen et al. (2006; ID4700) investigated three main research questions: (1) to what extent do children's problems in the acquisition of pre-reading and reading skills predict their subsequent externalizing and internalizing problem behaviour; (2) to what extent does children's externalizing and internalizing problem behaviour predict the emergence of reading difficulties; and (3) to what extent does children's internalizing problem behaviour predict their externalizing problem behaviour; or is it rather that the externalizing problem behaviour predicts internalizing behaviour?

The sample included a total of 196 (104 boys, 92 girls) 5- to 6-year-old children participating in the Jyväskylä Entrance into Primary School study in Finland. There were six measurement points and at each point children's reading skills and problem behaviours were assessed using identical measurements. At Time 1, children's pre-academic skills were also investigated. The research questions were examined using path modelling with latent variables.

Slow progress in learning to read was found to predict an increase in internalizing problem behaviour both during the preschool year and in first grade. However, children's internalizing problem behaviour also predicted subsequent problems in reading performance both during the transition from preschool to primary school and in primary school. Another main finding was that internalizing problem behaviour predicted an increase in externalizing problem behaviour during the transition from preschool to primary school. After children entered primary school externalizing problem behaviour started to predict internalizing problem behaviour rather than vice versa.

The results of this study suggest that difficulties in learning to read, and internalizing and externalizing problem behaviours are developmentally linked in a cumulative manner.

Trzesniewski et al. (2006) used a longitudinal twin design to evaluate three competing hypotheses about the source of the association between reading achievement and antisocial behaviour. One hypothesis was that the relation is explained by genetic influences that are common to both reading and antisocial behaviour; the second hypothesis that the relation between reading achievement and antisocial behaviour can be explained by common environmental antecedents; and the third hypothesis that reading achievement and antisocial behaviour are causally related. They also investigated the hypothesis that reading achievement and antisocial behaviour are related because ADHD children tend to display antisocial behaviour.

The study was based on two consecutive birth cohorts in a birth register of twins born in England and Wales, and comprised about 1000 same-sex twin pairs, about half of which were monozygotic and half of which were dizygotic. There were two waves of measurement, at ages 5 and 7.

Most of the analyses were based on data for boys, because the association between achievement and antisocial behaviour was stronger for boys. Modelling of the genetic sources of variance showed that both reading and antisocial behaviour were influenced by genetic factors, but the covariance between reading and antisocial behaviour was not. When the effect of control variables capturing different environmental aspects (mother's age at first birth, family size, social deprivation, socioeconomic status, maternal reading, stimulating environment, maternal depression, and child neglect) was partialed out from the correlation between reading and antisocial behaviours, the correlation was somewhat reduced, and most strongly so for stimulating environment. However, even when all eight control variables were entered there remained a significant negative correlation. Analyses also showed that the correlation between reading and antisocial behaviour was not due to the fact that ADHD children tend to display antisocial behaviour.

The hypothesis about causal effects was tested with a cross-lagged panel model. A significant negative effect of antisocial behaviour at age 5 on reading at age 7 was found, along with a significant negative effect of IQ on reading at age 7. This result supports the hypothesis that there is a reciprocal causal relationship between achievement and antisocial behaviour at the beginning of school.

It was concluded that the relation between boys' reading achievement and antisocial behaviour is primarily due to environmental factors that are common to both. Even though a weak effect of some environmental risk factors was found, the environmental overlap primarily reflects unfolding reciprocal influences of reading achievement and antisocial behaviour on each other over time. However, the relation between reading achievement and ADHD is best explained by genetic influences that are common to both.

Ackerman et al. (2007; ID4648) examined the relations between reading problems and teacher reports about the internalizing behaviour of economically disadvantaged children in third- and fifth-grade assessments. The sample included 105 economically disadvantaged children, who were recruited from participating families from Head Start Centres. In the first grade assessment, child cognitive ability was measured, as was child attention. In the fifth-grade assessment, the child reported about emotion experiences. Teachers reported about academic performance and problem behaviours in each assessment.

Regression analyses showed that reading problems in grade 3 predicted change in internalizing behaviour in grade 5, controlling for child and family predictors. However, no effect was found on externalizing problems. The study thus showed that reading problems relate to emotional distress in school as revealed in internalizing behaviour.

Herman et al. (2006; ID4647) investigated the relationship between attention problems, academic competence and depressive symptoms for Afro American children. There were two hypotheses: (1) academic competence mediates the relationship between attention problems and depressive symptoms for boys and girls when controlling for conduct

problems; and (2) the mediating role of academic competence is especially strong for girls. A representative sample of 661 children entering first grade were included in the study. 89% were African American (210 boys, 216 girls) and 73% of the sample received free lunches.

The results supported the hypothesized path models from inattention to depression, but there were no significant differences in the strength of relationship for girls and boys. Academic competence in the spring of first grade mediated the relationship between inattention in fall of first grade and depressive symptoms in spring of third grade, controlling for conduct problems and academic competence in first grade. These results suggest that the path was specific to attention problems rather than to more general externalizing or school readiness problems.

Morgan et al. (2008; ID1638) too investigated whether reading and behaviour problems cause each other. Two research questions were in focus in the study: (1) are children with reading problems in first grade more likely to experience behaviour problems in third grade; and (2) are children with behaviour problems in first grade more likely to experience reading problems in third grade?

The sample included a nationally representative group of 11 515 children, who were recruited from both public and private kindergartens. Age at the first occasion of measurement averaged 66 months. Data was collected at the beginning and end of kindergarten, in the fall and spring of first grade and again in the spring of third grade. Multilevel logistic regression modelling was used to determine whether reading and behaviour problems acted as risk factors for each other.

Early reading problems were found to decrease task engagement and self-control, and to increase externalizing and internalizing problems. These results were interpreted in support of the hypothesis that early reading problems cause mental health problems. Another set of analyses was performed in which it was investigated whether abnormal levels of one of five types of behaviour in first grade increased the likelihood that a child would be a poor reader in third grade. Controlling for prior reading problems and SES- and demographic-related confounds it was found that only poor task engagement elevated a child's odds of being a poor reader in third grade.

Thus, one main conclusion from this study was that children with reading problems in first grade were significantly more likely to display poor self-control, externalizing behaviour problems, and internalizing behaviour problems in third grade. Furthermore, problems related to self-regulation of learning predicted later reading problems. Morgan et al. (2008) interpreted these results as supporting a bidirectional causal model between reading and behaviour problems.

Bennet et al. (2003; ID2487) investigated if low reading achievement at school entry increases the risk of conduct problems 30 months later. The study included 549 children, who were part of a random sample of non-clinic children drawn from 60 schools in Ontario, Canada. The results from a logistic regression analysis showed a significant

relation between the risk of conduct problems and reading achievement at school entry, after controlling for income, gender, and baseline conduct disorder symptoms. These results suggest that low reading achievement is causally related to development of conduct problems.

McIntosh et al. (2006; ID8653) investigated to what extent elementary school reading and behaviour screening measures, administered in kindergarten, second grade, and fourth grade, predict discipline referrals in fifth grade. The study was based on archival data for samples of students varying between 194 and 584 students for different combinations of measures.

Logistic regression analyses showed that discipline referrals in earlier grades were related to discipline referrals in grade 5, and also that reading performance added to the prediction. Thus, the finding that reading skill level adds to the predictive power suggests that academic deficits may place students at greater risk for future problem behaviour and non-response to school-wide behaviour interventions.

Fleming et al. (2004; ID31201) investigated how attention problems and poor reading ability are associated with problem behaviour. The sample included 783 students in the U. S. who were enrolled when they were in either first or second grade. To be included a student also had to complete at least one of four reading achievement tests administered annually to all district students in grades 3 through 6. Growth curve models were fitted to data.

Children with higher reading scores in the middle of elementary school and those whose scores increased between third and sixth grade reported engaging in significantly less problem behaviour in seventh grade, controlling for gender and income status. The results for attention problems indicated that the children who displayed greater attention problems in the middle of elementary school and those whose attention problems increased, were more likely to engage in problem behaviour in seventh grade.

It should be pointed out, however, that the kind of reading problems investigated here represents only those which are captured by variation in the slope over grades, and such variation may be due to other factors than specific reading problems, such as motivation or changes in more general abilities. Thus, problems associated with dyslexia, for example, are not likely to be well captured by the parameters of a growth model.

Grimm (2007; ID29613) compared three bivariate longitudinal models of developmental relationships between academic achievement and mental health. The sample was from the National Longitudinal Study of Youth (NLSY), which is a nationally representative study initiated in 1979 by the US Department of Labor to study labor market behaviour and experiences. The children of female respondents were assessed biennially with a battery of cognitive, personality, social, and behavioural measures. The subsample analyzed included N = 7078 children without a learning disability who were measured at least once between the ages of 8 and 14. Three different latent growth models were fitted to data. The first was a bivariate latent growth curve model, the second a latent

growth curve with a time-varying covariate, and the third a bivariate latent difference score model.

The bivariate latent growth curve model implies that relations between two developmental processes are investigated, in this case school achievement and depression. Each process is captured by fixed and random intercept and slope parameters, and regressions or covariances among the random components may represent interdependencies between the developmental processes. For the data under investigation there were, however, no covariances among the individual differences in the slope parameters for achievement and depression. This result shows that if there are relations between development of achievement and depression, the bivariate latent growth curve model cannot capture these.

In the latent growth curve with a time-varying covariate one of the processes (e. g., depression) is captured with a growth model, while the other process (e. g., achievement) is seen as a control variable. Thus, for each time point, the observed depression variable is regressed upon the corresponding achievement variable, and in this way it can be investigated if there are relations between the two sets of variables, and how the growth process changes when the control variables are introduced.

In the paper Grimm (2007) used achievement as the primary process, and depression as the control process. In this model depression was not a significant predictor of achievement, and the estimates of the parameters of the achievement growth model were not affected by introduction of the control variables. Grimm (2007) also tried to use depression as the primary process, and achievement as control, but this model failed to converge when estimated on the same data.

The bivariate latent difference growth score (LDS) model may be described as an extension of a combination of the latent growth curve and an auto-regressive time-series model. With the LDS model the same questions may be answered as with the bivariate latent growth model, but the LDS model can also determine whether achievement is a leading indicator of changes in depression, or if it is the other way round. On the basis of the LDS model Grimm (2007) concluded that achievement affected depression in such a way that achievement may be considered a protective factor against increasing levels of depression between ages 8 and 14. There was no indication that changes in depression affected changes in achievement, or that there was a bidirectional relationship.

This study suggests that the LDS model is a useful approach to study causal relations among processes of development, while the other two models do not seem equally powerful for this purpose. Given that Grimm's (2007) study primarily had a methodological focus strong substantive conclusions should not be drawn on the basis of it, but the study does suggest support for a causal effect of achievement on depression. However, one limitation of the study is that the achievement measure was a vocabulary score measured with a test of cognitive ability. Such tests are not closely tied to any curriculum, and there is little direct visibility of and feedback on the level of vocabulary performance. It may thus be expected that such an achievement measure is only weakly

related to school achievement as it is experienced by the student, and by teachers, peers and parents.

4.1.2.2 Discussion

The studies in this section have mainly dealt with early reading achievement in relation to mental health indicators. This is understandable considering that reading proficiency is decisive in school success. A failure in this area will affect all other subjects at school and knowledge acquisition in the long run.

The Halonen et al. (2006) and the Trzesniewski et al. (2006) study are both strong studies which to a large extent meet the requirements specified by Hinshaw (1992). The fact that the Trzesniewski et al. (2006) study could rule out genetic factors as causes of the covariance between reading problems and externalizing problems is an important finding, as is their demonstration of reciprocal causation between reading problems and antisocial behaviour. However, Trzesniewski et al. (2006) are not specific about the mechanism through which these two domains influence each other.

The Halonen et al. (2006) study included measures of both internalizing and externalizing behaviour problems and one particularly important finding from their cross-lagged panel model is that internalizing problems seem to partly mediate the relation between reading performance and externalizing behaviour. Halonen et al. (2006) suggested that when a child performs poorly in a reading task, he or she gets negative feedback, which may then lead to a depressed mood, and increased anxiety, which in its turn affects achievement negatively. They also suggested that young children react externally when they suffer from anxiety or negative mood, perhaps because they do not have other ways of handling their negative feelings. Halonen et al. (2006) also argued that depressed children may have low tolerance for disappointments and low self-esteem, which may then lead them to behave aggressively and destructively. Interestingly enough, after children entered primary school externalizing problem behaviour started to predict internalizing problem behaviour rather than vice versa. One possible explanation proposed for this is that after entering primary school children with externalizing problem behaviour start to realize that their aggressive and maladaptive behaviour causes problems in peer relationships, and this then leads to increased levels of depression. Another possibility is that aggressive children receive increasing negative feedback from their parents, peers and teachers in primary school, which then increases their anxiety and depression.

Thus, during the initial phases, problems of acquisition of reading skills affect development of internalizing problems, and these have negative effects on reading performance. Later on reading problems cause development of externalizing problems, which cause internalizing problems. Thus, the reciprocal relation between reading and antisocial behaviour identified by Trzesniewski et al. (2006) may involve internalizing problems as well.

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Other studies than Halonen et al. (2006) have also concluded that reading failure causes internalizing problems. This holds true for Ackerman et al (2007), Morgan et al. (2008) and for Herman et al. (2006). These studies thus provide some support for the conclusion that there is a causal effect of early reading problems on internalizing mental health problems. As has already been noted this finding may be explained in terms of Cole's (1991) competency-based model of depression, according to which peers and teachers correctly observe academic incompetencies and communicate these perceptions to children, who in turn lose self-esteem, which according to Hobfoll's Conservation of Resources theory leads to emotional distress.

In addition to the Trzesniewski et al. (2006) study, there also is evidence from several studies (Mcintosh et al., 2006; Fleming et al., 2004; Morgan, et al., 2008) that reading problems affect externalizing behaviour problems. However, the studies that have shown this have included somewhat older children, in grades two to six. It is also interesting to note that some studies, and Halonen et al. (2006) in particular, have demonstrated relations among different aspects of mental health.

Grimm (2007) concluded that school achievement was a protective factor against development of depression during early school years.

4.1.3 Effects of academic achievement in adolescence

We now turn to a group of studies which have investigated effects of academic achievement on mental health in which adolescents have been in focus.

4.1.3.1 Studies

Undheim and Sund (2005; ID25990) examined correlates of self reported depressive symptoms within the school area, and predictors of change in depressive symptom levels. A longitudinal study with two waves of measurement one year apart was conducted in Noway. The sample consisted of 12- to 15-year-old adolescents (N=1253 girls and N=1212 boys). A questionnaire was used to measure depressive symptoms and school variables (school stress, class wellbeing, teacher support, and grades) as well as background variables.

Regression analyses showed that depressive symptom level at T1 was the strongest predictor of depressive symptom levels at T2 for both genders, and more strongly so for girls than for boys. For boys none of the school variables was significantly related to change in depressive symptoms over time, but for girls three school-factors were significant determinants.
One of these factors was perceived school stress, and Undheim and Sund (2005) argued that high expectations from adolescents themselves and others might create a chronic feeling of insufficiency and therefore contribute to the development of depressive

Study	Study purpose	Main conclusion
Undheim, Anne Mari., & Sund, Anne Mari. (2005). School factors and the emergence of depressive symptoms among young Norwegian adolescents.	To examine if school variables at T1 could predict depressive symptom levels at T2.	School achievement was associated with depressive symptom levels, but only among the girls.
Goldston, D.B., Walsh, A., et al. (2007). Reading Problems, Psychiatric Disorders, and Functional Impairment from Mid- to Late Adolescence.	To examine psychiatric morbidity and functional impairment of adolescents as a result of poor reading skills during mid- to late adolescence	Poor reading ability is a risk factor for anxiety disorders
Buehler, C., & Gerard, J.M. (2004). Cumulative Environmental Risk and Youth Maladjustment: The Role of Youth Attributes.	To examine if risk factors from five domains will account for unique variation in conduct problems and depressed mood	Achievement mitigates the effect of risks
McGloin, J.M., Pratt, T.C. et al. (2004). Rethinking the IQ-delinquency relationship: A longitudinal analysis of multiple theoretical models.	To estimate a series of models investigating whether IQ is a significant precursor to school performance, deviant peer associations, and self-control and to examine the degree to which these pathways are related to delinquency	Elements of social bond/social control and differential association/social learning theories both provide empirically defensible explanations of the IQ-delinquency relationship
Murberg, T., & Bru, E. (2005). The role of coping styles as predictors of depressive symptoms among adolescents: A prospective study.	To study if high levels of approach coping like styles as active coping and/or seeking parental support would be negatively linked to depressive symptoms among adolescents.	The effects of self-perceived school-related stress on depressive symptoms is moderated by coping strategies, "seeking parental support" is a protective factor while aggressive coping added to risk of developing depression
Crosnoe, Robert., RiegleCrumb, Catherine., & Muller, Chandra. (2007). Gender, Self-Perception, and Academic Problems in High School.	To investigate the effects of early and recent school failure on the self-concept and the perceived competence of boys and girls	External feedback about achievement affects students' self-perceptions and school engagement. These mechanisms are partly different for males and females, with a status-orientation for males and relation-orientation for females. The degree of academic orientation in their contexts mattered for the direction and strength of effects.
Ross, C.E., & Broh, B.A. (2000). The Roles of Self-esteem and the Sense of Personal Control in the Academic Achievement Process.	To investigate the reciprocal relationship between academic achievement and self-esteem.	The sense of personal control in the 10th grade is significantly associated with high grades and test scores in the 12th grade, Self-esteem does not have a significant effect on subsequent academic achievement.
Daniel, S. S., et.al. (2006). Suicidality, School Dropout, and Reading Problems Among Adolescents	To examine if adolescents with poor reading abilities will evidence higher rates of suicidal ideation and suicide attempts over time than adolescents with typical reading abilities.	The results suggest that there is a causal relation between reading difficulties and suicidal ideation and suicide attempts
McCarty, Mason et al. (2008). Adolescent School Failure Predicts Later Depression Among Girls	To examine the impact of social problems, school failure, and delinquency during adolescence as predictors of a major depressive episode in emerging adulthood, testing a broad cascade model. To test the possibility that adaptation problems and associations to later depression may differ for boys and girls.	Both early conduct problems and adolescent school failures predisposed girls to depression in young adulthood
Mahoney, J.L. (2000). School extracurricular activity participation as a moderator in the development of antisocial patterns.	To study if participation in school extracurricular activity can influence antisocial patterns.	Participation in school extracurricular activities was associated with reduced rates of early dropout and criminal arrest among high-risk boys and girls. The decline in antisocial patterns was dependent on whether the individuals' social network also participated in school extracurricular activities
De Fraine, van Damme et al. (2007). A longitudinal analysis of gender differences in academic self-concept and language achievement: A multivariate multilevel latent growth approach	To investigate changes in academic self-concept and gender differences	There are relations between self-concept and achievement. The study also demonstrates a weakening relation over time, along with gender differences in this development.

Table 4.3 Studies of effects of academic achievement in adolescence.

symptom levels. The second factor was teacher support. Undheim and Sund (2005) argue that this finding is consistent with girls placing a higher emphasis on personal relationships than boys do. The third school factor was grades and in the paper it is proposed that low grades might be stressful because they represent a threat to the adolescents' goals of learning and performance. It is interesting, however, that this only applied to girls.

Goldston et al. (2007; ID1876) examined psychiatric diagnoses and functional impairment of adolescents as a result of poor reading skills during mid- to late adolescence. A large group of adolescents was screened at the age of 15, and a convenience sample of poor readers was chosen. Using the method of frequency distribution matching, typical readers were recruited from the same gender and ethnicity strata as the adolescents with poor reading to achieve a rough balance in demographic characteristics of the two groups. 94 adolescents with poor reading skills and 94 with typical reading skills were recruited. Participants in the study were reassessed annually with reading tests, psychiatric diagnostic interviews and assessments of functional impairment. The presence of psychiatric diagnoses at each assessment was modeled as a function of reading status with logistic regression models.

The results showed that during mid- to late adolescence, individuals with reading difficulties had higher rates of psychiatric diagnoses and greater functional impairment across multiple areas of living. ADHD was strongly related to reading problems from mid- to late adolescence. However, even after accounting for the presence of ADHD, reading difficulties were associated with higher rates of anxiety disorders, particularly social phobia and generalized anxiety disorder, and multiple areas of functional impairment. Thus, the main conclusion from the study is that poor reading ability is a risk factor for anxiety disorders.

Daniel et al. (2006; ID377) examined in a prospective naturalistic study based on the same data as the Goldston et al. (2007) study whether adolescents with poor reading abilities will evidence higher rates of suicidal ideation and suicide attempts over time than adolescents with typical reading abilities. One hypothesis was that the adolescents with poor reading abilities evidence higher rates of school dropout than adolescents with typical reading abilities and that school dropout is related to suicidality. The participants were followed for a maximum of 4.5 years. Data was analyzed with logistic regression analysis, controlling for background variables and psychiatric disorders.

School dropout was found to be strongly related to reading status, and adolescents with poor reading abilities showed a higher incidence of dropout than adolescents with typical reading abilities. Reading status also was related to an increased incidence of suicidality, major depression, conduct disorder, and substance use disorder.

Daniel et al. (2006) concluded that youth with poor reading abilities show significantly more suicidal ideation and suicide attempts and have a much greater chance of not completing secondary school than their peers with typical reading abilities.

Murberg and Bru (2005; ID4800) examined the effect of different coping styles on subsequent depressive symptoms among a sample of adolescents encountering school-related stress. The specific hypothesis was that active coping styles and/or seeking parental support would be negatively linked to depressive symptoms in a sample of adolescents. For some adolescents, conflict with teachers and co-students, as well as fear of academic failure, may result in an aggressive or a hostile way of coping with these problems.

The sample consisted of students in grades 8–10 (13–16 years old) from two secondary schools in a city in Norway. Data were collected at two time points one year apart, and 327 students had data from both occasions.

The results of multiple regression analyses indicated a significant negative effect of seeking parental support at T1 on T2 depressive symptoms, controlling for initial symptoms and stress, as well as for confounding effects of the other coping styles. This result supports the prediction, and Murberg and Bru (2005) proposed the explanation that seeking supportive interactions with parents may bolster self-esteem during stressful periods, which may facilitate positive adaptation. However, it should be noted that SES was not controlled for in the analysis, and an alternative interpretation is that this background variable accounts both for the tendency to seek supportive interactions with parents, and for the tendency not to develop depression.

The analysis also indicated a significant main effect of stress on depressive symptoms, controlling for initial level of distressing symptoms and coping styles. Here too it may be noted that the lack of control for SES may be an explanation why T1 stress predicted T2 depression in the Murberg and Bru (2005) study.

McCarthy et al. (2008; ID24476) examined the impact of social problems, school failure, and delinquency during adolescence as predictors of depression in young adulthood, testing a broad cascade model. The study also tested the possibility that relations between problems and later depression may differ for boys and girls.

All fifth-grade students attending 18 elementary schools in Seattle were asked to participate in the study, and 808 (412 boys and 396 girls) agreed. Most participants were 10 years old when the study began, and they were followed in five waves of measurement until they were 21 years old. Structural equation modelling was used to analyze the data, controlling for age 10 depression symptoms and childhood problems.

The results showed that for girls childhood depressive symptoms predicted school failures in adolescence, which in turn predicted a major depressive episode in emerging adulthood. It was concluded that girls' failure in the school arena accounts for some of the long-term continuity between depressive symptoms in childhood and clinical depression in young adulthood, and that there is a great deal of overlap between academic and behaviourally based problems. A positive association was also found between conduct problems at age 10 and depressive symptoms at age 21 for girls, but not for boys.

Crosnoe et al. (2007; ID6924) investigated effects of early and recent school failure on self-concept and perceived intelligence. The sample originated from the Add Health study which followed students in grades 7 to 12 during a 6-year period. Detailed educational data was added to the Add Health data. A subset comprising 3,324 students was analyzed. The variables analyzed included information about previous achievement, previously diagnosed learning disability, change in self-perceived intelligence and choice of courses in high-school.

For girls, failing a class in ninth or tenth grade without ever having been diagnosed with a learning disability was followed by a reduction in perceived intelligence over the subsequent school year, followed by lower math attainment by the end of high school. For boys having ever been diagnosed with a learning disability, regardless of academic performance during ninth or tenth grade, was followed by a reduction in perceived intelligence over the following school year, which was followed by lower math attainment by the end of high school. Having ever been diagnosed with a learning disability was more important than failing classes during high school.

The results also showed that among girls who had a recent record of failure those with more academically oriented peers decreased their perceived intelligence over time. Similarly, failure of a class was more problematic for girls' self perceptions when parents had higher education.

Crosnoe et al. (2007) concluded that girls and boys both adjusted their self-perceptions according to external feedback about their academic ability, but the kind of feedback that was internalized differed by gender. Girls adjusted their self-perceptions downward after failing a class but only if they had never been diagnosed with a learning disability. Thus, what seems to matter to girls is direct, personal, and negative feedback. Having been diagnosed with a learning disability, girls can attribute poor performance to something other than their internal aptitude, which protects their academic self-competence from the negative evaluations of teachers.

Boys who had ever been diagnosed with learning disabilities demonstrated declining levels of perceived intelligence over time regardless of their current academic performance. What seems to matter to boys, therefore, is more impersonal labeling removed from classroom settings. Crosnoe et al. (2007) interpreted this pattern as suggesting a status-oriented internalization process for boys.

Furthermore, adjustments to perceived intelligence due to negative feedback had academic consequences for girls and boys. According to Crosnoe et al. (2007) students who internalize negative feedback into their own academic self-concepts lose resources that are important to academic success, such as confidence, motivation, and self-belief. For most girls, having academically oriented peers and well educated parents was a boon to their academic self-concepts but for girls who had failed classes living in these contexts was associated with a decrease (or no increase) in perceived intelligence.

In conclusion this study demonstrates that external feedback about achievement failures affect students' self-perceptions and school engagement, which in turn affects achievement. It also shows that these mechanisms are partly different for males and females, with a status-orientation for males and relation-orientation for females, and that the degree of academic orientation in the students' contexts of living matter for the direction and strength of effects.

Gerard and Buehler (2004; ID26559) examined the relations among cumulative risk, protective factors, and youth maladjustment. The sample included 5,070 youth in the seventh to eleventh grades at Time 1 of data collection. There were two occasions of measurement. A cumulative risk index was constructed with indicators of family socio-demographic risk, family process risk, peer context, school context and neighborhood context. Multiple hierarchical regression was used to analyze data.

For conduct problems, there was no longitudinal effect of cumulative risk, but there was a protective effect of self-esteem. For depression, there was a longitudinal effect of cumulative risk, as well as protective effects of self-esteem and scholastic achievement.

Among the youth attributes that were considered in this study, self-esteem was the most salient predictor of adjustment problems. The protective effect of this attribute indicates that positive self-regard acts as a safeguard against psychological discomfort resulting from negative life circumstances. High self-esteem might allow the individual to separate negative nuances of his or her life from any personal responsibility.

McGloin et al. (2004; ID26654) assessed the indirect links between youth's IQ and delinquent behaviour via academic achievement. The sample originated from the National Longitudinal Survey of Youth (NLSY) data set, but was restricted to youth who were age 10 or older during the 1992 interview (N=1725). Children and their mothers were followed and interviewed every second year for six years.

Structural equation models showed that the effect of IQ on delinquent behaviour was indirect only. The largest indirect effect of IQ on delinquency was through school performance. The results of the study thus show that failing school achievement accounts for the observed association between IQ and delinquency. However, in addition to school performance, the study revealed strong evidence of a link between IQ and delinquency through the indirect pathway of deviant peer pressure.

Mahoney (2000;ID9075) examined antecedents and moderators in the development of antisocial patterns. The primary aim of this study was to assess whether participation in school extra curricular activities is associated with a long-term reduction of antisocial behaviour in early adulthood. In particular, Mahoney (2000) was interested in identifying the moderating experiences or protective influences that differentiate high-risk youth who do from those who do not show long-term antisocial behaviour.

The participants were 695 boys and girls who were interviewed annually from childhood to the end of high school and also later when they were 20 and 24. The extra-curricular

activities considered were optional school activities like chorus, football, pep club, dance club, band, athletics, future homemakers, singing ensemble. In the analysis of data the participants were divided in 4 configurations/ clusters, and the extracurricular activity involvement for persons within each of 12 developmental patterns was examined.

Persons who participated in one or more extracurricular activities prior to eleventh grade had lower rates of school dropout and criminal arrest. Regardless of the configuration considered, the majority of persons who participated in school activities graduated from high school and were not arrested as young adults. By contrast, persons who did not participate had higher rates of school dropout and arrest. Participation in school extracurricular activities was thus associated with reduced rates of early dropout and criminal arrest among high-risk boys and girls. The decline in antisocial patterns was dependent on whether the individuals' social network also participated in school extracurricular activities.

Mahoney (2000) interpreted the findings as showing that introduction of a new experience was linked to a shift in the outcomes associated with the early patterns of social and academic competence.

De Fraine et al. (2007; ID1879) investigated changes in students' academic self-concept and language achievement in secondary school, focusing on the nature of the relation between students' achievement and their academic self-concept. They hypothesized that academic achievement and academic self-concept influence each other in a bidirectional manner.

In the study the academic self-concept and the Dutch language achievement of a sample of 2826 students (1636 girls and 1190 boys) in 50 schools in Belgium were examined. The study included students from secondary grades 6 to 12. A longitudinal design throughout secondary school with four or five waves of measurement of different variables was used. Analysis of data was done with two-group latent variable growth curve modelling. One linear growth process was modelled for academic self-concept and one linear growth process was modelled for language achievement.

A positive association between the two change processes was hypothesized, but the estimated correlations between slopes were insignificant for both boys and girls. Thus, the study did not support the hypothesis that change in academic self-concept is related to change in Dutch language achievement.

According to De Fraine et al. (2007) the most important result of the study is that the association between academic self-concept and language achievement becomes weaker with age. At the start of secondary education, the association of academic self-concept and achievement at the individual level is rather strong. By the end of secondary education however, this relation is much weaker, especially for the girls. A possible explanation could be that, as students move from adolescence into adulthood, they become more emotionally stable. An alternative explanation could be that the academic self-concept becomes more differentiated with age, implying that domain specific

achievement measures (e.g. language) becomes only weakly correlated with general academic self-concept.

Ross and Broh (2000; ID2902) examined the effects of academic achievement in eighth grade on the sense of personal control and self-esteem in tenth grade and the subsequent effects of control and esteem in tenth grade on academic achievement in twelfth grade. Two main hypotheses were investigated: (1) academic achievement increases the sense of personal control, which, in turn, increases achievement; and (2) academic achievement increases self-esteem, but self-esteem does not affect subsequent achievement (grades and test scores) once perceived control is adjusted.

Data from the base year (1988) and first (1990) and second (1992) follow-ups of the National Educational Longitudinal Study (NELS) in the U.S. was used. The sample included 8,802 students and consisted of the panel sample of twelfth graders in 1992 who also participated as eighth graders in 1988 and tenth graders in 1990. Data was analyzed with SEM techniques. The measurement model specified five latent constructs over three points in time that represent academic achievement (Time 1 and Time 3), parent social support, self-esteem, and locus of control.

The results showed that early academic achievement boosts both internal locus of control and self-esteem. We will return to the results concerning effects of these on subsequent achievement.

4.1.3.2 Discussion

Several of the studies presented in this section show that school failure is related to development of internalizing problems. This is true for the Daniel et al. (2006) study, the Goldston et al. (2007) study, and the Gerard and Buehler (2004) study. The study by Murberg and Bru (2003) also suggested that school-related stress is related to depression, even though this study should be interpreted cautiously.

However, several studies also demonstrate that the relation between school performance and depression symptoms is moderated by gender. Undheim and Sund (2005) thus found that poor school grades are related to development of depressive symptoms, but only for girls. A study conducted in Finland (Lehtinen et al., 2006) also found that school performance as measured by grades at ages 12 and 15 was related to adult depression for females but not for males. Because this study did not include an initial measure of depression it did not satisfy the inclusion criteria for this review, but it is nevertheless interesting to observe that it gives the same pattern of gender differences as the Undheim and Sund (2005) study. Lehtinen et al. (2006) observed that one of the most evident risk factors for developing depression is being female. The prevalence of depressive illnesses in childhood is roughly the same for both genders, but a clear and persistent gender difference emerges at puberty, after which the prevalence rate is about twice as large for females. They also observed that at the time gender difference first begins to show, school performance plays a different role in relation to future depressive symptomatology for girls and boys, and suggested that school performance

and adjustment to adolescence might be among the factors involved in the emergence and stabilization of gender differences in depression. Interestingly enough, the very detailed analyses reported by Crosnoe et al. (2007) showed that effects and mechanisms relating school failure to self-concept to a large extent were gender specific, and that for girls there were interaction effects with academic pressures from peers and family.

The McCarthy et al. (2008) study also showed that school failures in adolescence were related to depression for girls. This is particularly interesting, given that they observed major depression periods as outcome, rather than self-reported depression symptoms.

The McGloin et al. (2004) study showed that externalizing behaviour problems in the form of juvenile delinquency are associated with academic achievement and deviant peer pressure, both of which were mediating effects of IQ. However, Mahoney (2000) demonstrated that participation in extra-curricular activities reduced the rate of early drop-out and criminal arrest among high-risk youth.

Ross and Broh (2000) found that academic achievement boosts self-esteem and locus of control. De Fraine et al. (2007) did not find any relation between development of achievement and self-esteem, but they did find a relation in lower grades. Roeser et al. (1999; see section 4.1.1) also found that students in the early failure group improved their mental health after transition to high school, because of increased access to other arenas than school.

4.1.4 Effects of peers and teacher behaviour

While the main question in this part of the review concerns effects of academic achievement on mental health, several studies focus primarily on interaction effects with other variables, such as peers, and on effects of achievement at aggregate levels. We consider these studies to fall under the scope of the review and discuss them below.

4.1.4.1 Studies

Schwartz et al. (2008; ID4529) examined difficulties in academic and social domains as predictors of depressive symptoms during childhood. The sample included 199 children from two elementary schools located in a poor area taken from a larger longitudinal study. There were two waves of data with the same measures obtained at each time point.

The results showed that poor academic functioning was predictive of symptoms of depression. However, this effect did not hold for children who had a large number of friends in the classroom. Similarly, children with few or no friends tended to be characterized by depressive symptoms but only if they did not have good grades. Schwartz et al. (2008) concluded that the results provide support for an interactive perspective on the development of depressive symptoms during childhood. Difficulties in social and academic domains were found to be mutually dependent predictors of increases in symptoms of depression.

Study	Study purpose	Main conclusion
Schwartz, D., Gorman, A.H. et al. (2008). Peer Relationships and Academic Achievement as Interacting Predictors of Depressive Symptoms During Middle Childhood.	To examine difficulties in academic and social domains as predictors of depressive symptoms during childhood testing an interactive model of risk	Difficulties in social and academic domains were mutually dependent predictors of increases in symptoms of depression
Kiuru, N., Aunola, K., et al. (2008). Peer Group Influence and Selection in Adolescents' School Burnout.	To analyze adolescents' peer group membership and school burnout across two measurements during their final term of comprehensive school	The members of adolescents' peer groups were similar in terms of school burnout. High achievement in the peer group protected the group members against an increase in school burnout.
Gest, S.D., Domitrovich, C.E., et al. (2005). Peer Academic Reputation in Elementary School: Associations With Changes in Self-Concept and Academic Skills.	To examine the significance of peer academic reputations for changes in children's self-concepts and academic engagement and skills	Peers' recognition of academic competence has a positive influence on achievement.
Marsh, H.W., Köller, O., et al. (2001). Reunification of East and West German School Systems: Longitudinal Multilevel Modeling Study of the Big-Fish-Little-Pond Effect on Academic Self-Concept.	To evaluate whether differences in the educational settings prior to reunification of the two school systems in 1991 result in different academic self-concept, making a serie of prediction	Structural characteristics of educational settings (ability grouping, selection, competition, normative evaluations and feed back) affect the self-concept of students.
Altermatt, E.R., & Pomerantz, E.M. (2005). The Implications of Having High-achieving Versus Low-achieving Friends: A Longitudinal Analysis.	To predict changes in children's self-evaluative beliefs, preference for challenge, and grades, from the academic performance of children, the academic performance of children's friends, and the importance children assign to performing well in school.	The self-evaluative beliefs of outperformed children were threatened, regardless of the importance these children assigned to performing well in school
Brendgen,M. Bukowski,W.M. Wanner,B.Vitaro,F., & Tremblay,R. E. (2007). Verbal Abuse by the Teacher During Childhood and Academic, Behavioural, and Emotional Adjustment in Young Adulthood	To assess the long-term predictive link between verbal abuse by the teacher in middle childhood and individuals' high school graduation and behavioural and emotional problems in young adulthood. To examine whether these links are mediated by a low generalized or domain-specific self-concept.	Verbal abuse by the teacher during childhood was positively related to behaviour problems and for girls a low probability of having obtained a high school diploma by age 23 years.

Table 4.4 Studies of effects of peers and teacher behaviour

Kiuru et al. (2008; ID1740) analyzed adolescents' peer group membership and what they labelled school burnout across two measurements. School burnout was defined as exhaustion due to study demands, a cynical and detached attitude toward one's studies, and feelings of incompetence as a student. Among other questions investigated were whether academic achievement and gender predict school burnout and changes in burnout, and to what extent these associations operate at the peer group level, and to what extent they occur at the individual level.

The sample included all the ninth grade students (N = 773) from eight schools in one medium-sized town in Central Finland. The participants were asked to participate twice

during their final term of comprehensive school: at the beginning of the spring term and at the end of the spring term. A total of 517 participants (265 girls, 252 boys) filled in the questionnaires at both time points. The research questions were investigated by using intraclass correlations and multilevel latent growth modelling.

It was found that the members of adolescents' peer groups were similar in terms of school burnout. It also was concluded that peer group influence was responsible for peer group similarity, but no evidence was found for peer group selection. Thus, one main conclusion from the study was that high achievement in the peer group protected the group members against an increase in school burnout.

Gest et al. (2005; ID7083) examined the significance of academic reputations among peers for changes in children's self-concepts and academic engagement and skills. Data were analyzed for 400 students (175 girls, 225 boys) in grades 3, 4, and 5. Students attended an elementary school serving a small, working-class community in central Pennsylvania.

Peer academic reputation and teacher-rated academic skills each contributed independently to the prediction of fall-to-spring changes in children's academic self-concept. Peer academic reputation and academic self-concept contributed uniquely to the prediction of changes in teacher-rated academic effort and skills over a one-year period.

The results supported the view that peer academic reputation may serve as an influential "generalized other" in the development of children's academic self-concepts and may contribute to the development of children's academic engagement and skills.

Marsh et al. (2001; ID35354) took advantage of the reunification of the East and West German school systems in 1991 to investigate effects of ability grouping on academic self-concept. According to the social comparison processes that produce a negative "big-fish-little-pond effect" (BFLPE; i.e., attending classes where class-average achievement is higher leads to lower self-concept), students attending academically selective schools or classes where other students are particularly bright are likely to experience lower academic self-concepts than equally able students who are educated in a comprehensive setting. The former East German students had not been grouped into schools or classes according to their achievement levels, whereas the former West German students had attended schools based largely on their achievement levels for the two years prior to the reunification of the two systems. Given that in the reunified system, the former East German school system was largely transformed into the existing West German system, it was expected that the relative size of the negative BFLPE should increase more for East Germans than for West Germans.

The study also investigated another hypothesis, namely that students who follow a fixed curriculum and are normatively assessed in relation to common tasks and highly

competitive environments, are likely to increase social comparison processes that undermine self-concept. It was observed that East German students were given detailed performance feedback in the form of school grades from the very start of school and this feedback was provided in a manner that emphasized social comparison. Furthermore, the highly centralized teaching strategies in East Germany reinforced self-evaluation through social comparison. In contrast, the West German system placed less emphasis on social comparison in that performance feedback was more private, teaching strategies were more differentiated to meet the needs of individual students, and there was no explicit goal to foster accurate and highly differentiated self-evaluations. It was thus hypothesized that the emphasis on social comparison processes in former East Germany should lead to lower academic self-concepts, at least initially, for former East German students.

A total of n = 3,787 seventh graders were tested at three measurement points: at the beginning, in the middle, and at the end of the 1991/1992 school year. Consideration was limited to students who had complete data for all three time points and to classes that were represented by responses from at least 10 students, resulting in a total sample of 2,778 students and 161 classrooms.

At T1, which was the start of the first school year after the reunification, the East German students had not previously experienced selective schools, whereas the West German students had attended achievement-segregated schools for the previous two years. The negative effect of class-average on achievement was initially more negative for former West German students compared to East German students, but the difference was smaller by the middle of the year and had disappeared by the end of the first school year after the reunification. Marsh et al. (2001) concluded that this changing difference supports the hypothesis about the negative contrast effect of the BFLPE. It also was found that the East German students had significantly lower academic self-concepts than did their West German counterparts. It must be observed, however, that the empirical basis for the latter conclusion is more uncertain because no initial measure was available of self-concept, and it is of course conceivable that there are other explanations for the lower self-concept of the former East European students.

Altermatt and Pomerantz (2005) examined how children's friendships influence their school-related attitudes and outcomes. In particular they focused on changes in children's self-perceptions of competence, self esteem, and attributional styles, their preference for challenge, and grades over the course of the academic year as a function of the academic performance of the children themselves, the academic performance of children's friends, and the importance children assigned to performing well in school.

Participants were 929 U.S. children (463 males, 466 females) in the fifth, sixth, and seventh grades. Children with a mutual best friend answered a self-evaluation questionnaire twice, and grades were collected.

The results showed that establishing friendships with high-performing classmates is not associated with uniformly beneficial outcomes. Low-achieving children with high-

achieving friends evaluated themselves less positively compared to low-achieving children who established friendships with low-achieving peers. However, low-achieving children appeared to benefit in terms of their academic performance from establishing and maintaining relationships with high-achieving friends. For high-achieving students, establishing friendships with high-achieving peers was associated with outcomes that were either not harmful or beneficial.

Brendgen, et al. (2001; ID29902) studied, in a 17 years prospective study, the long-term predictive links between teachers' verbally abusive behaviour and students' subsequent behavioural problems and educational attainments in young adulthood. Verbal abuse by the teachers was defined as verbal putdowns, negative prediction, negative comparison, scapegoating, shaming, cursing and swearing, and threats.

The participants were 231 Caucasian children. They were assessed from pre-school over a period of 8 years and later in young adulthood, when they were 23 years old.

Results showed that verbal abuse by the teacher during childhood was positively related to behaviour problems for both girls and boys, even when controlling for childhood levels of antisociality, anxiety, school performance, and social preference in the peer group. Furthermore girls, but not boys, who were abused by the teacher in middle childhood had a lower probability of having obtained a high school diploma by age 23.

Brendgen et al. (2005) also tested the mediating role of self-perceived competence as a link between the verbal victimization and the negative outcomes, but the results suggested that low self-perceived scholastic competence does not mediate the link between girls' experiences of verbal abuse by the teacher in middle childhood and not having a high school diploma by age 23 years. One possible explanation of the fact that the relation between verbal abuse by the teacher and children's academic self-concept was stronger for girls than for boys may be girls' greater need for social approval.

4.1.4.2 Discussion

The studies considered here demonstrate the important roles of peers in shaping and or moderating the effects of school achievement. Schwartz et al. (2008) showed that friendship with peers can protect against negative effects of poor achievement on internalizing symptoms. Kiuru et al. (2008) demonstrated that a high-achieving peer group can protect against school burnout, and Gest et al. (2005) that academic reputation among peers not only influences students' self-concept, but also academic efforts and skills. The Marsh et al. (2001) and the Altermatt and Pomerantz (2005) studies also demonstrated that social comparisons had effects on self-concept, both for good and for bad.

Furthermore, the Brendgen et al. (2001) study showed that teachers' ways of verbally communicating with students in middle school had lasting effects on self-concept and academic attainment in young adulthood for girls, but not for boys.

4.1.5 Effects of grade retention

The two studies included in this section have a focus on consequences of grade retention on the development of mental health. They are considered to fall within the scope of the review because this is a method which sometimes is used in response to school failure.

Table 4.5 Studies of effects of grade retention

Study	Study purpose	Main conclusion
Hong, G., & Yu, B. (2008). Effects of Kindergarten Retention on Children's Social-Emotional Development: An Application of Propensity Score Method to Multivariate, Multilevel Data.	To examine the effects of retention in kindergarten	Retained kindergartners gained more self-efficacy and developed more interest in academic learning, showed more competence in peer relationships and enjoyed more popularity, and displayed less internalizing problems.
Pagani, L., Tremblay, R.E. et al. (2001). Effects of grade retention on academic performance and behavioural development.	To examine the effects of grade retention on children's academic performance and behavioural development	Grade retention does not seem to be beneficial for children.

4.1.5.1 Studies

Hong and Yu (2008; ID4553) investigated effects of retaining kindergarten children on their social and emotional development. The study was based on a nationally representative sample of 21000 children in the U.S. who entered kindergarten in 1998. Longitudinal data was collected from children, parents, teachers and schools. Data was analyzed with propensity score methods, taking the multilevel nature of data into account.

The results showed no evidence suggesting that kindergarten retention does harm to children's social-emotional development. The findings were instead interpreted as suggesting that, had the retained kindergartners been promoted to the first grade instead, they would have developed a lower level of self-confidence and interest in reading and all school subjects, and would have displayed a higher level of internalizing problem behaviours at the end of the treatment.

Pagani et al. (2001; ID5098) investigated effects of grade retention on children's academic performance and behavioural development. The study employed an auto-regressive modelling technique to detect the effects of disruptions in academic progress during primary school on subsequent grades and behaviour problems until 12 years of age. The study included a random sample of 6,397 children attending kindergarten in French-speaking public elementary schools in Quebec. Data was collected on children's behavioural adjustment over four assessments: ages 6, 8, 10, and 12 years, and their academic performance was examined at ages 8, 10, and 12 years.

The results suggested that grade retention makes boys more disruptive and less inclined toward good academic performance compared to their same-grade peers and compared to their same-age peers. For girls, academic performance was affected by grade retention in early, middle, and late primary school. The long-term consequences of being held back early seemed to remain quite strong.

4.1.5.2 Discussion

Hong and Yu (2004) concluded that effects of retention are positive, while Pagani et al. (2006) concluded that grade retention had negative effects. One possible explanation of these conflicting results may be that Hong and Yu (2004) investigated effects of retention in kindergarten, while the Pagani et al. (2006) study investigated effects of grade retention in schools. It will be remembered that Halonen et al. (2006) observed that the social mechanisms in kindergarten and school are quite different, and it may be that being forced to leave a group of class-mates has negative effects on self-esteem, while retention in the more informal and play-like kindergarten environment does not have negative consequences on self-esteem.

4.2 Mental health as determinant of schooling and academic achievement

We now turn to studies which have a focus on how mental health affects schooling and achievement. As we have already seen many of the mechanisms are specific to different aspects of mental health, but there also are general aspects of mental health which have been hypothesized to influence schooling and achievement.

4.2.1 Effects of internalizing problems

Several studies investigate effects of internalizing problems on academic achievement. Given that most of these studies take a starting point in different theories and models to account for effects of internalizing mental health problems on academic achievement, the theoretical notions are presented in relation to each study.

4.2.1.1 Studies

Chen and Li (2000; ID9080) argued that depression may adversely affect social and cognitive functioning because depressed children tend to feel insecure and fearful in social situations and to display socially withdrawn and passive behaviours. Therefore they may experience difficulties in social interactions and relationships, which may lead to further negative emotional reactions and incompetent social behaviours. They also suggested that other symptoms associated with depression, such as loss of concentration, psychomotor retardation, lack of energy and cognitive distortion may interfere with and impede the process of learning.

Table 4.6 Studies of effects of internalizing problems on mental health.

Study	Study purpose	Main conclusion
Chen, Xinyin., & Li, Boshu. (2000). Depressed mood in Chinese children: Development significance for social and school adjustment.	The purpose of the study was to examine contributions of depressed mood to social and school adjustment in Chinese children	Depressed mood contributed negatively to later social and school achievement and positively to the development of adjustment difficulties
Duchesne, S., Vitaro, F. et al. (2008). Trajectories of Anxiety During Elementary-school Years and the Prediction of High School Noncompletion.	To examine the relation between anxiety and high school noncompletion and whether the probability of high school noncompletion varies according to levels of anxiety.	Children show different trajectories of anxiety and these trajectories show predictive value for high school noncompletion.
Johnson, W., McGue, M. et al. (2006). Genetic and Environmental Influences on Academic Achievement Trajectories During Adolescence.	To investigate the multivariate associations among variables that have been linked individually to academic achievement.	Higher IQ and engagement mitigated the influence of family risk and externalizing behaviour for both boys and girls. This was particularly true in high risk families.
Needham, BL., Crosnoe, R., & Muller, C. (2004). Academic Failure in Secondary School: The Inter-Related Role of Health Problems and Educational Context.	To examine whether the interplay of health problems and school environment predicts academic failure	Emotional distress is associated with greater likelihood of failing one or more classes in the next year and absenteeism, trouble with homework, and student-teacher bonding account for much of these associations
Fletcher, J.M. (2008). Adolescent Depression: Diagnosis, Treatment, and Educational Attainment.	To examine the associations between individual, family, and community characteristics and adolescent depressive symptoms, and the association between depression during high school and educational attainment	There is a stable relationship between depression and educational attainment for women
McLeod, Jane D., & Fettes, Danielle L. (2007). Trajectories of Failure: The Educational Careers of Children with Mental Health Problems.	To examine the developmental trajectories of children with mental health problems	There is an association between mental health problems and educational attainments. Youths who experienced high levels of internalizing problems in childhood or in adolescence were significantly less likely to complete high school than youths with stably low levels of internalizing problems
Pomerantz, R. et al. (2003). What Ensues From Emotional Distress? Implications for Competence Estimation.	To examine if emotional distress may cause children to develop views of themselves and their surroundings that lead them to underestimate their competence	Children experiencing emotional distress see themselves and their surroundings in a negative light. Children then underestimate their competence relative to their performance in both the academic and social domains

In their study Chen and Li (2000) hypothesized that depressed mood would negatively contribute to later peer acceptance, social status, teacher and peer-assessed school-related social competence, and academic achievement. The study included 540 students (294 boys and 246 girls) from sixth grade in two junior high schools in China. Information on children's social and academic adjustment was collected from multiple sources including peers, teachers, and school records. Information on the same variables was collected again two years later. Multiple regression analyses were conducted to examine the unique contributions of Time 1 variables to the prediction of Time 2 variables, controlling for stability effects.

The results showed that depression contributed negatively to later social and school achievement and that it caused adjustment difficulties. Chen and Li (2000) observed that children's internalizing problems have been generally neglected in Chinese culture because the well-being of individuals is often regarded as insignificant within the Chinese collectivistic culture. However, they also noted that Chinese children reported a level of depressed mood that was virtually identical to that found in their Western counterparts, and that depressed mood contributed significantly to the development of social and school adjustment in Chinese children.

Duchesne et al. (2008; ID24426) investigated the hypothesis that high levels of anxiety tend to impair concentration and that it therefore gradually leads to lower academic achievement. Different subtypes of childhood anxiety disorder, such as separation anxiety disorder, generalized anxiety disorder and social phobia are mainly characterized by fearfulness or excessive worries associated with emotional distress or avoidance behaviour such as not wanting to go to school. These worries may interfere with daily functioning at home and at school.

The study included 2000 children randomly selected from the population of children in Quebec enrolled in kindergarten in fall 1986. Every year until sixth grade ratings of anxiety and other variables were made by mothers and teachers. Later on, information about high school completion was obtained from registers. The analysis of data was done with a semi-parametric analytical procedure for longitudinal data that empirically examines the presence of different developmental trajectories. Thus, the procedure groups individuals according to the similarity of their trajectory, describes the form of these trajectories, and estimates the proportion of individuals belonging to each group.

Four different trajectory groups were identified with different levels and development of anxiety (Low, Moderate, High and Chronic). Duchesne et al. (2008) observed that numerous children exhibited anxiety symptoms throughout their elementary school years, 41 % of the children being classified to the High trajectory group and 10 % into the Chronic group. In logistic regression analyses, controlling for social and individual characteristics (e. g., externalizing symptoms and academic achievement in elementary school), they also found that children whose trajectory of anxiety was high or chronic during elementary school had a higher probability of not completing high school than children whose trajectory of anxiety was moderate. Duchesne et al. (2008) interpreted this as a causal effect of anxiety on academic progression during high school.

Johnson, McGue and Iacono (2006; ID25726) investigated effects of several factors, including mental health problems, on level of academic achievement. In particular there was a focus on risk factors and protective factors interacting with mental health. Participants were drawn from the 11-year-old cohort of the Minnesota Twin Family Study. Same-sex twins and their parents were followed from 11 to 17 years of age. Data comprised 443 pairs of girls and 381 pairs of boys. Only grades were available on a yearly basis, while all other variables were measured at age 11. Data was analyzed with growth modelling techniques, specifying relationships among initial grades, change in grades over time, and covariate factors.

Most of the covariates had significant main effects on initial grades when analyzed

separately. When the variables were entered simultaneously the effects of all variables were reduced. For depression there was no effect left, while for externalizing problems a strong negative effect was reduced. However, these results must be interpreted cautiously, given the problem of potentially important omitted variables. Therefore analyses of relations between change in grades and mental health variables are of greater interest. However, these analyses indicated no significant relation between change in grades and any mental health variable.

In conclusion, this study does not show any causal relation between internalizing mental health problems and academic achievement as reflected in school grades. However, the power of this study to detect such an effect is likely to have been low, given that the observations on mental health was only done once, at age 11.

Needham, Crosnoe and Muller (2004, ID2277) observed that research on adult populations has shown that mental and physical health problems negatively affect work performance, and argued that this also makes it reasonable to expect that students' mental and physical health affects academic performance. More specifically they identified three mechanisms through which this happens. The first is that students with poor mental health tend to have higher absence rates, so by interfering with the ability of students to engage adequately in the schooling process, mental health problems disrupt students' academic trajectories. The second is that mental health problems could hamper bonding between teachers and students, and given that evidence shows that close student-teacher relationships protect against academic failure this offers an explanation why students with health problems could be at risk for academic failure. The third is that students who suffer from even mild chronic health problems, such as headaches, abdominal pain, and breathing difficulties will have their concentration disrupted, which hampers their ability to complete school assignments, and which in turn would negatively affect their academic performance.

Using a social epidemiological framework Needham et al. (2004) investigated these hypotheses. The study relied on data from the U. S. National Longitudinal Study of Adolescent Health (Add Health), a large, school-based study of adolescents, their schools, and their families. The analyses were based on a sample of around 12 000 students in eighth to eleventh grade who were followed during one year. Logistic regression was used to analyze data.

The results showed that emotional distress was associated with greater likelihood of failing one or more classes in the next year, which by Needham et al. (2004) was interpreted as a causal effect, even though it was rather weak. They also demonstrated that absenteeism, trouble with homework, and poor student-teacher bonding accounted for much of the effect of mental health problems on achievement. Interestingly enough only individual-level student-teacher bonding served as a protective factor, while high levels of student-teacher bonding within a school increased the risk of course failure among adolescents with mental health problems. While Needham et al. (2004) were not able to suggest a credible explanation for this effect they observed that it implies that schools with a seemingly positive climate may not serve protectively for this particular group of at-risk students.

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In a quite similar study, also based on the Add Health data, Fletcher (2008; ID24414) investigated the association between depression during high school and educational attainment (dropping out of high school, decision to enrol in college, and type of college enrolled in). The sample included 13 000 students in grade 7. Logistic regression and probit regression was used to analyze the data. In the analysis, Fletcher (2008) included controls for individual, family, and community characteristics, and the analysis was conducted both of the total sample, and separately for males and females.

Interestingly enough, Fletcher (2008) did not find depression status to be associated with dropping out for the full sample. However, the results varied dramatically by gender, there being a strong effect of depression on probability of dropping out for females, and no effect for males. Female adolescents with depression during high school also were found to be much less likely to enrol in college and also less likely to enrol in a four-year college According to Fletcher (2008) these results support previous research that depressive disorder only affects women's educational outcomes.

It must be observed that the Needham et al. (2004) and the Fletcher (2008) study are two analyses of basically the same data, even though they focused on different outcomes, so the fact that both demonstrate relations between depression and educational outcomes cannot be interpreted as evidence of independent replication. However, the differences between the studies are more interesting than are the similarities. Fletcher's (2008) finding that there was an association between depression and educational attainment only for females is very interesting, but given that Needham et al. (2004) only investigated main effects for gender we do not know if this also holds true for the outcomes analyzed by them. It would be most interesting if further analyses were done on these data, and in particular to investigate if there is a differential pattern of relation between depression, course failure and dropping out of high school for males and females.

McLeod and Fettes (2007, ID25058) argued that while many explanations for an effect of mental health on achievement take their starting point in factors associated with the individual child, it is also possible to conceive of explanations of a more relational and sociological nature. They suggested that teachers and school administrators may come to expect less from youths with mental health problems and these diminished expectations can cause negative effects on academic achievement. Parents, too, may come to expect less from their children with mental health problems. McLeod and Fetts (2007) suggested that the stigma associated with mental health problems may cause some of these negative expectations, but they proposed that they may also result from more subtle processes of evaluation and accommodation in schools. Thus, this explanation sees effects of mental health problems on academic achievement as the product of interactional negotiations in which teachers, parents, and the children themselves come to devalue their potential.

In the empirical study McLeod and Fettes (2007; ID25058) too analyzed trajectories of development in order to investigate what distinct trajectories of mental health problems can be identified in a national sample of U.S. children, and how these trajectories are associated with educational attainment. The study relied on data from the Children of the

National Longitudinal Surveys of Youth, and included information about participants from age 6 to age 22. The final sample comprised 883 youths from an original sample of 1568.

Distinct trajectories of internalizing and externalizing problems were identified using growth mixture models. Logistic regression models were then used to estimate the associations between the trajectories and educational attainment and to evaluate the ability of academic aptitude, disruptive behaviours, and educational expectations to explain those associations. The best fit for internalizing disorders was a four group solution of trajectories: stably low, childhood high, childhood moderate and adolescence high. For externalizing problems a five group solution had the best fit: stably low, childhood high, childhood moderate, adolescence high, and stably high.

An overall finding was that youths who had high levels of problems in either childhood or adolescence showed poorer educational attainment. Youths whose internalizing problems emerged in adolescence were much less likely to graduate from high school, even though they were not less likely to enrol in college..

McLeod and Fettes (2007) tested the proposition that children's mental health problems matter for educational attainment because of the social responses they elicit. They found that educational expectations held by parents and children were equally powerful and independent mediators as were academic aptitude and disruptive behaviours. They concluded that youths with mental health problems hold lower expectations for themselves, which jeopardizes their educational attainment.

They also found that academic problems were more common among youths whose mental health problems began in childhood. Youths whose mental health problems emerged in adolescence did not experience academic problems in their early school years but were perceived as more disruptive throughout their youth and encountered lower educational expectations.

McLeod and Fettes (2007) argued that people with mental health problems experience social rejection not only when they have entered treatment and are labelled publicly, but also based on their manifest symptoms and how others interpret those symptoms. Mental health problems initiate stratification processes based on non-cognitive traits and behaviours.

Pomerantz and Rudolph (2003; ID27155) proposed a model to account for consequences of emotional distress in children on their self perceptions and particularly that periods of depression cause students to underestimate their competence in relation to their performance. This hypothesis is based on previous work that suggests that depressive periods may leave a scar that fosters risk for future depression. Thus, depressive symptoms may lead to negative views of the self, problematic interpersonal relationships, and stressful life experiences and these symptoms put children at risk for further symptoms. Pomerantz and Rudolph (2003) suggested that children's emotional distress also shapes the way they see themselves and their surroundings, and that it

causes the children to view their failures but not their successes as relevant to their competence. This, in turn, causes them to underestimate their competence relative to their performance. Furthermore, when children view themselves in a negative light, they may also refrain from pursuing challenging tasks.

Pomerantz and Rudolph (2003) tested these hypotheses in a longitudinal study with three waves. The sample consisted of 932 elementary school children (466 females, 466 males). Structural equation modelling was used to investigate the hypothesized mediational pathways.

The results showed that emotional distress predicted lower competence estimation over time, adjusting for prior competence estimation. Emotional distress also predicted less positive attributions for performance, heightened uncertainty about meeting performance standards, and lower self-esteem over time, which in turn predicted lower competence estimation over time. However, only positive attributions for performance and uncertainty about how to meet performance standards were significantly associated with competence estimation over time, while the direct effect of self-esteem on competence was not significant. Once the views of the self and the world were taken into account, the link between emotional distress and competence estimation was reduced to near zero, which implies that these factors completely mediated the effect of emotional distress on competence estimation. The study also examined gender differences in the pattern and strength of relations between variables in the model, but no significant overall difference was found.

The findings thus indicate that children experiencing depressive and anxiety symptoms come to see themselves and their surroundings in a negative light. These negative views, in turn, are followed by children underestimating their competence relative to their performance. This sequence of events was evident in both the academic and social domains.

4.2.1.2 Discussion

The studies presented here generally indicate that there are negative effects of internalizing problems on academic achievement (Chen & Li, 2000; Duchesne et al., 2008; Needham, et al., 2004; Fletcher, 2008; McLeod & Fettes, 2007; and Pomeranz & Rudolph, 2003). An exception is the study by Johnson et al. (2006) which did not show any effect in the longitudinal data on grades. It should also be noted that Fletcher (2008) only found a negative effect of depression on academic attainment for females.

Some of the studies also try to identify the mechanisms through which internalizing mental health problems affect academic outcomes. Chen and Li (2000) and Duchesne et al. (2007) argue that emotional distress has negative effects on social and academic functioning because it impairs concentration, among other things. Needham et al. (2004) show that mental health effects on absenteeism, trouble with homework, and teacher-student relations could account for the relation with academic outcomes. McLeod and

Fettes (2003) propose mechanisms which involve expectancy effects on academic achievement, both from the students' themselves and from teachers and parents. Their model basically says that lower expectations on the level of academic achievement of students with mental health problems will be a self-fulfilling prophecy. Focusing more directly on the students themselves Pomerantz and Rudolph (2004) demonstrate that depression and anxiety cause students to view their own capabilities in a more negative manner, which can also be expected to become a self-fulfilling prophecy.

4.2.2 Effects of externalizing behaviour problems

As we have already seen in the studies previously discussed, several results show that externalizing behaviour problems do affect achievement. In this section, we concentrate on those studies that more explicitly aim to investigate such effects.

4.2.2.1 Studies

The McLeod and Fettes (2007; ID25058) study has already been discussed concerning effects of internalizing problems. However, they also attended to externalizing behaviour problems and proposed that children with such mental health problems fare poorly in school because they cause trouble in the classroom and, as a result, have difficulty completing their work in a timely and effective manner. Children who are engaged in disruptive and inappropriate behaviour are less likely to be focused on the tasks that matter in classroom contexts, such as attending to written and oral materials, listening to teacher instructions, and working on assignments alone and with other children.

McLeod and Fettes (2007) obtained support for these hypotheses and concluded that there is an association between mental health problems and educational attainments. In the case of externalizing problems this is independent of whether the problems arised in childhood or adolescence. A further conclusion was that the results support the theory that school experiences are mediators of mental health on achievement trajectories and on educational attainment.

Ladd and Burgess (2001; ID2758) studied how relational stressors and supports interface with aggression to influence the school adjustment of children during their transition from kindergarten to the first school year. The relationship risk factors were classroom peer rejection, classroom peer victimization, and teacher–child conflict. The protective factors were classroom peer acceptance, number of classroom mutual friendships, and teacher–child closeness.

The participants in the study were 396 U.S. children that were followed during 1.5 years from the fall of their kindergarten year to the spring of first grade. Ladd and Burgess (2001) analysed with hierarchical regression analyses whether relational risks predicted changes in maladjustment, increased risk due to aggression, or both.

The results showed that children who manifested higher levels of aggression as they began kindergarten became significantly less well adjusted by the end of first grade on

Table 4.7 Studies of effects of externalizing behaviour problems on mental health

Study	Study purpose	Main conclusion
McLeod, J. D., & Fettes, D. L. (2007). Trajectories of Failure: The Educational Careers of Children with Mental Health Problems.	To examine the developmental trajectories of children with mental health problems	Time in poverty is strongly associated with stably high externalizing problems. School experiences are mediators of mental health on trajectories and on educational attainment. The behaviour of children with mental health problem make them object of treatments that can be harmful for their educational results (disciplinary measures, low expectations).
Farmer, A.D., Jr, Bierman, K.L., et al. (2002). Predictors and consequences of aggressive-withdrawn problem profiles in early grade school.	To understand the developmental paths of children with different behavioural profiles	Attention problems are an important precursor of aggressive behaviour and school failure
McGee, R., Prior, M., Williams, S., Smart, D., & Sanson, A. (2002). The long-term significance of teacher-rated hyperactivity and reading ability in childhood: findings from two longitudinal studies.	To study the long-term significance of teacher-rated hyperactivity and reading ability in childhood.	Dual pathways from early inattentive behaviours to later inattention and reading problems and from early reading difficulties to substantial impairments in later academic outcomes.
McLeod, JD., & Kaiser, K. (2004). Childhood Emotional and Behavioural Problems and Educational Attainment.	To examine whether childhood emotional and behavioural problems diminish the probability of graduating from high school and attending college.	Mental health problems decrease the probability of receiving a high school degree or being enrolled in college
Fergusson, DM., & Woodward, LJ. (2000). Educational, Psychosocial, and Sexual Outcomes of Girls with Conduct Problems in Early Adolescence.	To examine whether adolescent conduct problems were prognostic of future crime, substance use, mental health, and sexual behaviour and to explore the risk factors and life pathways linking behavioural adjustment in early adolescence to later adjustment	Higher risk of adverse educational outcomes among girls with conduct problems
Newcomb, M.D., Abbott, R.D., et al. (2002). Mediational and Deviance Theories of Late High School Failure: Process Roles of Structural Strains, Academic Competence, and General Versus Specific Problem Behaviours.	To examine whether academic competence and deviance mediate the relationship between structural strain factors (gender, ethnicity, and socioeconomic status) and high school failure. And to assess the influence of general deviance and specific problem behaviours on generating high school failure.	Delinquent behaviour problems affect achievement and cause school failure.
Siennick, S.E. (2007). The timing and mechanism of the offending depression link.	To examine the timing and mechanisms of the offending–depression relationship	Delinquency is negatively associated with later educational attainment. Prior depression influences the outcomes affecting educational attainment.
Ladd, G.W. and Burgess, K.B. (2001). Do relational risks and protective factors moderate the linkages between childhood aggression and early psychological and school adjustment?	To study how relational stressors and supports interface with a known behaviour risk (aggression) to influence early emerging adjustment trajectories	The relations between both teacher-child and peers are important for achievement.
Finn, Fish & Scott (2008). Educational Sequelae of High School Misbehaviour	To examine misbehaviour among high school students and its relationships to short-term and long-term educational outcomes (grades, test scores, high school graduation, and entering and completing postsecondary education)	Conduct disorder /misbehaviour at school is negatively related to continuing education at postsecondary level.

nearly all of the investigated indices of psychological and school functioning. It also was concluded that peer rejection and teacher–child conflict measures were related to one or more of the adjustment criteria. These findings suggest that early conflict with teachers may have immediate and enduring effects on multiple aspects of school adjustment. Furthermore, chronic teacher–child conflict preceded increasing attention problems and declining achievement, and chronic peer rejection predicted declining scholastic competence.

The results also showed that relational risks in the form of peer victimization and teacher–child conflict increase the probability of dysfunction primarily among children prone to confrontive aggression. Peer acceptance and mutual friendships, and teacher–child closeness were found to buffer children from maladjustment, especially during periods of challenge or transition.

Ladd and Burgess (2001) concluded that substantial empirical support was found for the well-established premise that children who commit aggressive acts against others are at risk for maladjustment. However, the study also showed that relational stressors are additive contributors to children's early psycho-educational adjustment. These factors increase the likelihood of maladjustment among all children who experience them, and add to the adjustment difficulties of aggressive children.

Farmer and Bierman (2002; ID5012) observed that even though there is a clear separation between internalizing and externalizing behaviour problems, there is a large number of children with both withdrawn and aggressive problems. In order to understand the mechanisms of development of this pattern they investigated the academic and social development from kindergarten to grade 3 of groups of children characterized by different combinations of aggressive and withdrawn behaviour problems.

The participants of the study were 754 students from 135 classrooms in four geographically diverse areas of the United States. The children were classified into four groups (aggressive and withdrawn, aggressive only, withdrawn only, and non-problem comparison). Measures of attention, social skills and behaviour problems were made in kindergarten, first grade and third grade. Data were analyzed with multivariate analysis of covariance and hierarchical regression techniques.

The results showed that children who became aggressive-withdrawn in first grade had precursor deficits in social and cognitive skills, controlling for initial levels of aggression and withdrawal. However, these students were not more withdrawn than other students in kindergarten. The analyses also showed that children who in grade 1 had aggressive-withdrawn profiles had lower academic achievement in grade 3 than the other groups, controlling for precursor variables. Results from hierarchical regression analyses gave support for an additive model, in which early home and school aggressive behaviours, early school withdrawn behaviours, kindergarten deficiencies in prosocial skills, emotional understanding and IQ, and a first-grade aggressive-withdrawn problem profile combined to increase the risk for poor academic performance in grade 3. They argued that aggressive children with skill deficits develop internalizing problems in

response to peer reactions and to experiences of school failure in grade 1, and that these problems in turn contribute to poor academic achievement in grade 3.

McGee et al., (2002; ID4993) investigated the long-term significance of teacher-rated hyperactivity and reading ability in childhood on academic and behavioural outcomes relying on data from two longitudinal studies. The main issue focussed upon was whether childhood hyperactivity had an independent effect on outcomes in adolescence and young adulthood, or if it was mediated via reading skills and conduct problems.

One set of data came from the Australian Temperament Project (ATP), which is a prospective longitudinal study of the temperament and psychosocial development of a representative sample of children. Children were enrolled in the study in the first year of life, and the sample has been followed up to age 18 approximately every 18 months with measures of temperament, behavioural adjustment and a variety of other family and child measures relevant to each age and stage. Complete data were available for 846 children.

Another set of data came from the Dunedin Multidisciplinary Health and Development Study (DMHDS), which is a study of the health, development and behaviour of a large sample of New Zealand children. It has followed a cohort of children from birth into young adulthood. Complete data were available for 908 children.

Analyses of data from both studies showed that hyperactivity measures from ages 5 to 8 years were associated with conduct disorder, juvenile delinquency, substance use, poor literacy skills, and school dropout in adolescence. However, when controls were introduced for family background, gender, antisocial behaviour and reading ability the negative effects associated with hyperactivity were considerably reduced and became non-significant in most cases. Further analyses indicated that hyperactivity and associated problems of attention were negatively related to early reading skills, which in turn had a strong effect on the outcomes in adolescence and young adulthood. It also was found that early antisocial behaviour predicted both behavioural and academic outcomes, and that hyperactivity and early antisocial behaviour were related.

The findings thus suggest that one pathway to behavioural and academic problems goes from early inattentive behaviours via early reading problems, and that another pathway goes via early antisocial behaviour.

McLeod and Kaiser (2004; ID26618) investigated whether childhood emotional and behavioural problems diminish the probability of graduating from high school and attending college. They were interested in examining to what extent the effects of childhood emotional and behavioural problems on educational attainment are attributable to continuities in socioeconomic disadvantage, in emotional and behavioural problems over time, and to residual effects of early academic failures.

Data from the Children of the National Longitudinal Surveys of Youth (NLSY) was used for the analysis. The participants were U.S. children who were 6-8 years old in

1986 and who were followed until they were 20-22 years old. There were five waves of measurement, and 424 children had valid values on the analysis variables.

The analyses showed that internalizing and externalizing problems at ages 6-8 strongly diminished the probability of receiving a high school degree. Among those who received a high school degree, externalizing problems also diminished the probability of subsequent college enrollment. It also was found that failure of obtaining a high school degree was mediated via academic failures in middle and high school. In contrast, the association of childhood behaviour problems with college enrolment appeared to reflect the persisting effects of early behavioural and academic predispositions.

This study thus shows that early mental health problems decrease the probability of receiving a high school degree, which is due to the association of mental health problems with prior academic problems. However, the problems with college enrolment seem to be due to more direct effects of early mental health problems.

Fergusson and Woodward (2000; ID5133) investigated future risks faced by young adolescent girls with conduct problems, and explored the risk factors and life pathways that link early adjustment and later educational outcomes. The data were collected in the New Zealand Christchurch Health and Development Study, which is a longitudinal study of an unselected birth cohort of 1265 children (635 males; 630 females). The children were studied at birth, 4 months, 1 year, and annual intervals to age 16 years, and again at 18 years. The analyses presented in the paper were restricted to the 488 female members of the cohort for whom complete data were available up to the age of 18 years.

There was a strong relationship between the extent of conduct problems at age 13 and educational outcomes at 18 years of age. Control for potentially confounding social, family, and individual factors reduced the association between early conduct problems and educational under-achievement. However, there was still evidence of significant associations between the extent of girls' earlier conduct problems and rates of educational difficulties. Investigating meditational models it was found that intervening peer choice, substance use, and sexual risk-taking behaviour explained a substantial amount of the correlation between early conduct problems and later outcomes. The findings were interpreted as suggesting a causal chain process in which early conduct problems are associated with increased risk-taking behaviours in adolescence and these risk-taking behaviours in turn increase the girls' risks of later psychosocial problems.

Newcomb et al. (2002; ID2686) investigated whether structural strain factors such as socioeconomic status and ethnicity have a direct influence on high school failure or whether these influences are mediated through academic competence and deviant behaviours. Data were obtained from the Seattle Social Development Project. The study population included all fifth-grade students in 18 schools (N = 1,053). From this group, 808 students consented to participate in the longitudinal study.

The strongest influence on dropping out of high school was poor academic competence, but high school failure was also a function of earlier involvement in all types of deviance and of low family SES. All ethnic and gender differences in high school failure were completely mediated by deviance and academic ability or accounted for by family SES. General deviance was found to be a strong predictor of high school failure, far more than any particular type or specific aspect of deviance.

Finn, Fish and Scott (2008; ID28957) investigated misbehaviour among high school students and its relationships to long-term educational outcomes such as entering and completing postsecondary education.

Data from the U.S. National Education Longitudinal Study of 1988 (NELS:88) was used. A nationally representative sample of some 25 000 eighth-grade students was followed until several years after high school. Finn et al. (2008) examined classroom and school misbehaviours such as skipping classes, disrupting classes, fighting, getting into trouble in school, using alcohol or marijuana, and gang membership. A total misbehaviour index was constructed for each student and used as the primary independent variable.

Misbehaviour in high school was related to entering, persisting in, and completing postsecondary schooling, controlling for background factors and previous levels of achievement. There were no significant interactions with students' gender, race or ethnicity.

Siennick (2007; ID29689) investigated alternative models for explaining the relationship between juvenile delinquency and adult depression. According to one model, delinquency disrupts socioeconomic status attainment, and the lower status causes depression. According to another model, adult depression is due to offense in adulthood. The purpose was to examine the timing and mechanisms of the offending–depression relationship.

The study was based on data from the Add Health study, which included a nationally representative sample of U.S. adolescents in grades 7 through 12 during the 1994–1995 school year. In 2001 a follow-up study was conducted, and the analysis was based on 13 000 respondents with complete data.

The results showed that juvenile delinquency was negatively related to years of education completed by young adulthood, and that delinquency was associated with reduced odds of graduating from high school. These relations were obtained with control for other variables. The results also showed that juvenile delinquency was associated with adult offending, which supports the model according to which adult depression was a function of adult offending. However, results also were obtained which show that prior depression can be implicated in some of the outcomes, and primarily low educational attainment. According to Siennick (2007) other recent studies have also demonstrated how internalizing problems may be nearly as devastating to later attainment as are behaviour problems.

4.2.2.2 Discussion

The studies investigating effects of externalizing problems on academic achievement have generally found negative effects, controlling for other variables (McLeod & Fettes, 2007; Ladd & Burgess, 2001; Farmer & Bierman, 2002; McGee et al., 2002; McLeod & Kaiser, 2004; Ferguson & Woodward, 2000; Newcomb et al., 2002; Finn et al., 2008; and Siennick, 2007). In the section 4.1.2.2 we also concluded that Trzesniewski et al. (2006) and Halonen et al. (2006) found negative effects of externalizing behaviour on academic achievement. Several mechanisms which account for these relations also have been proposed.

One hypothesis is that externalizing behaviour problems in themselves interfere with effective schoolwork and educational careers. McLeod & Fettes (2007) argued that this is a partial explanation for negative effects on academic achievement of mental health problems occurring both early and late. McLeod & Kaiser (2004) showed that there was a direct effect of externalizing behaviour problems on college enrolment.

Another identified mechanism is that externalizing behaviour problems cause maladjustment in the classroom, because of peer rejection and teacher-child conflict (Ladd & Burgess, 2001). An elaboration of this hypothesis says that peer rejection and teacher-child conflict then give rise to internalizing problems, and that these problems contribute to poor academic achievement. This "dual-failure" mechanism was clearly demonstrated in the Farmer and Bierman (2002) study. The Halonen et al. (2006) study also indicates that internalizing problems partly mediate the relation between reading performance and externalizing behaviour. Investigating adolescents and young adults Siennick (2007) also suggested that delinquency causes depression which in turn causes low educational attainment. As was shown by McLeod and Fettes (2007) educational expectations from parents and teachers are lower on children and adolescents demonstrating externalizing behavior.

McLeod and Fettes (2007) also observed that children who displayed internalizing and externalizing problems at young ages failed to achieve expected educational outcomes even when their problems diminished over time. Studies which have included early measures of externalizing behaviour and achievement have found that effects of externalizing behaviour problems on late educational achievement to a considerable extent is mediated by academic achievement in primary and middle school (McGee et al., 2002; McLeod & Kaiser, 2004). The Roeser et al. (1999) study discussed in section 4.1.1 also supports such an interpretation of continuity of academic and behavioural problems.

Several studies also identify externalizing behaviour problems as being associated with different types of antisocial activity and risk-taking behaviour in adolescence, which in turn has negative consequences on academic attainment. This is true for the Ferguson and Woodward (2000) study, and the McGee et al. (2002) and Newcomb et al (2002) studies. Finn et al. (2008) also identified pathways via early antisocial behaviour to later

academic problems.

4.2.3 Effects of positive mental health factors

Several studies have investigated effects of positive aspects of mental health on academic achievement. One variable which has been in focus is self-esteem, along with the more narrow variable academic self-concept, and the even more narrow variable self-efficacy. While there is much cross-sectional research showing that self-esteem is correlated with achievement there are conflicting ideas about the direction of causality. The self-enhancement model describes self-concept as a primary determinant of academic achievement (Valentine, DuBois, & Cooper, 2004). According to this model, an individual's belief that he or she is academically capable promotes appropriate task choice, motivation, and subsequent academic success. Alternative models argue that self-esteem is a consequence of academic success, and we have already presented evidence from the Ross and Broh (2000) study showing this to be the case. However, it is of course possible that self-esteem and achievement affect each other reciprocally.

4.2.3.1 Studies

Ross and Broh (2000; ID2902) argued that the self-esteem model, according to which adolescents who feel good about themselves do better in school than do those who have low self-worth, is incorrect. They instead proposed that it is reason to think that academic success is more likely among adolescents who feel in control of important outcomes in their lives, who think that their efforts shape outcomes and that their successes and failures are a consequence of their own actions. While sense of control is correlated with self-esteem, they are conceptually distinct. An adolescent can see himself or herself as a good person who is well respected by others, but still believe that most important outcomes in life are beyond his or her control. Thus, while self-esteem results from others' evaluations of one as a person of worth, the sense of control results from successful behaviours, achievements, and accomplishments. While self-esteem has beneficial emotional consequences, such as low levels of depression, Ross and Broh (2000) argued that its consequences for academic success are less certain.

Ross and Broh (2000) also observed that the sense of personal control appears in the literature under a number of different names, such as internal locus of control, mastery, personal efficacy or self-efficacy, personal autonomy, and instrumentalism.
It will be remembered that Ross and Broh (2000; ID2902) presented a study with the purpose to examine the effects of academic achievement in eighth grade on the sense of personal control and self-esteem in tenth grade and the subsequent effects of control and esteem in tenth grade on academic achievement in twelfth grade. As has already been described when discussing effects of school failure in section 4.1.3.2 they found effects of academic achievement on both personal control and on achievement. They also investigated the hypothesis that personal control, but not self-esteem, affects subsequent achievement.

Table 4.8 Studies of effects of positive mental health factors

Study	Study purpose	Main conclusion
Ross, C.E., & Broh, B.A. (2000). The Roles of Self-esteem and the Sense of Personal Control in the Academic Achievement Process.	To examine the reciprocal effects of academic achievement and of the sense of personal control and self-esteem on each other over time	The sense of personal control in the 10th grade is associated with high grades and test scores in the 12th grade, but self-esteem does not have a significant effect on subsequent academic achievement.
Ciarrochi, J., Heaven, P.C.L., et al. (2007). The Impact of Hope, Self-esteem, and Attributional Style on Adolescents' School Grades and Emotional Well-being: A Longitudinal Study.	To explore the distinctive effects of hope, self-esteem, and positive attributional style over a one-year period, on school grades, overall adjustment, and self-reported emotional well-being.	Hope predict academic achievement while positive attributional style and self-esteem di not predict achievement
Leeson, P., Ciarrochi, J., et al. (2008). Cognitive ability, personality, and academic performance in adolescence.	To assess the longitudinal impact of hope, self-esteem, and positive attributional style on school performance after controlling for intelligence.	Positive aspects of mental health have a positive influence on achievement
Carlson, B.A., Stroufe, A. et al. (1999). Early Environmental Support and Elementary School Adjustment as Predictors of School Adjustment in Middle Adolescence.	To examine antecedent variables of high school adjustment including experience in preschool and middle childhood and direct assessments of social (e.g., parent-child, peer) and emotional (e.g., aggression, self-esteem) previous adaptations	Exteranlizing behaviour has a negative effect while self-esteem and emotional health have a positive and greater effect
Caprara, G.V., Barbaranelli, C. et al. (2000). Prosocial Foundations of Children's Academic Achievement.	To test the relative impact of early prosocial and aggressive behaviours on children's academic achievement and social ties to their peers 5 years later.	Prosocial behaviour has a positive impact on later academic achievement and social preference irrespective of initial academic achievement. Aggression is not predictive of academic achievement and social preference.
Schmidt, J.A. & Padilla, B. (2003). Self-Esteem and Family Challenge: An Investigation of Their Effects on Achievement	To study the link between self-esteem and family challenge, as well as their relationship with two achievement variables, self-reported grades and involvement in extracurricular activities	The results suggest that achievement may precede self-esteem. The results seem to suggest an unidirectional relationship, at least for the period between 10th-12th grade.

Ross and Broh (2000) obtained support for the hypothesis and concluded that the sense of personal control affects subsequent academic achievement, but self-esteem does not. Thus, unless both self-esteem and personal control are included in the analysis, determinants and consequences of one may be erroneously attributed to the other.

Schmidt and Padilla (2003; ID8915) studied the link between self-esteem, self-reported grades and involvement in extracurricular activities. They used pooled longitudinal data collected from two cohorts of students when they were in the 10th and 12th grades, who had been followed for two years. The final sample consisted of 330 adolescents.

There was no longitudinal association between self-esteem at one time point and grades two years later. However, a significant association was found in the opposite direction. Thus, the results suggest a unidirectional relationship, good academic performance leading to better self-esteem.

Ciarrochi et al. (2007; ID1755) investigated the distinctive effects of hope, self-esteem, and positive attributional style over a one-year period on school grades, overall adjustment, and self-reported emotional well-being. They describe high hope individuals as persons who believe they can begin and maintain movement towards their goals and that they can produce plausible routes to the goals.

The participants, who were part of the Wollongong Youth Study, attended five high schools in New South Wales (NSW), Australia. Students were followed from the start of grade 7 (mean age = 12.3 yrs) to the end of grade 7. Around 600 students participated at both occasions. Multi-level random coefficient modelling was used to analyze the data in order to take school clustering effects into account.

The results showed that hope had an effect on academic achievement, while positive attributional style and self-esteem did not. In contrast, the positive variables differed in their ability to predict affective states: self-esteem predicted decreases in sadness and increases in positive affect, hope predicted increases in positive affect, and positive attributional style was predictive of decreases in fear and hostility.

These results suggest that positive traits like hope, self-esteem, and positive attributional style play out in quite different ways in the lives of teenagers. Although they can be regarded as protective factors, their effects on achievement and psychological well-being are clearly quite different and their capacities to build resilience in young people are also distinctive.

Leeson et al. (2008; ID32841) have presented a study which is similar to the previous one, and which is based on partly the same data, but which covers three years, from grade 7 to grade 10. At T1, 784 students (mean age = 12.3 yrs) completed a self-rating questionnaire. It was possible to directly match the data of 639 students (316 males and 323 females) across the three years.

Multiple regression analysis and structural equation modelling was used to examine the utility of academic ability and positive thinking as predictors of academic achievement. In order to assess the impact of positive thinking on academic performance a second order factor was analysed, defined by the three positive thinking variables. The results from the structural equation model showed that there was a weak effect of the positive thinking factor on grade 10 achievement controlling for grade 7 intelligence and gender. However, the multiple regression analysis showed that only the hope variable had a unique effect, while self-esteem and attributional style did not have any effect. In conclusion, this study indicates that self-esteem does not have an impact to academic achievement, while hope does.

Carlson et al. (2000; ID7588) investigated in a longitudinal study conducted in the U.S. antecedent variables of high school adjustment, using direct assessments of social and emotional adaptations prior to adolescence. Parental problem-solving support in early childhood and early adolescence and measures of peer competence, externalizing

behaviour, and emotional health/self-esteem in early middle childhood were examined.

Participants were 173 adolescents whose mothers were recruited while receiving prenatal care, and who were regarded a high-risk groups. The children were followed from birth to high school.

Indicators of externalizing behaviour and emotional health/self esteem were related to later school adjustment, controlling for SES and middle-childhood academic achievement. The effect of externalizing behaviour was negative, but weaker than the positive effect of emotional health/self esteem. However, even though this study shows a strong effect of self-esteem on school adjustment, it must be emphasized that variables representing personal control were not included in the study.

Caprara et al. (2000; ID6476) tested the relative impact of early prosocial and aggressive behaviours on children's academic achievement and social ties to their peers five years later. According to their conceptual model prosocialness has positive effects on peer relations and academic achievement while early aggressiveness adversely affects both peer relations and academic accomplishments.

The study, which was conducted in Italy, included 294 children (166 boys, 128 girls) and employed a longitudinal design, with annual starts for four separate cohorts. The children were followed from third to eight grade and multiple measures of prosocialness, aggression, academic achievement and social preference were collected.

Data was analyzed with structural equation modelling techniques. Early prosocial behaviour strongly predicted subsequent level of academic achievement, after controlling for variation in early academic achievement. Early prosocialness also was strongly related to later social success. Another main finding was that early aggression did not have any effect on later academic achievement or on adolescents' social preference. Caprara et al. (2000) concluded that children's scholastic development may be promoted by creating academically supportive communities that foster mutual caring and social engagement of students in academic pursuits.

4.2.3.2 Discussion

Several of the studies presented above investigate effects of self-esteem on subsequent academic achievement, and most studies fail to demonstrate such a relation (Ross & Broh, 2000; Schmidt & Padilla, 2003; Ciarrochi et al., 2007; and Leeson et al., 2008). Carlson et al. (2003) did find a relation between self-esteem and academic achievement, but this study did not control for other variables which have been shown to influence achievement. Ross and Broh (2000) found that sense of personal control had an effect on achievement. Ciarrochi et al. (2007) and Leeson et al. (2008) demonstrated that the similar hope variable also had an effect on achievement.

However, even though we cannot conclude that there is a direct effect of self-esteem on achievement, we have previously seen that a lowered self-esteem is associated with

increased sadness. This makes it reasonable to believe that there may be an indirect effect of self-esteem on academic achievement via emotional distress.

The Caprara et al. (2000) study showed that individual prosocialness was highly related to academic achievement.

4.3 Discussion and Conclusions

The 51 high-quality longitudinal studies of the relations between schooling, academic achievement and mental health presented above have produced a wealth of empirical results and a rich set of theoretical notions have been proposed to account for the findings. The aim of this discussion is to identify and interpret the main empirical findings.

4.3.1 Effects of academic achievement on mental health

One main conclusion that is supported by this review is that school failure affects mental health in the form of increased internalizing and externalizing behaviour problems. Several studies also show a relation between academic achievement and positive aspects of mental health.

The Hobfoll (1989, 2001) COR theory introduced in section 4.1 suggests several mechanisms that help understand the empirical findings. The most fundamental principle of this model is that loss of resources creates stress, which leads to emotional distress. Several studies discussed in section 4.1.2.2 show that early reading failure causes internalizing problems. One hypothesis is that this is because of loss of self-esteem, which in turn causes emotional distress, and leads to a self-image as a poor learner. According to the Cole (1991) competence-based model of depression, peers and teachers observe academic failures and communicate these to the children. Many of the studies reviewed here have taken a starting point in this model, emphasizing the importance of significant others in the form of peers, teachers and parents in the development of low self-esteem and a poor self-image.

The studies discussed in section 4.1.3.2 also indicate that adolescent school failure causes internalizing problems, but this only seems to hold true for females, even though more research is needed to firmly establish that this the case. The Crosnoe et al. (2007) study indicates that similar mechanisms as those suggested in the Cole (1991) competence model are important here too. However, many other explanations are possible. For example, it is conceivable that threats of loss of a good socioeconomic position via higher education may be of greater significance to young women than to young males.

According to COR theory, investment of resources without the expected gain also generates loss, and this source of loss has been suggested to account for burnout phenomena (Hobfoll, 2001). Within the school context this would correspond to not reaching the level of academic achievement aspired for, in spite of investment of time and effort. This mechanism could thus generate emotional distress at any level of achievement, because ambitions can always be higher

than achievement, even though this would be more likely at lower levels of achievement. The Kiuru et al. (2008) study (see section 4.1.4.2) investigated school burnout, and found, among other things, an overrepresentation of female adolescents with school burnout. Females have a higher level of academic achievement than males, and they invest a larger amount of effort in their studies than do males. Thus, another possible explanation for why there is a relation between academic achievement and depression among females is that they invest a larger amount of effort, which would cause lack of success to be more negative for females.

Several studies reviewed in sections 4.1.2, 4.1.3, 4.2.1 and 4.2.2 indicate that internalizing problems cause development of externalizing behaviour problems, and also that externalizing problems cause development of internalizing problems. These relations indicate that both aspects of mental health need to be attended to in the empirical research, and that clearcut distinctions between effects of academic achievement on different aspects of mental health cannot be done.

According to COR theory gain of resources leads to improved well-being, even though the effect of gain is smaller than the effect of loss. Several studies discussed in section 4.1.3.2 show that academic achievement has a positive effect on self-esteem, which is in agreement with COR theory.

The COR theory also says that children who start school with little resources are more vulnerable to the negative effects of school failure than are children who have more resources. While such interactions have not been explicitly investigated in the studies included in the review it may be noted that several studies of effects of school failure in sections 4.1.2 and 4.1.3 have focussed on samples of students with lower socio-economic background. If there is such an interaction, this implies that studies with an overrepresentation of children with low socio-economic status will yield higher estimates of the effect of school failure on mental health than studies based on representative samples. On the other hand it seems more devastating with school failure for girls from academic families.

4.3.2 Effects of mental health on academic achievement

The studies discussed in section 4.2.1.2 show that internalizing problems have negative effects on academic achievement. Among the explanations proposed for this is that emotional distress impairs concentration, causes absenteeism and trouble with homework, and impairs teacher-student relations. Other explanations focus on lower expectations of teachers and parents on the level of academic achievement of students with mental health problems. Yet another explanation is that depression and anxiety cause students to view their own capabilities in a more negative manner.

There are indications that depression in adolescence has negative effects on academic achievement for females, but not for males, but further research is needed on this issue.

The studies discussed in section 4.2.2.2 show that externalizing problems have

negative effects on academic achievement. One hypothesis to account for this is that externalizing behaviour problems in themselves interfere with effective schoolwork and educational careers. A related hypothesis is that externalizing behaviour problems cause maladjustment in the classroom, because of peer rejection and teacher-child conflict. An elaboration of this hypothesis says that peer rejection and teacher-child conflict give rise to internalizing problems, and that these problems contribute to poor academic achievement. Several studies also identify externalizing behaviour problems as being associated with different types of antisocial activity and risk-taking behaviour in adolescence, which in turn has negative consequences on academic attainment.

None of the studies presented in section 4.2.3 shows a direct effect of self-esteem on academic achievement. Thus, while a high self-esteem may protect students from negative consequences of loss in the form of a temporary academic failure, self-esteem does not influence academic achievement in itself. However, self-esteem correlates with other positive aspects of mental health, such as locus of control, which do influence academic achievement, and indirectly self-esteem.

There may, of course, be many reasons why children and youth are afflicted by mental health problems, which have little to do with school. However, the fact that mental health problems may cause academic achievement problems, which in turn have negative effects on mental health and other areas of life, makes it important to see to it that these negative consequences do not escalate. This may require professional support.

It should also be emphasized that studies investigating effects of mental health problems on academic achievement are underrepresented in the current review, because of the inclusion criterion that the samples should represent normal populations, and not focus on special clinical groups.

4.3.3 Reciprocal relations between academic achievement and mental health

We have concluded that academic achievement influences mental health and that mental health influences academic achievement. At a general level these observations support the conclusion that mental health and academic achievement are reciprocally related. This conclusion is strengthened by results in individual studies. For example, Trzesniewski et al. (2006) demonstrated reciprocal causation between reading problems and antisocial behaviour and they could rule out genetic factors as causes of the covariance between reading problems and externalizing problems. Similarly, the dynamic cascade model elaborated by Dodge et al. (2008) shows how each new developmental era both mediates previous risk and affords new risk for developing both behaviour problems and academic achievement problems.

The conclusion that mental health and academic achievement are reciprocally related is important when it comes to understanding the development of both mental health and academic achievement. One implication is that the reciprocal relations may cause vicious spirals, school failure leading to problems of mental health, which leads to

further school failure, and so on. The reciprocal relations may also cause positive spirals of development, success in school causing improvement in positive aspects of mental health, which in turn improve chances for further success, and so on. It is, of course, an important task for further research to specify in greater detail the nature of the reciprocal relations.

As has already been noted, many studies show that different forms of mental health problems influence each other. Thus, several studies indicate that externalizing problems cause development of internalizing problems, and vice versa. In order to understand the reciprocal relations between mental health and academic achievement, we therefore also need better insight into the relations between different forms of mental health problems.

4.3.4 Stability of problems of academic achievement and mental health

The review makes clear that there are many different observed patterns of relations between academic achievement and mental health, even though it has not been a purpose to describe these systematically. However, one main pattern is characterized by stability of mental health problems and school failure from school start into young adulthood, and a large number of children give evidence of such a pattern. This pattern is identified in the four studies presented in section 4.1.1 and several other studies reviewed here, as well as in previously published reviews (e.g., Gellert & Elbro, 1999; Hinshaw, 1992). It would seem that there are two main theoretical approaches to account for the stability of problems of mental health and academic achievement. One of these traces the source of problems back to individual characteristics of the children that can be observed already in the early years of life. For example, Gellert and Elbro (1999) suggested that early language problems might be an explanation for the stability over time of reading problems and of behaviour problems, and of the relation between them. According to Gottfredson and Hirschi (1990) some children have an inborn or early acquired disposition for low self-control, and therefore become early starters destined for antisocial and violent outcomes, and for school failure. Many explanations of the stability over time of problems in the academic domain also take a starting point in the observation that these children have low IQ.

The other main line of reasoning focuses on processes and mechanisms that have to do with schooling itself, and with social relations in and out of school. Even though stable individual characteristics of the children may be important in these processes and mechanisms, explanations that exclusively focus on stable individual characteristics fail to capture dynamic aspects of the development of mental health and academic achievement.

Reciprocal relations between mental health and academic achievement may at a general level account for the findings of individual long-range stability of these phenomena, because such relations may cause vicious circles. The Hobfoll (1989, 2001) COR

model also includes the principle of loss spirals, which can account for the long-time persistence of school failure and mental health problems. Early school failure leads to loss of self-esteem, which causes emotional distress. This loss in turn decreases the chances of gaining resources in the form of knowledge and skill, and it increases the risk of adopting defensive coping strategies, such as deemphasizing the value of school. As losses increase the children become frustrated and angry and this causes externalizing behaviour problems. These further increase the risk of school failure, causing further loss of both self-esteem and possibilities to gain resources in the form of knowledge and skills.

Even though the pattern of stability seems to be dominating it must also be emphasized that transitions to higher levels within the educational system may offer possibilities for change. Some studies (e.g., Roeser et al., 1999) demonstrate that the mental health problems are reduced at the high school/upper secondary level because other arenas for demonstrating competence and improving self-esteem become available, and because the emphasis on academic achievement may be reduced in some educational programs. Thus, while transitions often imply strain and increased risk for mental health problems, transitions may also offer opportunities for positive change. In this context it may also be noted that the Mahoney et al (2000) study found that participation in school extracurricular activities was associated with reduced rates of early dropout and criminal arrest among high-risk boys and girls.

However, even though mental health problems may decrease over time, many students still fail to achieve expected educational outcomes. One possible explanation of this is that their mental health problems prevented them from acquiring resources in the form of skills in reading and other areas during their first school years. This interpretation is supported by studies which have found that effects of externalizing behavior problems on late educational achievement to a considerable extent is mediated by academic achievement in primary and middle school.

4.3.5 Protective factors and risk factors in the school situation

Many factors influence the risk for developing mental health problems in the school situation. Social relations with peers have in our discussions to a large extent been seen as negative, the peers being mediators of poor self-esteem and agents of social exclusion. It must be emphasized, however, that in the studies reviewed there also is much evidence that peers can have a protective role against development of mental health problems. In section 4.1.4 we review studies which show that availability of close friends protect against the negative effects of school failure on mental health, and that the peer groups' recognition and support have positive effects on mental health. It must thus be emphasized that there are both negative and positive aspects of peers in the development of mental health problems.

There also are risk factors associated with the organisation of schooling, and with the school situation itself. Thus, the Marsh et al. (2001) study showed that the grouping of students affects self-concept, and this study also indicates that the way feedback on

academic achievement is given, and how much social comparisons are emphasized, has effects on student's self concept. It has also been demonstrated that teacher leadership and relations between teacher and students have implications for protection as well as risk.

4.3.6 Resilience and resources

While some children develop mental health problem as a function of adversity, many children do not. The term resilience refers to the observation that some individuals manage to keep mental health despite suffering from severe adversity. Rutter (2006) defined resilience as representing the situation when there are individual differences in the reaction to the same experiences. Thus, according to this view resilience implies an interaction in a statistical sense between organismic variables and environment, which goes beyond the additive effects contributed by risk and protective factors. Rutter (2006) presented examples of such effects involving gene x environment interactions. He also identified resilience effects caused by the way in which external risks are dealt with by different individuals.

Other researchers (e.g., Masten & Obradovic, 2006) seem to use the concept of resilience in broader ways, referring also to additive effects of risk and protective factors. Masten and Obradovic (2006) also emphasized the multilevel nature of resilience, spanning genetic, biological, and behavioural levels, and also including social systems, such as families, schools and neighborhoods.

The concept of resilience is, of course, highly related to the concept of stress, and it is interesting to note that COR theory may also suggest some of the mechanisms involved in resilient functioning. The fact that the model predicts that the consequences of resource loss vary as a function of the level of available resources makes it agree with Rutter's (2006) strict definition of resilience as involving interactive effects.

Some of the factors investigated in research on resilience are competence and motivation systems (Masten & Obradovic, 2006) and these factors can be influenced both by general policy changes and by more targeted interventions. From COR theory it can be predicted that increased resources, for example in the form of increased quality and quantity of teaching, would give more benefit to children who are resource weak than to students who are rich in resources. This is also the pattern of findings which emerges from the research literature (see, e.g., Gustafsson, 2003).

According to COR theory resource loss and gain frequently develop in positive and negative spirals, which makes it important to develop competence early. It is interesting to note that similar conclusions regarding the importance of supporting early skills formation has been reached within the area of economics. Cunha et al. (2006) have formulated a model to explain skill formation according to which skill begets skill through a multiplier process. Skill attainment at one stage of the life cycle raises skill attainment at later stages of the life cycle, and therefore early skill attainment is of the utmost importance. This model thus makes similar predictions as COR theory based on ideas of positive and negative spirals of development.

It must be emphasized, however, that the importance of early skill development does not imply that formal training of reading, mathematics and other basic skills should start already at the preschool level. The reason for this is that formal training implies individual evaluation, and given that any single negative evaluation needs to be compensated by several positive evaluations, and particularly so for resource-weak children, too early formal training may do more damage than good. Instead, early skill development should be done in a non-evaluative manner, and focus on general problem-solving skills, and skills needed to acquire reading and numeracy skills, rather than on the skills themselves. We will return to a further discussion about educational implications in Chapter 6.

4.3.7 Limitations

In spite of the fact that we have covered a large set of studies from different disciplines on relations between academic achievement and mental health, this review suffers from several limitations.

One limitation has to do with the criterion that only studies involving samples from normal, non-clinical, populations were to be included. This has had as a consequence that the research is limited to milder forms of mental health problems, and it may be expected that this in particular has narrowed the research on effects of mental health problems on academic achievement.

Other limitations have to do with the possibilities to make correct inferences about causal relations based on the studies included in the review. Even though the studies are generally of very high quality, longitudinal designs do not guarantee that causal inferences can be made.

One of the inclusion criteria was that there should be an initial measure of the dependent variable, followed by one or more later measurements. While such designs can protect against bias due to time-invariant omitted variables, this requires that the relations between the different measurements have a sufficient degree of stability to protect against the influence of omitted variables. Errors of measurement may be a threat to this. In several, but not all, studies latent variable models of different kinds were used to protect against this threat. Another, and possibly more severe threat, is that different dependent variables have different degrees of temporal stability. Individual differences in educational achievement are highly stable over time, so in the studies investigating effects of mental health over time, good control can be achieved. Externalizing behaviour problems also tend to be fairly stable over time, although less so than academic achievement, while internalizing mental health problems are less stable. This implies that the basis for causal inference of effects of academic achievement on internalizing mental health problems may be weaker than for the other relations studied.

Another problem is that the range and quality of antecedent variables varies greatly over

studies. While some studies include a rich set of antecedent variables covering a long period, other studies are more limited in this respect. Studies, which do not adequately represent antecedent variables, do not offer powerful protection against influence of common factors.

A further problem has to do with how different studies have dealt with the problems of missing data that inevitably afflict longitudinal designs. While some studies have approached the missing data problems with statistical modelling techniques that take full advantage of the available data (e.g., Schafer & Graham, 2002), many studies have used list-wise deletion techniques, which carry risk for bias and loss of power.

Yet another category of problems has to do with measurement issues. Within each of the categories of variables in focus of the review, there is substantial heterogeneity. Thus, academic achievement is measured in a large number of different ways, such as with grades, test scores, and high school drop-out, just to mention a few. Similarly, there is considerable heterogeneity within the different domains of mental health investigated, and the degrees of specificity of the measurements vary greatly over studies.

There also are conceptual problems how to define the different aspects of mental health, and how to measure them. This seems, in particular to be the case for the positive aspects of mental health, in which field there is a somewhat bewildering array of concepts. Different concepts sometimes seem to refer to the same phenomenon, while similar concepts may in fact refer to quite different phenomena. Thus, the three concepts self-esteem, self-concept, and self-efficacy are the most studied ones, and sometimes they are used more or less interchangeably. However, these concepts seem to have different degrees of referent generality, self-esteem referring to generalized views of the self, self-concept to domain-related views of the self (e.g., academic self-concept), and self-efficacy referring to task-specific evaluations of the self. Methods are available to study hierarchically related concepts with different degrees of reference generality (see, e.g., Gustafsson & Åberg-Bengtsson, 2010) and it would be interesting to see these being applied to this conceptual domain.

There are thus great possibilities for improvement of the longitudinal designs to investigate relations between academic achievement and mental health. However, it may be noted that great progress has been made since the Hinshaw (1992) review was published, and given that the increase in methodological sophistication of the studies seems to be accelerating there is great hope for the future.

Authors	Title	Journal	Year	Country	Setting	Theme
Ackerman, Izard, Kobak, Brown & Smith	Relation Between Reading Problems and Internalizing Behavior in School for Preadolescent Children From Economically Disadvantaged Families	Child Development	2007	USA	Primary School Middle school	2
Altermatt & Pomerantz	The Implications of Having High-achieving Versus Low-achieving Friends: A Longitudinal Analysis	Social Development	2005	USA	Primary School Middle school	4
Bennett, Brown, Boyle, Racine & Offord	Does low reading achievement at school entry cause conduct problems?	Social Science & Medicine	2003	Canada	Primary School	2
Brendgen, Bukowski, Wanner, Vitaro & Tremblay	Verbal Abuse by the Teacher During Childhood and Academic, Behavioral, and Emotional Adjustment in Young Adulthood	Journal of Educational Psychology	2001	Canada	Kindergarten Preschool Primary School Middle school Junior high school Secondary school	4
Buehler & Gerard	Cumulative Environmental Risk and Youth Maladjustment: The Role of Youth Attributes	Child Development	2004	USA	Middle school Junior high school	3
Caprara, Barbaranelli, Pastorelli, Bandura & Zimbardo	Prosocial Foundations of Children's Academic Achievement	Psychological Science	2000	Italy	Primary School Junior high school	8
Carlson, Stroufe, Collins, Jimerson, Weinfield, Henninghusen et al.	Early Environmental Support and Elementary School Adjustment as Predictors of School Adjustment in Middle Adolescence	Journal of Adolescent Research	1999	USA	Primary School Junior high school	8
Chen & Li	Depressed mood in Chinese children: Development significance for social and school adjustment	International Journal of Behavioral Development	2000	China	Junior high school	6
Ciarrochi, Heaven & Davies	The Impact of Hope, Self-esteem, and Attributional Style on Adolescents' School Grades and Emotional Well-being: A Longitudinal Study	Journal of Research in Personality	2007	Australia	Junior high school Secondary school	8
Crosnoe, RiegleCrumb & Muller	Gender, Self-Perception, and Academic Problems in High School	Social Problems	2007	USA	Middle school Junior high school Secondary school	3
Daniel, Walsh, Goldston, Arnold, Reboussin & Wood	Suicidality, School Dropout, and Reading Problems Among Adolescents	Journal of Learning Disabilities	2006	USA	Secondary school	3
De Fraine, VanDamme & Onghena	A longitudinal analysis of gender differences in academic self-concept and language achievement: A multivariate multilevel latent growth approach	Contemporary Educational Psychology	2007	Belgium	Junior high school Secondary school	1,3
Dodge, Greenberg & Malone	Testing an idealized dynamic cascade model of the development of serious violence in adolescence	Child Development	2008	USA	Kindergarten Pre-school Middle school Junior high school Secondary school	1

Duchesne, Vitaro, Larose & Tremblay	Trajectories of Anxiety During Elementary-school Years and the Prediction of High School Noncompletion	Journal of Youth and Adolescence	2008	Canada	Pre-school Middle school Junior high school Secondary school	6
Farmer & Bierman	Predictors and consequences of aggressive-withdrawn problem profiles in early grade school	Journal of Clinical Child & Adolescent Psychology	2002	USA	Kindergarten	7
Fergusson & Woodward	Educational, Psychosocial, and Sexual Outcomes of Girls with Conduct Problems in Early Adolescence	Journal of Child Psychology and Psychiatry and Allied Disciplines	2000	New Zealand	Middle school Junior high school Secondary school	7
Finn, Fish & Scott	Educational Sequelae of High School Misbehavior	Journal of Educational Research	2008	USA	Junior high school Secondary school Postsecondary school	7
Fleming, Harachi, Cortes, Abbott & Catalano	Level and Change in Reading Scores and Attention Problems During Elementary School as Predictors of Problem Behavior in Middle School	Journal of Emotional and Behavioral Disorders	2004	USA	Primary School Middle school	2
Fletcher	Adolescent Depression: Diagnosis, Treatment, and Educational Attainment	Health Economics	2008	USA	Junior high school Secondary school	6
Gest, Domitrovich & Welsh	Peer Academic Reputation in Elementary School: Associations With Changes in Self-Concept and Academic Skills	Journal of Educational Psychology	2005	USA	Middle school Junior high school	4
Goldston, Walsh, Arnold, Reboussin, Daniel, Erkanli et al.	Reading Problems, Psychiatric Disorders, and Functional Impairment from Mid- to Late Adolescence	Journal of the American Academy of Child & Adolescent Psychiatry	2007	USA	Junior high school Secondary school	3
Grimm	Multivariate longitudinal methods for studying developmental relationships between depression and academic achievement	International Journal of Behavioral Development	2007	USA	Primary School Middle school Junior high school	2
Halonen, Aunola, Ahonen & Nurmi	The role of learning to read in the development of problem behaviour: A cross-lagged longitudinal study	British Journal of Educational Psychology	2006	Finland	Preschool Primary School	2
Herman, Lambert, Ialongo & Ostrander	Academic pathways between attention problems and depressive symptoms among urban African American Children	Journal of Abnormal Child Psychology	2007	USA	Primary School	2
Hong & Yu	Effects of Kindergarten Retention on Children's Social-Emotional Development: An Application of Propensity Score Method to Multivariate, Multilevel Data	Developmental Psychology	2008	USA	Kindergarten Preschool Primary School Middle school	5
Johnson, McGue & Iacono	Genetic and Environmental Influences on Academic Achievement Trajectories During Adolescence	Developmental Psychology	2006	USA	Middle school Junior high school Secondary school	6

Kiuru, Aunola, Nurmi, Leskinen & Salmela-Aro	Peer Group Influence and Selection in Adolescents' School Burnout	Merrill-Palmer Quarterly	2008	Finland	Junior high school Secondary school	4
Ladd & Burgess	Do relational risks and protective factors moderate the linkages between childhood aggression and early psychological and school adjustment?	Child Development	2001	USA	Kindergarten Preschool Primary School	7
Leeson, Ciarrochi & Heaven	Cognitive ability, personality, and academic performance in adolescence	Personality and Individual Differences	2008	Australia	Middle school Junior high school	8
Mahoney	School extracurricular activity participation as a moderator in the development of antisocial patterns.	Child Development	2000	USA	Primary School Middle school Junior high school Secondary school	3
Marsh, Köller & Baumert	Reunification of East and West German School Systems: Longitudinal Multilevel Modeling Study of the Big-Fish-Little-Pond Effect on Academic Self-Concept	American Educational Research Journal	2001	Germany	Junior high school	4
Masten, Burt, Roisman, Obradovic, Long & Tellegen	Resources and resilience in the transition to adulthood: Continuity and change	Development and Psychopathology	2004	USA	Primary School Middle school Junior high school Secondary school	1
Masten, Hubbard, Gest, Tellegen, Garmezy & Ramirez	Competence in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence.	Development and Psychopathology	1999	USA	Primary School Middle school Junior high school Secondary school	1
Mc Carty, Mason, Kosterman, Hawkins, Lengua & McCauley	Adolescent School Failure Predicts Later Depression Among Girls	Journal of Adolescent Health	2008	USA	Middle school Junior high school Secondary school	3
McGee, Prior, Williams, Smart & Sanson	The long-term significance of teacher-rated hyperactivity and reading ability in childhood: findings from two longitudinal studies	Journal of Child Psychology and Psychiatry	2002	New Zeeland	Preschool Primary School Middle school Junior high school Secondary school	7
McGloin, Pratt & Maahs	Rethinking the IQ-delinquency relationship: A longitudinal analysis of multiple theoretical models	Justice Quarterly	2004	USA	Middle school Junior high school	3
McIntosh, Horner, Chard, Boland & Good	The Use of Reading and Behavior Screening Measures to Predict Nonresponse to School-Wide Positive Behavior Support: A Longitudinal Analysis	School Psychology Review	2006	Canada	Kindergarten Preschool Primary School Middle school	2
McLeod & Fettes	Trajectories of Failure: The Educational Careers of Children with Mental Health Problems	American Journal of Sociology	2007	USA	Primary School Middle school Junior high school Secondary school	6,7

McLeod & Kaiser	Childhood Emotional and Behavioral Problems and Educational Attainment	American Sociological Review	2004	USA	Primary School Middle school Junior high school Secondary school	7
Morgan, Farkas, Tufis & Sperling	Are Reading and Behavior Problems Risk Factors for Each Other?	Journal of Learning Disabilities	2008	USA	Kindergarten Preschool Primary School	2
Murberg & Bru	The role of coping styles as predictors of depressive symptoms among adolescents: A prospective study	Scandinavian Journal of Psychology	2005	Norway	Junior high school Secondary school	3
Needham, Crosnoe & Muller	Academic Failure in Secondary School: The Inter-Related Role of Health Problems and Educational Context	Social Problems	2004	USA	Middle school Junior high school	6
Newcomb, Abbott, Catalano & Hawkins	Mediational and Deviance Theories of Late High School Failure: Process Roles of Structural Strains, Academic Competence, and General Versus Specific Problem Behaviors	Journal of Counseling Psychology	2002	USA	Primary School Middle school Junior high school Secondary school	7
Pagani, Tremblay, Vitaro, Boulerice & McDuff	Effects of grade retention on academic performance and behavioral development	Development and Psychopathology	2001	Canada	Kindergarten Preschool Primary School Middle school	5
Pomerantz & Rudolph	What Ensues From Emotional Distress? Implications for Competence Estimation	Child Development	2003	USA	Middle school	6
Roeser, Eccles & Freedman-Doan	Academic Functioning and Mental Health in Adolescence: Patterns, Progressions, and Routes From Childhood	Journal of Adolescent Research	1999	USA	Primary School Middle school Junior high school	1
Ross & Broh	The Roles of Self-esteem and the Sense of Personal Control in the Academic Achievement Process	Sociology of Education	2000	USA	Junior high school Secondary school	3,8
Schmidt & Padilla	Self-Esteem and Family Challenge: An Investigation of Their Effects on Achievement	Journal of Youth and Adolescence	2003	USA	Secondary school	8
Schwartz, Gorman, Duong & Nakamoto	Peer Relationships and Academic Achievement as Interacting Predictors of Depressive Symptoms During Middle Childhood	Journal of Abnormal Psychology	2008	USA	Middle school	4
Siennick	The timing and mechanism of the offending depression link	Criminology	2007	USA	Middle school	7
Trzesniewski, Moffitt, Caspi, Taylor & Maughan	Revisiting the Association Between Reading Achievement and Antisocial Behavior: New Evidence of an Environmental Explanation From a Twin Study	Child Development	2006	Great Britain	Preschool Primary School	2
Undheim & Sund	School factors and the emergence of depressive symptoms among young Norwegian adolescents	European Child and Adolescent Psychiatry	2005	Norway	Junior high school Secondary school	3

5 PERCEPTIONS OF MENTAL HEALTH AND SCHOOLING AMONG SWEDISH CHILDREN AND ADOLESCENTS: A LITERATURE REVIEW OF QUALITATIVE REPORTS

5.1 Background

The project included a review of Swedish research that could give a picture of children and youths' views of mental health and well-being related to school and educational situations.

Strong recommendations have been made in previous research about the importance of gathering young people's views on mental health and well-being (Harden et al., 2001). One reason for this is that it is necessary to establish what mental health and well-being mean for the children and youth themselves. It cannot be taken for granted that they define these constructs as the professionals and researchers do, and they may not recognize the results as relevant, if the researchers' definitions differ from their own perceptions and experiences. Moreover, one of the key articles in the UN Convention of the Rights of the Child (CRC) declares that children have the right to express their views in matters that affect them and that these views should be given due weight (United Nations, 1989, article 12).

Ethical reasons thus make it necessary to investigate the experiences of children and youth. The experiences reported by the children can also confirm the results from quantitative research, or their perceptions can contribute to better interpretations and a deeper understanding of the consequences of the presented results.

Another reason that necessitates a review of studies presenting children' s and youth's own views, is that a large part of the studies in the principal literature review do not investigate the situation of Swedish children and youth. Cultures and educational systems differ in many ways, and given that the Swedish school system is in the focus of attention for the review, it is necessary to bring the Swedish school into the picture. One way to do this is to present information from active participants in the Swedish school on their own experiences.

The characteristics of the curriculum, the modalities of testing, grading, the procedures of streaming, tracking and selection, the rules for gaining access to further education, the taxes to be paid by the families to access education, the management of the school are elements of a framework that varies between countries and may thus exert different impact on the well being of students. Yet it is relevant to bring together the evidence from studies per-

formed in different countries, since we make the assumption that the developmental needs of the individuals, the desirable goals to be achieved (well being, happiness, joy, self-confidence, participation, mastery etc.) are universal human goals. We make also the assumption that the characteristics of good social interactions and healthy developmental processes in education are similar everywhere. Nevertheless, the concern for a better understanding of the specific Swedish educational condition compelled us to make an investigation in the local educational and cultural context. This investigation can help to fill out the picture emerging from the international studies reported in the first part of this review.

Finally, a literature review of studies presenting Swedish children and adolescents' perspectives could enrich the results presented in this report with the insights that studies using other methodological approaches can contribute. The reports, theses and dissertations searched in the literature review presented in this chapter use various qualitative methods, which can complement the predominantly quantitative methods employed in the longitudinal studies presented in chapter 4.

To summarize, the motives of conducting the review of studies reporting children's and adolescents' perspectives on these matters derive from the ethical motive to consider them as subjects, from the need to take account of the Swedish specific cultural and educational context and to gain advantages and enrichment from the juxtaposition of results on the same matter from studies employing various methods.

The theoretical framework proposed by Rutter (2002) describing individual, environmental and developmental risk and protective factors is employed for structuring the contents of the review.

5.2 Aim

The objective of this literature review is to gather perceptions and views of Swedish children and adolescents concerning their mental health and well-being in relation to their experiences of learning situations and schooling. The objective thus is to collect testimonies and voices of children and adolescents on the subject of mental health and well-being, related to their experiences of school.
Drawing conclusions about causal relationships or weighting the importance of the evidence collected are not falling into the scope of the present analysis, but rather to gather testimonies from the Swedish educational context that can give indications of the experience of well being and mental health in this specific educational context.

The results of this review can be put beside the results from the overview of longitudinal studies and be used to interpret those results in the Swedish context.

The specific questions that the review wants to answer to are:

• What are the experiences and perceptions of mental health and well-being of Swedish children and youth that have been collected in empirical studies during the last ten years?

• What are the protective factors for children's mental health and well-being in their learning environments?

• What are the risk factors for children mental health and well-being in their learning environments?

• What individual risk and protective factors can be identified through the literature review?

5.3 Method

In this systematic review the research questions as well as the nature of the field of research led to a broad search for studies giving voice to children and adolescents. The same general strategy was used in this part of the research endeavor. The use of qualitative studies in connection with the review of longitudinal quantitative studies denotes this program as a mixed methods approach since both narrative and numeric data is used. Moreover, the qualitative methods should be thought of not as an inexpensive alternative to large surveys, but as tools to collect information that is difficult to gather and analyze quantitatively (Teddlie &Tashakkori 2009). There are also well-developed strategies for improving the scientific merits of qualitative research and methods (Patton 2002) as well as methodologies in for the review of qualitative studies (Petticrew & Roberts, 2006; Spencer, Ritchie, Lewis & Dillon, 2003) with examples of applications to studies of people views (Harden et al. 2004).

5.3.1 Criteria for inclusion of studies in the review

The review includes studies that collected the views of children and youths through individual interviews, focus group interviews, observations, texts, phone conversations, internet messages, surveys, drawings and other similar means. We required also that the studies should report directly the views of children through the quotations of written or oral statements. Studies that were only based on fixed survey answers were not included in the review. Studies where the experiences of children were reported only by adult informants (researcher, parents or teachers) were not included.

To be included, the study had to treat contents related to both educational situations or learning environments on the one hand and mental health or well-being on the other hand. We excluded studies if they just treated mental health issues without any reference to educational settings, learning, peers in school, teachers,

schoolwork, educational practices, etc. Similarly, we excluded studies that treated children's experiences of school without references to their mental health, well-being or self-concept.

To determine which contents were to be considered pertinent to mental health and school we took a starting point in the conceptualizations made in the main review of literature and reported in chapter 2 and specified in the full text protocol (appendix 8.1, page 175). The conceptualizations of each of these constructs are broad, but we required that both mental health related and school related aspects should be clearly evident in the study.

In order to be included the study should reflect the experiences of children living in Sweden. We therefore excluded studies written in Swedish that describe the experiences of children living in other countries.

5.3.2 Search strategy

The same multiple databases that were used for the main review were selected. CSA, EBSCO, OVID were searched with broad population strings that were adapted to the search terms of each database. Details on the databases searched and the search strings used are available in the Appendix (document available online atwww.buph.se).

The population strings were also completed with terms concerning school type; the reason for that is that this was the best strategy to find studies concerning children, given the indexing features of certain databases. The methods of interest for this review were identified with a broad search strategy adapted to the features of each database, concerning the kind of methods employed (interview, observation, field studies, narratives, etc.) but also to the kind of contents that we looked for: experiences, attitudes, beliefs. However, these terms were not searched in all fields, but in defined fields (Descriptors, Subjects) in order to increase the specificity of the retrieved materials.

The search required that the studies should have been conducted in Sweden, searching for the terms "Sweden" or "Swedish" in several fields (title, abstract, in certain databases, identifier, or even in "all fields"). These three strings (population, content, national context) and the requirement of peer reviewed articles were combined. The searches retrieved an amount of references in each database that could be manually searched in the next phase (title and abstract) to find articles that could be relevant for the themes of this review. The articles that were found to be potentially interesting were directly exported to a literature database in RefWorks.

The contents concerning mental health and well-being were not searched by means of a particular string, because this strategy would have resulted in a too

limited number of references retrieved. Several searches were tested, but they failed to retrieve relevant articles of interest for the purpose of this review because they were not indexed with terms like "mental health" or "well-being".

Searches also were made in the national library catalogue (LIBRIS) and a national academic database (DiVA) which includes doctoral dissertations, written in English or in Swedish, reports from agencies and non-profit organizations and theses from universities. In these databases the searches were limited to the period 2000-2009. Further searches were performed in the websites of Save the Children Sweden, The Swedish Board for Youth affairs, The National Agency of Education, and similar agencies.

5.3.3 Methods of the review

The main searches were performed in May 2009. Some manual additions were made during the fall of 2009. The titles and abstracts of the imported references were reviewed, resulting in about 100 references that were then retrieved in full text and screened (see Figure 1 for the reference flow). In this phase references were excluded from further analysis if they did not consider aspects related to school or learning situations (N=22), if they did not consider aspects clearly related to mental health and well-being (N=20); if they did not report data on the experiences of children and youth from their own perspective, or if they did not provide any quotations from the informants. This last criterion was applied with a few exceptions when the content of studies was particularly relevant to the purpose of this review.

For a limited number of references, other reasons for exclusion were that the studies were not available, not unique or did not concern Swedish children. The characteristics of the references included were coded and tabulated (see Table 5.2, page 152-154).

5.4   Descriptions of the studies

The 38 studies included in the review are peer-reviewed articles (N=7), doctoral dissertations (N=10) scientific reports from universities, agencies and organizations (N=7) and academic theses (N=14).

The academic discipline of Educational Sciences represents about a third of the studies. Special Education and/or Disability studies contribute nine references, while Public Health, Pediatrics and Psychology have contributed six each. Other disciplines represented by a few studies are Social work and Youth studies. One study was classified as having an interdisciplinary approach.

Researchers and students from fifteen different Swedish universities and colleges are represented in the reviewed reports.

A large majority of the studies used interviews as data collection method, sometimes in combination with other methods. Other methods used were surveys, observations, narratives, analysis of drawings, chats and phone calls.

Studies reporting the views of pre-school children are not represented in this review. In some studies the participants were older than 19 years, but they retrospectively reported experiences from their previous time at school.

More than 50 % of the reports included in the review were published during the last years (2007 and 2008), which indicates an increasing interest for the themes of this review in the last few years.

5.5 Thematic overview of the studies included in the mapping

The review of the references in full text was made with the aim of identifying contents relevant for this review and in particular for the relationship between mental health and educational situations or school attendance in a broad sense. Several studies included had another main focus and other questions to investigate. In this case, only the contents of relevance for the present overview were considered.

Four main fields were identified (see Table 5.1). The themes are defined as General experiences, Protective experiences, Risky experiences and Individual risks. The two themes labeled general and protective experiences and individual risks are somewhat less well represented than the theme labeled risk situations.

Within the General experiences theme, studies are found that describe how children and adolescents typically and in general terms perceive mental health and well-being in relation to their educational experiences. The second theme of protective experiences in educational environments is represented by activities, supportive relationships and the opportunity to experience positive emotions like enjoyment, responsibility etc. The theme of negative experiences related to educational situations are for instance tests, academic press, stress, school failure, difficult relationships, and victimizations. The fourth theme, called individual risk, concerns the experiences of schooling for children and adolescents experiencing problematic situations on their own or who are exposed to other risk conditions, increasing the risk for stigmatization or discrimination, such as family problems, mental illness, or disability. The studies included can have relevant contents for more than just one theme. Therefore results from the same study can be referred on more than one thematic field.

The quotations of the children and adolescents have been translated from Swedish when necessary. Sometimes the punctuations and the transcriptions of the verbal utterances have been slightly adapted to make the style of the quotes more homogeneous.

Table 5.1 Thematic overview: main themes and identified contents of the mapping

	Themes	Contents
1	General experiences of mental health and educational situations	Children's and adolescents' general views; well being; emotions; good deeds, self-concept, stress, choice situations
2	Protective experiences for mental health of students in the educational environment	Activities; achievement; enjoyment; mastery; responsibility; supportive relationships with teachers; supportive relationships with friends; participation
3	Risky situations of students in the educational environment with implications for mental health and well being	Tests; academic press; academic expectations; comparison, stress; developmental meetings; school failure; lack of meaning, lack of adaptation, unfairness; unsatisfactory relationships with teachers and peers, conformism, alienation; victimization; exclusion
4	Individual risks with implications for students' mental health and educational situation	Disability; experiences of special educational settings; stigma; family problems: abuse, addiction; mental illness; marginalization, body image

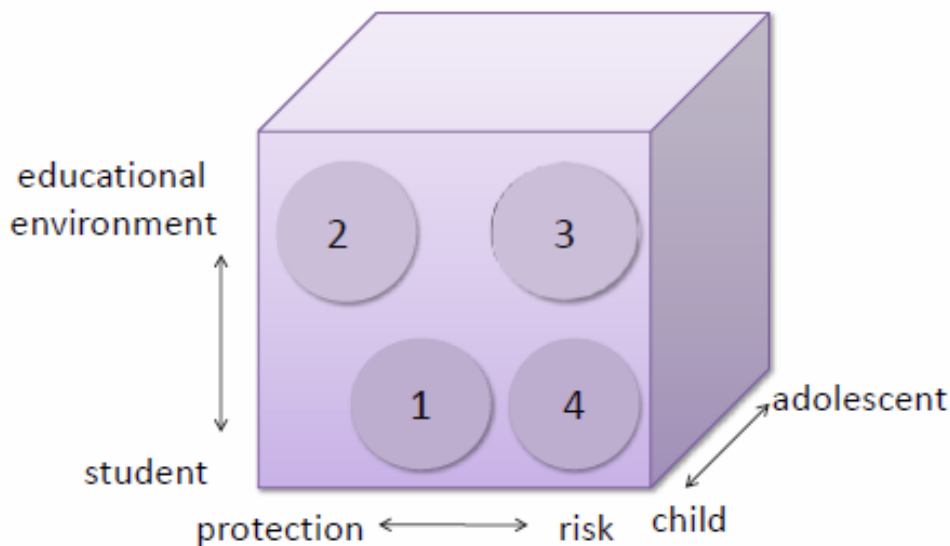**Figure 5.1.** Themes identified in the included studies in a visual representation of the adopted theoretical framework: protective and risk factors, related to individual and environmental characteristics. The third dimension is the developmental.
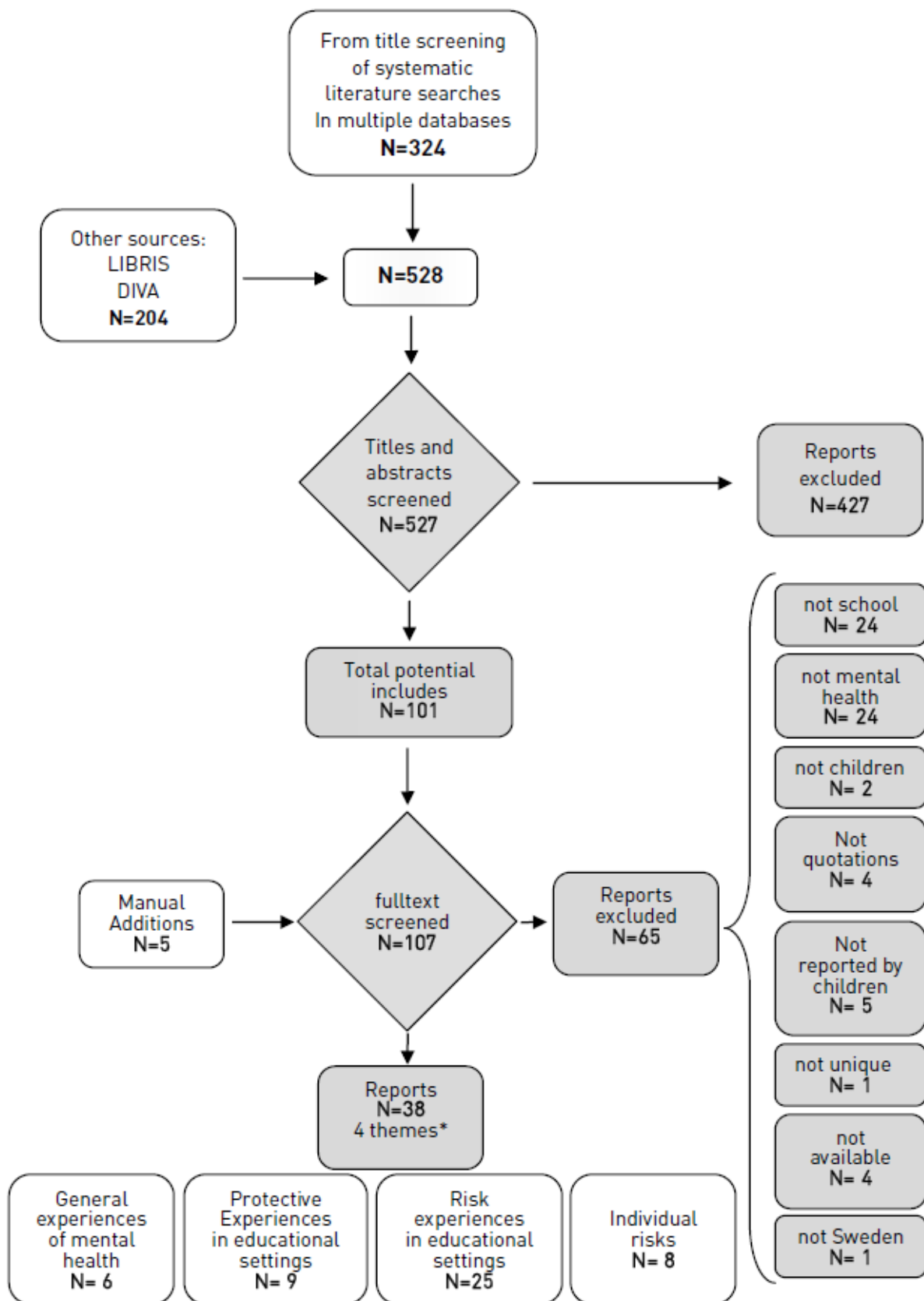
Figure 5.2 Reference flow: the review of qualitative studies about Swedish children and aadolescents.
* The same reference may represent more than one theme.

In Figure 5.1 a schematic model of the themes of the review is presented. Theme 2 is concerned with protective factors in the educational environment, theme 3 with risk factors in the educational environment, and theme 4 with particular risks at the individual level. Theme 1 is placed in the lower part of the model since it is concerned with perceptions of students about themselves. The developmental dimension is not being used in the presented categorization, but could be added to sort the contents of the studies developmentally, from infancy to late adolescence, with the corresponding types of educational environments.

5.6 Review of the studies

5.6.1 General experiences of mental health and well-being

In this section are reported studies that were concerned with children's perceptions of mental health and well being, and particularly with the relations between well being and educational aspects (system, environment). The results are concerned with the relationship between mental health and school, and are expressed in rather general terms, without strictly personal narratives. However, the boundaries between personal and general can to some extent be difficult to draw and may therefore be perceived as arbitrary in some case, for instance when the student makes a general statement about school that is based upon a personal experience. Another definition of the results reported in this section is that they point at general characteristics or features of the educational system that can give rise to general reactions and common experiences in the students.

In a study on Swedish adolescents' perceptions by Johansson, Brunnberg and Eriksson (2007) mental health is defined as a multidimensional and complex concept. Health can be considered as the opposite of disease, on a continuum from two opposite poles, but health and disease may also be viewed as two independent dimensions that are coexisting at the same time. Another observation made in this study is that young people can tend to underestimate and trivialize their problems with health and well being in comparison to those of adults.

In this study, the adolescents saw mental health as emotional experiences. The emotions were internal feelings as well as relational feelings towards other people. Mental health is how you feel, and in some case, how you think.

> *You don't feel well, you don't have any friends and so on. (Focus group, 13 years old, boys)*

> *...feeling well in your brain, that people care; then you feel happy. (Focus group, 16 years oldgirls)*

> *Feeling sad is part of mental health. If you feel bad you can be very unhappy. (Focus group, 16 years old boys) (Johansson, Brunnberg and Eriksson , ibid.,187-188)*

The positive emotions related to mental health were internal and relational. Among the internal positive emotions the children named the feeling of being happy, but even the themes of having fun, and laughter.

A feeling of harmony at school and in other environments was important. This means that you do not need to worry and you can feel powerful:

> *You have the strength to do anything and you want to socialize with people without wanting to go home and so on. (Individual, 16 years old, girl) (Johansson, Brunnberg and Eriksson , ibid., 188)*

Some boys in this study identified mental health as "feeling no stress, being calm and not having to do things you do not understand" (ibid. p. 188). Other positive feelings were the feeling of being a good person, i.e. making good deeds for other people and the feeling of having good self-confidence.

The positive emotions that were of relational type were categorized into three groups: feeling of being well liked, being loved by your parents, and having people to talk with. Good friends are very important to both boys and girls.

> *. . . if you have real good friends, you don't feel lonely. (Individual, 16 year old, boy) (p. 189)*

Among the negative emotions, the children described internal and relational emotions.

The internal negative emotions were a feeling of being unhappy, of lack of meaning and hope, of being stressed and of having negative self-confidence (ibid. p. 190). Being unhappy was also described with the expressions of being depressed, by having feelings of anxiety, that things are heavy, thinking negative thoughts, having no energy, and feeling tired. The boys also expressed the feeling of not being social, being irritated and dejected. Lack of meaning and lack of hope was expressed by the girls, while a boy expressed the relationship between feeling miserable and suicidal thoughts.

Hopelessness, low self-confidence and withdrawal were related to the experience of bullying. Having low self-confidence was equivalent to having poor mental health, according to the children. Especially the older boys expressed the feeling of stress as a negative emotion. Negative emotions can be expressed in various ways according to the children: not coming to school, not eating, start smoking, having a head ache. Boys also named as expressions of poor mental health being mean and bitter, being angry, irritated and shy. (p. 192).

One of the conclusions of the authors is that family, friends and school are determinants of mental health (Johansson, Brunnberg and Eriksson, ibid.). This means that the necessary conditions for feeling well arise and begin in the relational contexts of the children and adolescents. School seems an important part of adoles-

cents' life, although usually after family and friends. What was mentioned at school in relation to the children's mental health were mainly the friends and the teachers, but also other people like the school nurse and the social welfare officer could be mentioned.

The children expressed well what characterizes a healthy school in their view:

> *The adolescents had a lot of different opinions about what constitutes a good teacher. Teachers should be kind, patient, helpful and caring. They should be social and not too task-oriented and be able to create some order. Everybody should respect each other. The girls as well as the boys mentioned that the school building should be a nice place to be in, and tidy and clean. This could influence your mental health. There should not be broken things at school, according to some boys. It also matters that you get good food at school. Places where you can sit and talk are needed. School can also be negative. When the girls talked about bullying, they meant that this was something that mainly happens at school. (Johansson, Brunnberg and Eriksson, p. 195).*

It is interesting to note that, in addition to teachers and friends, the various physical characteristics of the learning environment can also be perceived as caring, healthful, nourishing and thus beneficial for the children.

In a study investigating the experience of school of students in middle school (Alerby, 2003) one of the themes identified was the theme of feelings related to school. The experiences of school were expressed by the children with a great number of feelings. There were many nuances, but the principal types were enjoyable and boring.

> *I don't like school so very much . . . just sitting and doing maths, almost like a prison. The law says you have to go to school, but sometimes it is terribly boring. (…) (Alerby, ibid., p. 24).*

When the educational experience is perceived as coercion, as a due obligation without meaning, then the effect of the educational environment on the well-being of students becomes essentially negative.

In a report on youth health from the Swedish National Board for Youth Affairs there is a chapter based on 55 texts written by young people about their perceptions of mental health and well being. The participants responded to a web based survey conducted in collaboration with a popular web community (Lövheim, 2007). Three main themes emerged in the analysis of what represents a threat against mental health. One theme is relationships and events in the family and in the social network; the second theme is the situation at school and the third is represented by personal circumstances such as sickness or accidents.

What happens at school has an impact on the well being of the adolescents: to be harassed and rejected at school are painful experiences and threats against self-worth. It is also a negative experience when the teachers show that they do not care, even if they see that something is wrong. A common problem in many stories is also the perceived stress about school tasks and grades and how the performance demands may affect the self-esteem.

> *At the moment it's just crap at school because I went to a wrong program and I don't know what to do anymore. Bloody teachers they underestimate you all the time, one feels not worth anything anymore. (Lövheim, ibid., p. 45)*

There could be a relationship between the performance stress and the feeling of responsibility to shape their future, and prove their true value through their educational career. Lövheim suggests that there are differences between girls and boys in how they react to school stress in these submitted texts. Boys seem to be able to turn their anger outwards, while girls tend more often to attribute the stress to their own interiorized expectations (Lövheim, p. 52).

Haraldsson (2009) focused in a dissertation on the feeling of stress, and on what girls saw as helping them buffer stress and make them feel well. Emotional support and safety made the girls feel trust, and gave them the self-confidence to resist stressful situations (Haraldsson, p. 52). Their possibility to be involved and having a say in important matters, for instance in schoolwork seemed vital for their well being. On the contrary, low participation in decisions about important matters could lead to feelings of being reduced to objects. The girls could feel schoolwork as an obligatory duty that is required in a social context not characterized by nearness. In this specific context, the stress was thus perceived as dismay and demoralization (Haraldsson, 2009, p. 53).

In a thesis in psychology, Westerlund (2009) studied the imaginary future scenarios of seven boys in grade 9. They emphasized that they feel responsibility for what they will do in their life. Some of them said, though, that it could be difficult to avoid to be influenced by other people's opinions.

> *People can make you feel sick, they can sink your self-esteem a lot, but actually you should not care about that. But it's really difficult to not care about what people think. You [end up] thinking that you are bad even if you are good. (Westerlund, ibid. p. 17)*

Children and adolescents with various experiences and background enter and attend educational settings that belong to an educational system with similar and largely homogeneous characteristics. The educational environment can be an arena for social, emotional and cognitive experiences, relationships and accomplishments that are enriching the individuals, and increase their well being.

The results of these meetings can vary greatly, however, and some problematic aspects can be identified. The freedom of the students is limited by time schedules and fixed requirements in several subjects. They are exposed to the evaluations and judgments of teachers. They may meet great difficulties in learning subjects that cannot be avoided. Often they cannot entirely stay away from people in their educational environment that are perceived as hostile or unfriendly. Their perceived status and self-confidence can be under attack. These characteristics of educational environments make them a potential menace against their self- concept, well being and mental health. In these cases, education contributes to the students' development of impoverished identities (Westling Allodi, 2002).

The results of the studies reviewed in this section are concerned with general aspects of mental health for children and adolescents (emotions, feelings, relations etc.) and how they are related to their experiences in educational situations.

School is viewed as a determinant of mental health. In particular, friends, teachers, learning environment, physical environment and nourishment are contributing to mental health and well being. There are also general structural characteristics of the educational environment that may affect well being in different directions: performance, evaluation and feedback; freedom of choice, and responsibility for the future can be perceived positively or negatively, depending on the quality of the evaluations and by the degree of freedom. Some students may perceive school attendance as coercion, as obligatory duty. In their eyes, school stand out as a social environment where they have to submit to an external rule and where they get no authority.

5.6.2 Protective experiences in educational environments

In this section we review studies that examine protective factors more in detail. There are characteristics in learning environments that have been related to positive outcomes for students' well being and mental health. In this section they are grouped into the main themes: a) relationships and understanding b) success and mastery c) activities and safety.

Relationships and understanding
In a study of adolescents that experienced emotionally difficult family situations (Benjaminson, 2008), the support of a teacher and a good friend could help a girl come back to school and find the energy to complete her secondary education.

> *It was more difficult at the secondary school. The expectations are much higher and everything I had got through. It was too much; in the end, I could not carry it any longer. I stopped go to school and was away a couple of months. None understood why, they just thought I was tired of school. An older friend said: you have to try, and make me feel that I have to manage this. Otherwise there is no way out. I got a really great support from my teacher and now it is going fine. (Benjaminson, ibid. p. 138)*

In a study of young persons with dyslexia, the majority said that the dyslexia did not affect negatively their relations with peers. On the contrary, thanks to having good friends at school, their experience there had been somewhat positive (Ingesson, 2007):

'The best moments in school were the breaks' (...) 'the only thing I enjoyed was playing with my classmates'. (Ingesson, ibid., p. 582).

In a study of adolescent girls' perceptions of well being and mental health, the social relationships with a network of friends and the family were considered very important for their well being (Berge Holmbom & Bokenstrand, 2007).

Secondary school students attending mathematics lessons in streamed groups were asked about their opinion about streaming, which is a common practice in many secondary schools (Engholm, 2006). Some of them emphasized that they preferred to do math work with their friends, and in mixed groups:

It should be allowed to have Math lessons with your buddies.

It would be better with mixed groups.

I lose focus without my friends, without them I feel anxious and worried (Engholm, ibid., p.28).

A student in secondary education expressed that she appreciated teachers that can establish personal and caring relationships with their students (Ekström, 2008):

Teachers here are significant; they really are, because you can talk to these teachers even if they don't have a lesson with you. You can go in to them and talk, just to talk and I think it's important. They really care if you are having a hard time. (Ekström ,ibid., p. 21)

Important characteristics of a supportive teacher are according to the students that the teacher has had a good pedagogy, believes in the students' potential, never gives up and always keeps helping them (Ekström, ibid. p. 22).

In a thesis, Lundberg (2006) interviewed four students in secondary school, who had experienced difficulties at school earlier, about their perception of their educational situation and the support they received. The relationship with teachers has been decisive for the well being and motivation at school of these boys:

Before I was so angry about school and I couldn't understand how they could put me down so badly, I am a human being after all. Then I came here and it went fine, so I started to think, I need this to get a job, I never thought that before. (F.) (Lundberg , ibid. p. 18)

If I hadn't met these teachers, I would have given up everything (p. 19)

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

The teacher is important. If you get along with your teacher, you may resolve all your problems, or almost. (M. ibid. p. 22)

The relationships with their friends were also of great importance for their well being and their commitment to school work:

Friends are important for how you feel. If you are sad, they can pep up and they can also pep up you to get a better grade and such things (...) D.

You go to school to be with your friends and get that feeling (...).F

You may as well go to school, because all your friends are there and someone may need you (...) F. (Lundberg, ibid. p. 23)

For students attending a special secondary program, the relationship with the teachers was an essential starting point in order to regain self-confidence and dare to believe in themselves and in their possibilities, as reported in a dissertation (Hugo, 2007, p. 86). The students - who had in common failure during junior high school - needed to develop trustful relations with their teachers and to work with meaningful activities, which means that the activities should result in tangible accomplishments in real life (Hugo, ibid., p. 132). They were not easily motivated by the extrinsic motivation of grades or pure paperwork, but they seemed to require a more intrinsic and meaningful purpose for their efforts.

The study by Hugo shows that students' attitudes to school work could change consistently over time, and that they eventually could come to experience educational success, but also that this process could take time and require much effort. It also requires teachers that firmly believe in their students' competence and prospects.

If the teacher understands me, then I feel good and it easy to work, so we can have a good relation. (Hugo, ibid. p. 167)

Lind (2009) in her thesis interviewed four young women about their earlier mental illness and the paths (strategies, resources) that took them from illness to well being.

I had anxiety, angst, shame, guilt, fear of everything. They were there grinding all the time and to dampen this, I took alcohol, drugs and cut myself. (Lind, p. 26)

Their paths to well-being were characterized by turning points, by their taking responsibility for changes, by their adopting other strategies to handle their problems and by the intervention of important people in their lives. For one of these women,

Tina, the school welfare officer and the school head of her secondary school had been such important persons:

> *I could sit there and read my lessons. She took the time to listen. Another time we drove to the shop and bought cups, plates, a bowl and other things that you need in the apartment. (...) She engaged herself so much more than just in my mental well being. (...) She was there both mentally and physically. I thought that it was wonderful. (Lind, ibid., p.30).*

The school head had made her feel cherished. She showed that she liked her and went out of her way to help her, which had a great significance for Tina.

> *I could go there [to the school head] tomorrow and she would call me by my name. "Hi Tina, it was a long time ago. How are you?" I get a feeling that she is always happy to see me, when I go see her. (Lind, ibid. p. 31).*

Success and mastery

The school situation was also identified as important for the well being of students, among other factors as physical training and extra-curricular activities, in a study by Berge Holmbom and Bokenstrand (2007). The educational situation was identified as positive for their well being, when they experienced success and positive results, feeling the empowerment that achievements and increasing competence can give. Other girls felt that they were happy with school when the workload was just right, and they felt that they could manage adequately the school situation

> *You need to learn many things to feel clever. It can be very nice to possess as much knowledge as everyone else, and be able to talk and participate in conversations. (...)*

> *Having too much work to do at school makes you stressed out and you think that you have not time to do the things that you want to do and would make you feel good. (Berge Holmbom and Bokenstrand ibid., p. 23)*

In a study where 185 students from 16 schools described their school situation with texts (Westling Allodi, 2002) the teachers' characteristics were important for the quality of instruction, the cohesion in the group and the children's well being. Activities and relationships with classmates and friends were also important events in their narratives about their life at school. Feelings of pleasure and happiness were often presented when the children told about creative activities at school in which they participated, did things together, communicated and were successful.

> *It's great at my school. I really like it there. The teachers are nice and all the children are helpful. And I think math and English are best. And the food's nice ... and I also like being outside and breaks are fun and there are always loads to do. (ibid.. p. 193)*

*I like school. School is the best thing I know and I really really love working
at school. And it's fun at school and the breaks are fun. My favorite subjects
are Maths, Swedish, social subjects, students' choice and breaks, visual arts,
reading books and swimming, sports, ice hockey, bandy, football. And our
teachers are kind if you are kind yourself. School is my best subject.* *(p.193)*

The texts suggested that the children thought that being in a supportive social envi-
ronment, working with meaningful things and creative activities could help solving
problems, feeling well and being happy.

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. (Westling
Allodi, p. 199)*

Activities and safety

A student from a troubled refugee family expresses that school attendance has an
important function for him, in a dissertation about students from refugee families
(Wigg, 2008)

*My mother (...) she can't work (...) actually she would really like to work
because it's boring to be at home all the time. She is completely bored and she
feels (...) depressed all the time. (...) I don't know how I would feel if I couldn't
go to school, sometimes when I am sick, I go to school anyway, because it's
boring at home and you have nothing to do there. (Wigg, ibid., p. 83)*

It appears in this case that school can became a healthy haven, a place filled with
activities that make you feel engaged and purposeful.

5.6.3 Risky experiences in educational environments

In this section the school experiences perceived as being related to negative out-
comes for well being and health are presented.

In a survey study of living situation, school stressors were associated with pain and
psychological complaints in a nationally representative sample Swedish students
aged 10 to 18 (Hjern, Alfven and Östergren, 2007). Harassment by peers, pressure
with school work and poor treatment by teachers were associated with sadness,
irritability and feeling nervous, and also with various types of psychosomatic prob-
lems as frequent abdominal pain and head aches.

In an analysis of children's texts about school cited previously (Westling Allodi,
2002) the problems at school stemmed from a lack of influence and lack of stimu-

lation that made the children bored and unhappy, as well as from a 'wrong' kind of stimulation that foment stress, or moods of anxiety, demoralization, deject, feelings that are related to failed accomplishments. Furthermore for children in this study the educational environment was a place for social interactions and where their own activities were central, not the curriculum, the evaluations, the educational objectives or the grades.

The absence of statements in the texts concerning these technical aspects of education is interpreted in the sense that the issue of achievements at school is presented just as a personal issue: this implies that school difficulties experienced in the learning environment are presented and experienced as personal difficulties and individual failures. Their reactions to problematic situations were of different kinds. Some kept struggling despite the difficulties, some reacted compensating with other activities and interests and tried to defend their self-esteem, while others seemed susceptible to the school's negative feedback, feeling inadequate, sometimes worthless. They risked to be mortified by their failure and even developing a depressive stance.

> It's not going very well, but I keep trying to learn (p. 198)

> It's boring at school. It's difficult to listen to lessons. (...) During breaks we play football and arrive late for our lessons. The homework is so difficult because it's so much to read. I don't eat much. We get too little. I forget the homework I've been given. (p. 190)

> Usually there is nobody for me to play with at break-time. There is too much noise in the classroom, otherwise everything is OK. (Westling Allodi, ibid. p. 197).

There are features in the educational environment that have been associated with the risk for negative consequences for students' well being. They are illustrated in the following studies with several examples that are grouped into some main themes: a) school difficulties and special educational interventions, b) school difficulties and lack of adaptation, c) competition, comparison and control, d) social life, e) choices and opportunities

School difficulties and special educational interventions
The students experiencing difficulties with school work express that they need help, but the special educational help is often offered in ways that are perceived as stigmatizing or imply an embarrassing separation from the peers. In a study of students with learning difficulties (Heimdahl Mattson, 2008) they expressed that the diagnosis they received (dyslexia) was a relief, but they were not always satisfied with the special support offered, particularly when it implied that they were identified as different, in a negative way. A boy expressed the following experience:

> The first time I went there (the special educational group) I asked the permission to go the toilet and then I left and did not come back, because it felt

*so stupid to be there. I felt like I was very dull. (...) You don't want to be
weird, you want to be normal (Heimdahl Mattson., p. 18).*

Another student felt that the learning difficulties affected him negatively, but also
that the placement in a special educational group itself was lowering his social sta-
tus with the peers, without offering alternative social advantages.

*In the beginning it was better with the others (in the special group), but later
on, I was completely on my own at the breaks, (because) the others became
just more and more nuts. (...) My buddies make fun of me because I don't go
at the same school as them. They think that I am not cool because I cannot
read, I am bad at math (...). They think that I am just a little piece of crap
(Heimdahl Mattson ibid., p. 22).*

The placement in a special group where the academic expectations were extremely
low and not adequate to the educational needs of the student had caused perplexity
in this boy at that time, and evoked frightening feelings afterwards:

*Just thinking about school makes me shivering. It is good that it is over. (Heim-
dahl Mattson ibid., p. 24).*

Being offered academic activities far below his capacities was startling, since it
meant that the teachers in charge of his instruction "had no idea about what they
were doing", and yet, he was in their hands.

Going for several years and for many lessons in a remedial group was for a boy in
grade 9 (Magnus) associated with the constant risk of feeling rejected by the rest of
the class (Groth, 2007). The situation had varied over time, but his circumstances
seemed something that he felt he had to be acquainted with:

*Yeah, you get used about it after a while, but in the beginning it can be very
(...) hard, you can be rejected. When you are outside and maybe will be...
then you can be rejected and such. Yeah, it's like, you get used to it after a
while. (...) I think that it was not so bad during this year. (Groth,. p. 97)*

Magnus' situation at school had made him more aggressive. He also had sleep prob-
lems, because of his anxiousness about the future

*That's why I started to be more aggressive and pushy and go to the gym. So
that I will not get into these situations again [be bullied].
It's about how I will be in the future. (...) And then I am afraid that I will not
make enough money, that I will be on the street and such. That I will have
debts and such things. (Groth, ibid., p. 115).*

Magnus worries about his future because he seems to think that the difficult time
he is having at school both with classmates and achievements could be the begin-
ning of a path leading to economic difficulties, social marginalization and failure.

In a study on students attending a school for children with intellectual disability (Szönyi, 2005) a student, who was recently transferred to this school from a regular setting, reported that the exclusion from the classroom environment that the teacher in the regular class decided on the basis of her poor achievement, was the beginning of a painful process of alienation from the peer community.

> *It was not nice [in the old class] because I got no friends (…) They thought probably that I was strange, because I was not with the class a lot, and that was because [the teacher] did not want me to be in the class, because, you know, I did not achieve as much as the others. But I felt that it was nasty, but anyway, I got to be outside with [the assistant]. (…) It was that way, the teacher said that I could not stay in the classroom, and then they did not know how they should be with me, maybe. It was very tough. (Szönyi, ibid. p. 82-83)*

Afterwards she began feeling rejected in the peer group:

> *They did not care about me (…) they teased me a lot (…) they said a lot of nasty things to me. (Szönyi, ibid. p. 82)*

In a study of adolescents growing up with emotionally difficult situations (Benjaminson, 2008) a boy reported a similar feeling of loneliness as a result of special measures adopted for him in a special school he was referred to:

> *It was no idea to even try. It would not have made any difference. So I did as usual. Make trouble. Then they placed me behind a screen. They said that this would make me calm. But it did not. It did make me alone. (Benjaminson, ibid. p. 98)*

Even in interviews of ten students in remedial classes one result was that they felt that the placement in the remedial group had isolated them from other students. They tended also to attribute to their own characteristics the reason for the placement (Ljusberg, 2009).

Regardless of the context in which the special measures are applied, special educational groups or regular class, several studies show that the consequences may become an increasing loneliness.

Students with an individual educational plan (IEP) in junior high school were interviewed about their perceptions of school and participation in their special educational plans (Herting, 2008). For these students, spending time with the classmates at school was a positive experience, while the schoolwork and the lessons were often difficult and boring. Several of them felt frenzy and stressed about the minimum requirements and grades they needed to reach in order to get access to a national secondary program (Herting, ibid., p. 29). Some had ambivalent attitudes towards the IEP: having an IEP implies that they risk not reaching the minimum

goals on their own, but at the same time, it is positive to have got adapted goals that hopefully could be possible to reach for them (Herting, ibid. p. 32).

School difficulties, lack of adaptations and externalizing symptoms
An educational setting that does not take account of the various needs of the students and does not care, can give rise to perceived school difficulties and a perceived lack of adaptations, which can both be related to externalizing symptoms.

In a study of Alin Åkerman (2001) a 16 year old student in a remedial secondary program reports learning difficulties in his previous school conducing him to frequent school absenteeism. This was also related to experiences of substance abuse and burglary.

> *There were so many things that happened at that time, so I didn't give a shit about school, but no one seemed to care. At that time, I thought that it was nice that they didn't care. (Alin Åkerman, ibid., p. 37)*

In the present school he feels that the teachers are concerned since they call him at home when he does not come to the lessons, which is good, because it shows that the teacher does care about him now.

In a thesis about the school situation of four gifted students in middle school (Lindkvist, 2007) two of them were not following a curriculum adapted to their needs, and their well being and self-concept were negatively affected. One of them was referred by the school to the child and adolescent psychiatrist because of her behaviour. Her externalizing reactions were related to her despair, stemming from her educational needs and overall situation at school being ignored. The other gifted student in this study was a boy, whose self-concept and self worth appeared affected by the negative feed-back he was receiving from his teacher at the developmental meetings, for instance about his lack of ability in handwriting (Lindkvist, 2007).

In thesis in psychology, Stålnacke (2007) interviewed nine logical-analytically gifted young adults and asked them about their experiences of schooling. Almost all of them had been not satisfied with their learning situation at school. Some of them mean that in school there is more attention for the low achievers.

> *In Sweden at least, the principle is that everyone should know the same things in a group. You can get support if you are a low achiever, but if you are a high achiever, you feel that you should rather hold back.*
>
> *(...) It did not need to be in this way. It makes me resentful. This kind of conformist school, I hate it so intensively, you cannot imagine how much. (Stålnacke, 2007, p. 24).*

Some experienced problems in the social relations, since the different ability level could be noted and disapproved by the peers:

At the junior high school of course it is a very difficult social situation. It is difficult for everyone at that time. I mean it is not easy for anyone at that age. But if you are just slightly outstanding then they will call you "swot". It is completely weird because I was probably the one that studied least of them all. To study was the last thing I did. It was very tough for me. (Stålnacke, 2007, p. 24).

In this case, the conformism and the lack of acceptance for individual characteristics that is experienced in educational settings can affect negatively students' well-being and hamper their optimal development, even if they do not show evident mal-adaptations in the educational context.

Competition, pressure for performance, control and failure
Students attending the national secondary programs (Alin Åkerman, 2001) report the pressure they feel to get good grades all the time. For several students this causes performance anxiety, headaches, and serious stomach ache. Other students describe how the relationships among the students are affected negatively by the constant competition for the best performance (ibid., p.39-47).

In a Social work thesis, Kernehed and Thörnberg (2008) found that girls in theoretical upper secondary programmes experienced more stress factors in their learning environment than girls in practical programmes.

The class I am in is much more competitive than the other classes... We have a very fast tempo and the average grade is almost MVG [the highest]... and you want to be at the top all the time. (Kernehed and Thörnberg , ibid., p. 27).

The stress was related to psychosomatic symptoms and difficulties with concentration and learning.

Students in grade 9 were asked if they feel put under pressure by the goal of reaching higher grades in a thesis by Cederborg (2004). The majority felt they were put under stress, in particular girls. Some students related stress not only to the ambition to reach better grades, but also to the workload and to the comparison with peers in the group

When you are doing poorer than somebody else, you will be put under more and more stress and at that point you often perform even worse.
I think that the grades make you feel stress and as a consequence everything goes worse than it would have done if you would not have felt constantly nervous. (Cederborg, ibid., p. 19-20).

In a thesis about students' perceptions of what characterizes a good teacher (Hellfon and Skoog, 2007) several students say that stressed teachers may transmit the stress about tests and grades to their students. One student expressed the following:

I think that school is not anymore about learning things... we are not talking about learning at all. It's just tests and grades (Hellfon and Skoog , ibid. p. 23).

Working in streamed groups makes this student in secondary school miss the support of the friends, as reported in a thesis that studied students' perception of streaming in Math (Engholm, 2006).The student seems to think that the friends may had helped her to reach an important goal, that otherwise was perceived almost insurmountable:

I lose focus without my friends, without them I feel anxious and stressed. The pressure to succeed in Math makes me fall behind in the other subjects, which is ruining my whole education here... I got gastritis because of this and depression, which lead to truancy, which makes me feel even more depressed (Engholm , ibid., p.28).

The starting point of missing the support of friends in a difficult subject originated a sequel of intertwined consequences with respect to mental and physical health, school attendance and achievements, in a snowball effect – or a cascading failure – leading to potentially serious outcomes.

In a study with focus interviews on students' participation in educational environments, and in particular for students with disability, several students expressed their view of the effects of grading on self-concept (Göransson, 2007) and about how it does feel when the school results are bad.

(...) But some people do have such difficulties in school (...) I mean they can study like crazy and still get failed. (...) What do you do after that uh? You are going to slack totally.

(...) if you get IG [Failed], you believe that you are IG as a person, so to speak. (...)

It was just like bad, bad, I did not achieve the goals, I got nothing and so on. It is so disappointing to read such things all the time, that you never reach the goals. At the end you get IG, too. (...)

(...) if you got good grades, you get motivated to study even more in order to achieve better and better (...) If you got bad grades, then you lose your motivation and you do not give a shit about school.

Some teachers are talking about the grades all the time, and "you must do that for the grades". They could stop nagging about that, so we should work more, so we don't need to feel anxious.

(...) I believe that we should work harder if they would not talk about the grades all the time. (Göransson , ibid. p.46)

These expressions seem to suggest that these students do not see the grades as objective and neutral measures of achievement, but rather as symbols of personal success or failure. The grades are evoking positive emotions (motivation, pleasure) and negative emotions (failure, disappointment, detachment, worry). The constant evaluation by the teachers and the related risk of failing make the students feel under pressure, which means that they are not relaxed and not at ease. They seem to believe that their performances are suffering for this reason.

Furthermore, some students believe that disinterest in schoolwork is a reasonable reaction, when you are experiencing a failure in spite of great efforts. In fact, this reaction can be considered a defensive strategy to protect self-concept. Some teachers in these examples seem to use the talk about the grades as a weapon, to make the students work harder, but also to scare and maybe threaten them.

In a longitudinal study of students in a special secondary program (i.e. an individual program for students that are not eligible for national programs) (Hugo, 2007) the students explained that they had fallen behind in high school, where they felt that the pace became much faster and they were pressured by the continuous tests:

> In the high school we had a bloody tempo. I could not follow anymore, I fell behind. (Hugo , ibid. p. 68)

Some students found many tasks there too difficult and not meaningful for them:

> I learned nothing there [in high school]. I was just like "do this task, and do that, and that". And I sat there and I never did any tasks because I didn't understand anything. It was so bloody difficult tasks, just such tasks that only bloody upper class students can manage, I felt then. (Hugo, ibid. p. 69).

Their self-concept and confidence had been affected negatively by their difficulties in reading -since success in reading and spelling was very important - and by the comparison with classmates that were better off, and had a different cultural background. Their shortcomings at school had became more manifest, making them feel dreadful when thinking about school, or becoming extremely troublesome when being there (Hugo, p. 71-72). Several became truant and stopped go to school almost completely. Some of them went to school anyway, but stopped attending the lessons and just hanged around there (Hugo, p. 75).

Even if the majority of the studies are concerned with the pressure of performance on students in high school or secondary education, Johansson (2003) investigated this issue in a thesis with eleven children in 2th and 3th grade. The children stated that they perceived stress primarily when they did not have enough time to do their work and when they made competitions with other children in the exercise book.

In a study about school stress (Brobeck et al. 2007) interviewed students in 5th

grade. The pressure to perform well especially at school was perceived as a source of stress, as well as the expectations to be judged as clever and capable of managing things well.

Lagging behind their class mates in terms of school work was experienced as a major source of stress by the children. A common reason for the stress when trying to keep up with their classmates was that they perceived themselves inferior. (Brobeck et al., p. 6).

The comparison with their classmates appears in this case to cause stress and discomfort and is affecting the self-concept.

Alerby (2003) investigated middle school students' experiences of school. One of the results of her study was that the school was perceived as related to temporal aspects, causing stress. They perceived that they did not have time to complete their tasks, or felt that they should make progress in their school work at a certain pace. They felt that some activities had to be done in a hurry, and that they may fail to accomplish them in time.

> *Well, you don't have the time to finish things . . . it is stressful to get things done, and so on . . . to do things in a hurry, so you don't manage to get everything done. (...)(Alerby, ibid. p. 24)*

In this case the stress seems to stem also from a perceived lack of time and perhaps also from the fact that the student cannot make a decision about the amount of work, or the pace, or the time actually available.

Redegård (2006) interviewed 20 students in grade 6 about their perceptions of developmental meetings with their teachers and parents. Many of the students reported that they were nervous and afraid before these meetings. They could be afraid of being criticized for something they have done, or anxious of negative evaluations. Even the developmental meetings may thus be an occasion in which performance anxiety is enforced in educational settings.

Winning or losing in the group's social life
In a study on the social life in a class, Garpelin (2004) reflects about the experiences of acceptance and rejection that the students may feel in the educational setting.

The social life in the classroom and at school implies the risk to feel excluded and ignored by those that the child considered friends before. Even if the student is not bullied, or physically and verbally harassed, there can be painful situations in the peer group that can affect the well-being, school adjustment and achievement. Phases of school transition, where groups of friends are split in new constellations, for instance, may be the start of processes of change that can result in painful experiences for some students.

(...) It wasn't fun at all ... she came along into the class at once ... then it was like if, I was good enough on the way to and from school, and then in school, it was like I didn't exist, so, it wasn't fun at all, I must admit (...) I don't get it, how anyone can desert somebody, as I felt she did against me, sure I was allowed to be there with them, but still, it was like, like I was only hanging on, really, I didn't exist, that was at least the way I felt it (...) (Garpelin, ibid. p. 734-735).

Other students may be directly and collectively victimized on the basis of a stigma: newcomers could be victimized by elders, students from the countryside by students from the suburbs.

They might express their feelings, identify with one another and complain about victimization, harassment and other injustices during their school day. By this, in the world of the bus trip, they might form a collective understanding, which could be of some help for creating and supporting an attitude for surviving during their daily visits in the suburbs. (...) Listening to words of abuse, such as 'farmer', 'countryman', 'hick', 'yokel' or 'country bumpkin' or expressions like 'get lost', 'vanish to your farms' or 'you are too far away from your tractor', was tough. Many reacted to this kind of victimization by relying on their collective. (Garpelin, ibid., 734)

The social life in school can be very deprived and unhappy for the student that becomes rejected. The reasons for the rejection were not easy to understand, even when the researcher had the opportunity to interview several students in the class and to observe the school situation over a prolonged time.

In the case reported by Bergström and Holm (2005) in a study performed in a school, a girl called Maria, who had moved in from another school, became isolated in her group. She was disliked and criticized openly by the girls in her class, and interacted with peers at school only when the activities were organized by a teacher. Maria was almost always alone and avoided many social places in the school environment - among them the school dining hall- where she risked to be harassed by other students. Apparently, this comported that she could not eat lunch when she was at school. She appeared to stand the situation and tried to cope with it, but her situation was certainly not optimal for her well being. Only one girl in her group recognized this situation as a rejection, while the others maintained that it was self-chosen.

I: What do you mean rejected?
A: No one will be with her. They make fun of her and I do not know why, but I use to take her anyway [in my group]. If we build groups in the class she will be out. (p. 107)

To a question about the social relations in the girl group, Maria answered:

I: Are you together with all the girls (...)?

M: Together. At the breaks? Yeah, you know... But there are some girls in a group, and other girls in another and then it's me. That means, I am not together with anyone. (...) It's not depending on me, it's not my choice. (...) They are doing this to me. (...) You have to be a little tougher in this – in these groups. I am not as tough as the other girls, though. (Bergström and Holm, ibid, p. 108).

The social life at school can thus become a heavy burden for students that are friendless and lonely.

Poor relationships with the teacher

The teachers are not always acting in a fair way towards their students. Some students can express that the teacher becomes angry without reason and do not respect them anymore. The conflicts with the teacher may make the student loose the interest for the subject and the motivation in school work. The students may feel helpless and not capable to take initiative in order to change the situation, since the power relationship with the teacher is an asymmetric one (Bergström and Holm, 2005).

[The teacher should] take measures towards some [students] sometimes, but she gets angry with others like Kristian without any reason. She got stuck on somebody once, and then she just goes on with it. Others students make the same stuff maybe, but they are not being hurled abuse by her that much at all. (Bergström and Holm, ibid., p. 134)

To be constantly persecuted by a teacher is certainly a problematic situation for the concerned student. Moreover the teachers' unfair behaviour can negatively affect the students' motivation to participate in school activities and beliefs in teachers' fairness, since they may lose their trust in the teacher, even if they are not personally the direct object of the teacher's anger or unjust treatment.

Even teachers' detached or indifferent behaviour can make the students' lose motivation in school work and confidence in their possibilities, as reported in a thesis (Ekström, 2008):

In the beginning we had a horrible teacher, he just sat laughing through the lessons and if you needed his help, he just taunted you.
When I went to high school it was more like that, the teachers were more irritated and bothered and such. Then you lose the energy to achieve something, you don't care either, it was surely therefore my grades sank to the bottom, I had no motivation to study anymore. (Ekström, ibid., p. 21)

Instead of supporting and encouraging their students, some teachers make the opposite. In fact, according to some of the students in a thesis by Hellfon and Skoog (2007, p. 32), some may criticize and push back some of their students, while they

may give preferential treatment to others.

Important choices and opportunities

To have the opportunity to make personal choices is considered important to affirm the own identity and will, but well being can be affected negatively by situations in which you are expected to actively make the best choice and there are too many alternatives (Beckung, 2008) The freedom of choice was not perceived as a menace, but rather as an important requirement to give meaning to your life. Still, high expectations and perfectionism may make the freedom of choice a burden:

> *I am only 20 years old damn it and I feel old and anxious about everything I am expected to do. But it's all the expectations and must that make me feel that way. When I had my 19th birthday and I still didn't have a driver license, people thought that it was odd. It is a lot of prestige in so many things. And I feel like everybody is in a hurry with everything. (Beckung, ibid., p. 29)*

The choices to be made by the students at the end of the compulsory school between secondary programs, and during the secondary education between various courses have increased since the mid 1990s in the Swedish educational system. These choices have important consequences for the students' future, as some courses for instance can be required to access attractive programmes at the university.

This makes it crucial to collect all information and to consider carefully all the factors, in order to be in the position to make the right choices. The increasing individualization of the educational system in this way makes more freedom possible for a larger number of persons, but its backside could be a widespread undecidedness and in certain cases even a compromised well being.

5.6.4 Specific risks

This section includes studies that report individual risks, which may contribute to experiencing difficult situations at school that affect students' well being negatively. These individual risks may not be directly related to well being, but instead they increase the risk to experience such situations at school (failure, difficulties, criticism) that can impact well being.

Other risks can stem from past experiences or circumstances in the family that can affect directly the well being of the children and can contribute to making their well being at school more vulnerable.

A survey and interview study of 75 young adults with dyslexia (i.e. specific learning disability and no other concomitant diagnosis) investigated their well-being, educational achievement, self-esteem, peer relations and belief in their future (Ingesson, 2007). Secondary emotional problems related to school attendance had been common in the group. The difficulties experienced affected negatively their academic self-concept. The first six years at school had been filled with distress

and failure for a majority. However, many of the informants felt better and more successful in secondary education. The most optimistic about the future were the informants that had left school successfully and had a permanent employment (Ingesson, 2007).

> *(…) many of the subjects said spontaneously that their self-esteem had improved when they grew older. 'I felt very different from others when I was younger, but not anymore'. Several of them [the employed] regarded school as an extended torment and they asserted that they were much better off after having left school, than they could ever have imagined. (Ingesson, ibid. p. 580)*

Even if a majority had been satisfied with their peer relationship at school, others had been taunted and bullied for their difficulties:

> *(…) Most subjects had not experienced bad peer relations because of their dyslexic problems, but there was a small group with bad experiences, who had been bullied and did not feel good about school. They blamed their dyslexia, and thought that the dyslexia had had a negative effect on their self-esteem (Ingesson, ibid. p. 583).*
> *The identification of the difficulties through a diagnosis of dyslexia can also be perceived to be difficult by the students. For some of those who remembered the situation, it was a painful and embarrassing experience, while for others it was a relief, because they did not think that they were stupid any longer (Ingesson, ibid., p. 583).*

Having a disability that influences the social behaviour may increase the risk to be victimized by peers. In a study of experiences of students receiving special educational support, a highly achieving girl with a diagnosis of Asperger's syndrome reported that she was harassed by other children during several years (Heimdahl Mattson, 2007).

> *From the second grade to the 5th I felt like an alien. I was bullied from the pre-school to the 9th class. Hit and kicked. The wool cap could be in the mud and the shoes on the roof, when I went out for the breaks (Heimdahl Mattson, ibid., p. 20).*

In a dissertation about students in a secondary program for students with Asperger's syndrome (Hellberg, 2007) many of the students had very negative experiences in previous schools, leading to school difficulties, sickness and prolonged school absenteeism and, for some, to mental health problems as depression. They reported that they had been bullied and harassed during several years and that the time in junior high school was "pure hell" (Hellberg, ibid., p. 125) where the problems often increased to a peak. The students had not felt included in school previously, but had been offered by the school administration to fulfill the compulsory school attendance in segregated groups or at home. They had been harassed by their class-

mates and the school administration had not succeeded in defending their right to be there, to attend their education in a regular setting and to feel safe.

Even the physical appearance can be a problematic issue in early adolescence, affecting mental health and well-being. In a study of body satisfaction and peer victimization (Lunde 2009), a subgroup of adolescents was reported as being severely troubled. They gave examples of the psychological significance of body dissatisfaction.

> *If I'm not happy with myself, I feel sick and then depressed and can't do anything but stay in my room. I don't have the energy to go to school and stuff.*

The low self-esteem could make the adolescent feel sick and depressed with a related risk for school absenteeism. The social life at school can be tough, if you are often criticized by your peers.

> *They (peers) called me "fatty" and they've said "Go on a diet you fucking pig". I was really sad, but I try not to show it because they will tease you even more if you do.*

Negative experiences at school can influence body satisfaction and can make you feel insecure even in the long term:

> *I don't feel comfortable with my weight now. I don't know (...) it comes from all around. I was bullied when I was little (...) and what people tell you gets to you. (Lunde, 2009, paper IV, table 2).*

Teachers' capacity to support and care for their students can be particularly important for those adolescents who experience problematic family situations (Benjaminson, 2008).

> *I was pretty calm when I went at the elementary school, but later I became a problem that they could not manage... but I don't think that they tried to understand... you can suppose that they should ask " why does she do that?" but they thought just that she got a bad family (...). In the elementary school they really cared about me, but then it was different... you are without grownups. (...) You should have the possibility to talk with the grownups that work there [in school] about how they think, and how they felt when they were young. It would be especially good for the kids who don't get good parents. The lessons at school are just concerned with learning from the books, but you should talk with the grownups (...) especially the kids that have had a hard time... then it is extra important. (Benjaminson, ibid., p. 136-137).*

In a study of Tinnfält et al. (2008), adolescent children of alcoholics that were participating in support groups reported displaying various internalizing and externalizing symptoms:

Some of them described being depressed, sad, crying, staring into space, and having stomach aches. And some of them had fought, cut class, drank and smoked at early age, been irritated, mean, tough, or moody, or engaged in deliberate self-harming behaviour. (...) One girl described how she suddenly became very rebellious and chose to wear different clothes:
G. ...I rebelled when things were at their worst at home. So I went from being a quiet little mouse (...) to just chopping off my hair, dying it black, wearing black make-up – and turned into a really angry person over the course of a week (...) (Tinnfält, study IV p. 7).

They could need in certain cases to disclose their risk situation to trusted adults at school: for instance the school nurse, the teacher, or the social worker.

In a study of refugees' identities and experiences at school (Wigg, 2008) a girl reported frustrating experiences and conflicts in the preparatory class where she attended school in the beginning. One of the reasons for the conflicts was that the children could not speak fluently with each other, but the fact that she had been forced to move against her will, to start with, and that she felt now like a stranger had probably significance too.

We could not understand each other, (...) actually, I am very temperamental and uh, aggressive and you can tease me but you got to be very careful, if you tease me too much then I will give it back (laugh) and it was a lot of fights and that kind of things (...) Children tease each other and such, but it was tough for me because I did not understand and because everything was so new to me, and just that I did not even want to be there (Wigg, ibid., p. 86)

The conflicts for this girl were not just confined to the preparatory class, though. In the regular class, the situation got worse and escalated from loneliness to verbal harassment and physical fights. The situation changed radically for her to the better only when she went to high school, where she found support in an older cousin and engaged eventually in sport activities in which she was very successful (Wigg, 86-87).

In a report from BRIS (Children's Rights in Society - NGO), Johansson and Sjöberg analyzed over thousand calls and messages from youth and children coming to BRIS during the year 2007 that concerned abuse and emotional neglect. In about 30 percent of the messages the children describe symptoms of mental illness that are related to the situations of abuse or neglect: self-harm behaviour, depression, panic attacks, eating disorders, psychosomatic symptoms, sleep problems, obsessive behaviour and concentration problems. Some stated that they have difficulties at school and in social situations as a result. Children and adolescents exposed to maltreatments, to chaotic family situations, abuse and neglect, may develop mental illness, which can then markedly affect their educational situation.

The simultaneous occurrence of various risk situations can make their impact more sensible, reducing further the possibility to cope in an effective way. The consequences can be visible both on the mental health and well-being of the student, as well as on the educational situation.

5.7 Discussion

5.7.1 Gaps in research

A large number of the reports included investigated the experiences of adolescents attending lower secondary or upper secondary school. The number of studies reporting the experience of children in elementary school is small, and the experiences of pre-school children are not represented at all. The search and inclusion criteria concerning the type of methods employed (interview) could possibly have favoured the studies performed with pre-adolescents and adolescents, who are typically more inclined to verbalize their experiences than younger children. However, the search terms also included other types of methods - like observation - that should have been more common in research with young children. Overall, the search terms and strategies should not have penalized automatically the studies with younger children. These circumstances may reflect instead a weak interest for the study of mental health and well being aspects for young children from their own perspective.

5.7.2 Reflections about the method and the theoretical model

The reports reviewed were peer-reviewed articles, research report from Agencies and Non-Governmental Organisations, doctoral dissertations and academic theses written at the end of university courses at various levels (bachelor, master, licentiate, etc.). The quality of the studies has not been reviewed systematically within the scope of this review. This can be regarded as a weakness of this review. However, given the nature of the studies included, we can rely on the fact that a large number of them have been quality reviewed by the journal reviewers, supervisors and other experts. Based on these considerations and on the rather comprehensive evaluation performed during the review, the quality of the studies included is evaluated as ranging from satisfactory to high.

The risk- and protection model adopted was useful for the purpose of structuring the contents of the literature reviewed. The definition of the level at which the risk appears, the individual level or the educational environment level, can be considered as a matter of choice of where to put the weight of the risk in the interaction between the child and the educational milieu. The secondary emotional problems experienced by many students with dyslexia at school, for instance, should not be considered direct consequences of the dyslexia, seen as an individual risk factor, but as consequences of the demands experienced and of the inadequate situations

offered at school. In this case, the risks are to be considered as arising in the educational milieu. However, if the objective is to plan preventive interventions in learning environments, it may be useful to be aware that for children with reading difficulties the experience of schooling can entail a particular threat to well being, which risk could arise under certain conditions in the educational context.

The developmental dimension was presented in the initial model, but it is not used in structuring the results presented. Nevertheless, the developmental dimension appears meaningful. The contents of the reviewed reports suggest that experiences of the students change when they grow older, go through developmental processes and encounter different educational situations. The changes over time could be analyzed both in relation to the shifting characteristics of the educational environment and to the children's development.

In term of risks, several students report as particularly difficult the period at junior high school, where difficult situations of different kinds could emerge and sometimes reach a dramatic peak of crisis and failure. The upper secondary school becomes for some students instead a period of recovery from the earlier experienced injuries. Other trajectories are visible in the results of the review. Some children report that they have been in trouble from the beginning and that their situation changed to the better at junior high school, with new classmates and new activities, where they could abandon the old and troublesome role they had before.

A third trajectory could be that of students who seem quite successful, but begin to feel more and more stressed about tests and performances, or about educational choices. Thus, the students who did not fail, should take advantage of the positive feedback they seem to receive from the educational system, giving them access to the secondary programs they desire most. Some of the studies in this review indicate that the successful students with high aspirations may attend classes and program that are perceived as highly competitive, and the competition and comparison among the students, together with the desire to make the best performance may generate stress and anxiety.

Another group of students that could be described as disenchanted, may feel unbearable and therefore are questioning the authority that the educational system exerts upon them, the limitation of their freedom, the obligation to attend and the coercion to be told what to do and to be exposed to constant formal and informal evaluations that can sink your self-esteem.

5.7.3 How children and youth talk about their well being at school

It seems that the negative experiences are expressed by the children in rather veiled terms and cautiously, above all when the children are still inside the educational context or when they are younger. Their utterance can therefore be considered as understatements about their situation. This insight should be considered when col-

lecting the views of children and adolescents in research. Behind the ordinary or common-place terms used by the children, as "boring" or "hard work" there can be painful experiences that the children are not willing to express with more dramatic language, especially when they are still inside the educational organisation. When schooling is a past experience, the youth can talk about the negative experiences with more dramatic expressions and can admit for themselves and the interviewer that school was not good for them. Their adopting of veiled expressions can be viewed as a coping strategy aimed to protect the self, or "save face", when struggling in a difficult situation, without the power to change it. Besides the developmental and the coping strategy explanations, it can be suggested that the painful or problematic educational situation that the students refer to reminds that school is an institution invested by legitimate authority, against which it is difficult for the children to argue and win.

5.7.4 Correspondences of results from the reviews

There are correspondences between the results from the review of longitudinal studies in section 4 and the results from the review of qualitative Swedish studies presented in this chapter. There are certainly also unique contributions of each of these reviews, but it is interesting to identify initially which themes of the qualitative studies are exemplifying the results from the longitudinal studies.

The qualitative review amply illustrates the negative effects of early reading difficulties that is evidenced in the review in chapter 4 (see section 4.1.2.). A large group of the young adults interviewed by Ingesson reported that they had had various secondary mental health problems as a consequence of the difficulties experienced with reading and writing at school.

There also are several examples in the studies reviewed here of how school failure may induce internalizing and externalizing problems in adolescents (section 4.1.3.). Children and students experiencing school difficulties feel bad as a consequence of these experiences. They seem to try to cope in various ways, but some of these ways may lead to further problems in several areas. Some boys reported engaging in anti-social behaviour as a consequence of school failure. There also are examples of the tendencies towards different reactions for girls and boys. Boys tend to express angry feelings towards previously experienced difficulties or they express critical opinions about school and teachers, while statements from girls of this type are not found in the qualitative studies. It may be hypothesised that the more aggressive reactions of boys protect them from the early depression tendencies of girls, which are identified in the longitudinal studies.

The review of qualitative studies also gives examples of the positive loop that academic success contributes to, at a metacognitive level. Achievement may generate a feeling of increased competence and mastery, of being in control and understanding what is necessary in life. In contrast, academic failures can make the adolescent feel confused and incompetent in situations that she/he does not understand. This can create worries and doubts about the own ability, that can influence negatively subsequent performance situations. The adolescent that fails in a test situation may come to see the educational environment as filled by what is perceived as unreasonable and incomprehensible demands.

Positive feedback and assessments may increase self-esteem and motivation, which leads to engagement and higher achievements, in the long run. In contrast, negative feedback may influence self-esteem negatively. To cope with the stress that come from negative evaluations the adolescents mentioned several alternatives: performance avoidance could be a legitimate and understandable coping strategy in the eyes of the youngsters, to protect the self-esteem from further failures. It implies also loosing motivation for school activities and finding other activities where to be successful. Some other adolescents appeared prone to internalise the negative feedback, and felt helpless or distrusted their abilities, and some others worried about their prospects in the future.

The relationships with peers appear a protective factor for the children and adolescents in several of the longitudinal studies (section 4.1.4). The loss of social support experienced by children who are isolated and have no friends is likely to be a risk factor for their well being, which is exemplified in several cases from this review.

The loss of social support from friends due to ability grouping in a performance situation perceived as very difficult, started according to the narrative of a girl in this review a cascading failure process, with a negative loop of psychosomatic, physical and behavioural symptoms, from headaches to school absenteeism and feelings of guilt.

There also are examples in the qualitative review of how the experience of streaming, ability grouping or selection may induce stress in the students which may impair their performances, through increased competition, comparisons and also through the constant expectations of top results. These and other peer mediated effects on achievements and self-concept were also studied in the studies referred in the narrative synthesis (4.1.4.1.).

There is also the experience that the peers are important because they may need the support of a friend and this can make the adolescent feel being a good and significant person for others.

This review identifies the importance of the relationships with teachers and other school personnel, in particular as facilitators and creators of motivation, but also in a protective and caring function that is sought for especially by children and adolescents with experiences of abuse and neglect. Teachers' ability to create trustful relationships and motivate to continuing learning efforts also seem crucial for the both sensitive and troublesome adolescents with previous experiences of massive school failure. It seems important that the teachers can transmit a feeling of hope to the students and that they never stop believe in their students capacities and prospects.

There also are examples of teachers that fail to establish valuable relationships with their students. Teachers can themselves be stressed about tests and assessments. They are criticized by the students in this review when they try to motivate

instrumentally with grades, instead of interesting contents. Some teachers are also criticized when they harass and taunt their students. The consequences of certain of these behaviours are also examined in one of the quantitative longitudinal studies (section 4.1.4.1.).

In the qualitative studies, we found several examples of the difficulties related to the special education provisions. They are supposed to help and assist the students at risk of school failure, but the organisation of these interventions is not straightforward and simple. School failure is certainly a risk, but the interventions that are suggested and carried out for children and adolescents with learning difficulties may create secondary problems and complications. The individual intervention plans can be perceived by the student as a sign of serious problems. The students' exclusion from the peers and placement in another setting can be perceived as a punishment and may lead to a lowered status in the group of peers. The special educational intervention can also be of low quality or not adapted to the student's level.

These aspects seem also indirectly present in the longitudinal studies that examined the trajectories of achievement and failure (section 4.1.1, but also 4.2.1 and 4.2.2). The modalities of delivery of special education provisions and their effects on students' well being and self-concept have however not been explicitly studied in any of the longitudinal studies reported in the narrative synthesis in chapter 4, and there is a need for such studies.

An emerging theme from the studies reported in this section is the occurrence of turning points, that is the experiences, events and relationships that can change trajectories of difficulties and academic failures. Several of the longitudinal studies reported previously point at a relative stability of achievement and mental health problems over time, but some of them suggest also that periods of development and transitions between school levels may open different paths and offer opportunity for change of negative trajectories, especially through participation in activities and networks. The qualitative studies reported here offer some examples of such turning points, which are associated with joining supportive relationships and networks (friends, family, staff) and sometimes are associated to participation in extra-curricular activities. The importance of extra-curricular school activities and networks as turning-points is also investigated in some of the longitudinal studies.

It is interesting to note that mental health and well-being are defined as positive and negative emotions by the Swedish girls and boys interviewed in one of the studies reviewed here. This means that mental health and well-being are to be considered as general aspects of everyday's life and its emotional components, and that they do not have to be related to serious symptoms of illness in order to be valid and significant.

It is also interesting to observe that the protective function of social resources and relationships with peers could also be explained by the fact that these social net-

works give the opportunity to feel well when giving support to others, not just when receiving help. The mechanisms and processes that operate making social relationships in educational settings a protective factor favouring educational attainments, self-concept and well-being could be an object of attention in research and interventions.

Children and adolescents with an autism spectrum diagnosis (in particular, in this review, Asperger's syndrome) witnessed of their risk to be socially isolated, or even stigmatized and victimized at school. They could also be referred to placements in segregated educational settings. The school situation of this group of children was not examined in the longitudinal studies considered in chapter 4.

Besides the experience of failure, the qualitative studies contribute examples of other circumstances that make schooling a risk for mental health and well-being, namely when the educational activities that are offered at school are not adapted to the needs of the students, and are being perceived as not adequately stimulating for their development.

There are other interesting themes in the research reviewed in this section that could be relevant in a discussion about educational environments that contribute to the well-being and improved mental health of the students. In particular it could be important to consider the various modalities employed to generate motivation in the students, through intrinsic or extrinsic means, and the characteristics and

Table 5.3 Publication type of the studies included in the review of qualitative studies.

Publication type	
Doctoral Dissertation (PhD)	10
Thesis*	14
Peer-reviewed articles	7
Scientific reports from universities, agencies and organisations	7

* Thesis = academic paper, e.g. as a part of a Bachelor of Art of Education, Master of Art of Education, Master of Science of Psychology, Licentiate of Arts, etc.

Table 5.4 Academic disciplines of the studies included in the review of qualitative studies.

Academic disciplines	
Science of education, incl. health education	11
Special education / disability studies	9
Psychology, school psychology, social psychology	7
Public health, community health, medicine, paediatrics	6
Youth studies	2
Social work, child abuse	2
Interdisciplinary	1

Table.5.2 Overview of the studies included in the reviews of qualitative studies of mental health and schooling.

Author		Pub Year	Contents	Methods	Population	Publication type	University/ affiliation
Alerby, E.	1,3	2003	Experiences of children, well being, positive emotions	analysis of pictures and interviews	25 students, 11 years old (14 F, 11 M)	peer reviewed article	Luleå
Alin Åkerman, B.	3	2001	School experiences of secondary school students	interviews	20 adolescents, 13 girls and 7 boys in secondary schools.	report	LHS/SU
Beckung, C.	3	2008	Young people well being and stress when making choices	interviews	Five young men and women (20-24 age)	thesis	Skövde
Benjaminson, C.	2,3,4	2008	Young people with experience of neglect, emotionally at-risk	interviews	16 young people with experience of neglect (aged 18)	PhD Dissertation	SU
Berge-Holmbom, T. and Bokenstrand, Å.	2	2007	Well being for girls in grade 9: school performance influenced by mental health and wellbeing	survey	80 female students, grade 9	thesis	GIH
Bergström, M. and Holm, I.	3	2005	Participation, stigma, self-concept, need of support, rejection, conflicts with teacher	two waves observations & interviews	9 interviews (11 students) + 30 interviews (41 students) In a grade 6-9 school	Report / Lic thesis	Linköping
Brobeck, E.,Marklund, B., Haraldsson, K., & Berntsson, L.	3	2007	Stress and schoolwork	interviews	children in 5th grade	peer reviewed article	Halmstad
Cederborg, L.	3	2004	Goal related evaluation system, grades, stress, motivation, self-concept	survey	88 students grade 9	thesis	Linköping
Ekström, I.	2,3	2008	Personal development, self-concept, relation with teachers in secondary education	interviews	seven students from health care program (7 female)	Thesis master	SU
Engholm, J.	2,3	2006	Streaming in mathematics, self-concept, motivation, friends	survey	228 secondary students in streamed groups	thesis	Karlstad
Garpelin, A.	3	2004	Victimization and difficult situations with classmates conduce to worsening school results and grades	ethnographic study, longitudinal, interviews	two classes, 62 interviews (age 12-21)	peer-reviewed article	Umeå
Groth, D.	3	2007	Special educational measures can influence negatively the students' self-concept and self image	interviews	6 students with learning difficulties receiving special support	PhD Dissertation	Umeå
Göransson, K.	3	2007	Participation of students in particular s. with disability. climate, care, rejection/ acceptation, stress	five focus group interviews	34 students (16 m, 18 f) of which 19 disabled	report special educational Agency	Agency / MDH

Author	Ref	Year	Focus	Method	Sample	Type	Institution
Haraldsson, K.	1	2009	Well being, stress, protective factors	interviews	Fourteen 17-years old girls	PhD Dissertation	Göteborg
Heimdahl Mattson, E.	3,4	2008	Need of support, relief with diagnosis, negative effects of placements in special group, alienation, identity	interviews	13 students, age 11-20 (6 F, 7 M) with special needs	report special educational Agency	SU
Hellberg, K.	4	2007	Meeting with school: expectations, problems, changes. Difficulties, bullying, sickness, depression, absenteeism	ethnographic study, 6 interviews	students in secondary school with Asperger diagnosis	PhD Dissertation	Linköping
Hellfon, L. and Skoog, A.	3	2007	Students' perception of a good teacher	group interviews	seven grade 3, four grade 5, five grade 8 (4 male, 12 female)	thesis	SU
Herting, A	3	2008	Students' perception of special education plans and school	interviews	eight grade 8-9 students (5 female, 3 male)	thesis	Karlstad
Hjern, A., Alfven, G., & Östberg, V.	3	2008	School stressor, psychological and psychosomatic pain	Swedish survey of living conditions, interviews with audio-questionnaire	2588 respondents 10-18 years old	peer-reviewed article	Uppsala
Hugo, M.	2,3	2007	School failure, self-concept, too fast pace, written texts, comparisons	ethnographic study, interviews	7 secondary school students in a special individual program	PhD Dissertation	Jönköping
Ingesson, S.G.	2,4	2007	Well being in school of students with dyslexia, self-concept, schooling as "extended torment"	interviews, teachers' ratings	75 persons with diagnosis dyslexia (mean age at interview=19) and not other diagnosis	peer reviewed article	Lund
Johansson, A., Brunnberg, E., & Eriksson, C.	1	2007	Adolescents perceptions of mental health: emotional experiences, school as determinant of mental health	individual interviews or focus group interviews	48 students: 18 aged 13, 30 aged 16 (30 f, 18 m)	peer reviewed article	Örebro
Johansson, E.	3	2003	Elementary students' stress, psychic and physical symptoms related to concurrence, lack of time, difficult tasks during mathematic lessons	group interviews	four groups of grade 2-3 students (7 female, 4 male)	thesis	Linköping
Johansson, K.	4	2008	Experiences of psychic child abuse: a study of reports from children's contacts with BRIS	messages or telephone calls to BRIS	1161, out of 21000 contacts during 2007	report from BRIS	BRIS NGO
Kernehed, I. and Thörnberg, C.	3	2008	School related stress, high expectations, grades, tests, homework, future studies	interviews	6 female secondary students (3 from practical and 3 from theoretical program)	thesis	Örebro
Lind, S.	2	2009	Well being and processes conducing away from mental illness in adolescents, problems and supportive relations in school	retrospective interviews	four female	thesis	Mid Sweden

Author		Year	Topic	Method	Sample	Type	Institution
Lindkvist, K.	3	2007	Well being, self-concept, psychological problems of gifted students in elementary school	interviews and observations	four elementary students (2 males 2 female)	thesis	SU
Ljusberg, A.-L.	3	2009	Self-concept of children in remedial class, loneliness, exclusion	interviews	41 pupils in remedial groups of which 17 got ADHD diagnosis	PhD Dissertation	SU
Lundberg, Å.	2	2006	Importance of relations with teachers for students with attention problems	retrospective interviews	four students in secondary school (3 male, 1 female)	thesis	Karlstad
Lunde C.	4	2009	Body satisfaction end peer victimization	interviews	30 children aged 10-13 with low body satisfaction from a longitudinal sample of 870	PhD Dissertation	Göteborg
Lövheim, M.	1	2007	Mental health, school	texts from internet forum		report Board of Youth Affairs	Agency
Redegard, M.	3	2006	Elementary students perceptions and emotions related to developmental meeting s at school: fears, anxiety, psychosomatic reactions, self-concept	interviews	twenty grade 6 students (6 male, 14 female)	report	Kalmar
Stålnacke, J.	3	2007	Previous experiences of school of logical-analytically gifted young adults: lack of meaningful learning situation, social isolation for some students	retrospective interviews	9 young adults	thesis	SU
Szönyi, K.	3	2005	Perceptions of a special educational school placement for students with intellectual disability	interviews	24 students (from primary to secondary education- 6 schools) attending special classes for students with intellectual disability	PhD Dissertation	SU
Tinnfält, A.	4	2008	Children of alcoholics' externalizing and internalizing symptoms, needs of trusted grownups at school to talk with	interviews individual or focus group	24 girls and 3 boys aged 12-19 attending support groups in four municipalities.	PhD Dissertation	Örebro
Westerlund, L.	1	2009	Future visions, internal and external factors, self-concept	interviews	seven grade 9 students (male)	thesis	SU
Westling Allodi, M.	1 2 3	2002	Well being in activities, relations, friendship, safety, participation, influence	texts analysis (185 texts)	90 special needs students, 95 regular students aged 7-17	peer-reviewed article	LHS/SU
Wigg, U.	2,4	2008	Identity at school of refugees	interviews , life history	8 young adults (4 men and 4 women) aged 19 to 26	PhD Dissertation	Linköping

6 CONCLUSIONS AND IMPLICATIONS

In this chapter, we summarize the conclusions from the systematic literature review and discuss possible implications of the findings for the Swedish school.

6.1 Conclusions

The following are the main conclusions of the mapping reported in Chapter 2, and of the in-depth reviews reported in Chapters 4 and 5:

• The amount of research which investigates relations between different aspects of schooling and mental health is limited, and particularly so research concerning organizational factors and different educational factors, such as teaching methods and activities, curriculum characteristics, resources, modalities and organisation of special needs provisions, and educational policies concerning assessments and evaluation system.

• There is a relatively large enough amount of research that is concerned with relations between mental health on the one hand and the individual students' academic and social achievements and failures on the other, which provides a basis for a narrative synthesis focusing on effects of academic achievement on mental health, and on effects of mental health on academic achievement.

• Early school failures and in particular reading difficulties cause internalizing and externalizing mental health problem.

• Problems of academic achievement and mental health tend to be stable over time.

• School-related mental health problems tend to diminish when students reach the high school/upper secondary level and get access to new arenas of activity.

• Investment of time and effort in schoolwork without achieving expected outcomes is related to development of depression.

• Academic achievement problems in adolescence cause internalizing mental health problems for females.

• There are relations between different forms of mental health problems and they are also related to a broad range of somatic and psychosomatic health symptoms.

• Internalizing and externalizing mental health problems have negative effects on academic achievement through mechanisms that are partly age- and gender-specific.

• Academic achievement and mental health are reciprocally related.

• Good academic achievement improves self-esteem.

•Good self-esteem does not improve academic achievement, but variables correlated with self-esteem, such as locus of control, affect achievement.

• Relations with peers and teachers are involved in establishing the negative effects of school failure on mental health, but relations with peers and teachers can also protect against development of mental health problems.

• Social comparisons with peers affect self-concept, and effects vary as a function of the composition of the peer group.

6.2   Implications

A general compulsory education offers opportunities for emancipation and development and it is a right that is also a prerequisite to many other political and civic rights. However, the reviews presented in chapters 4 and 5 show that many students experience school failure, and school can for some students evidently be a painful experience that hurts their self-esteem and well-being, and from which it may be difficult to recover. These failures are typically regarded as individual failures, but they should be seen as failures of the educational system, and the negative consequences which follow not only afflict the individuals, but the whole educational system and the entire society.

Since several decades, it has been realized that education and knowledge has great economic importance to individuals and society. This has focused attention on the outcomes of education, and many countries have undertaken educational reforms of different kinds intended to increase the level of academic achievement of the students. While the intentions of the reforms may have been good, little positive effect seems to have been achieved by most of the measures taken (Barber & Mourshed, 2007). In some countries, such as Sweden, there is a negative trend of achievement, and several different reasons have been proposed to account for this (National Agency for Education, 2009b). It also may be noted that while the reforms made in the educational systems typically have the focus on improving educational achievement, consequences of the reforms for the mental health and well-being of the students are rarely taken into account.

However, the results of this review suggest that there are relations between academic achievement and mental health, which makes it worthwhile to consider the well-being of students both as an end in itself, and as a factor which influences achievement. This review presents ample results showing such relations at the individual level, but it is also reasonable to expect that such relations exist at higher levels of aggregation, such as the class- and school levels. For example, Hattie (2009) shows that decreasing disruptive behavior in the classroom has a substantial positive impact on achievement. In this section we discuss, therefore, possible implications of the results of the review for reforms of the Swedish school system.

Given the focus of this review, we discuss in particular those aspects, which have to do with achievement at the individual level, such as the assessment and grading systems used at different levels of the school system and their consequences. An-

other, more basic issue is how school failure can be prevented.

6.2.1 Pre-school

Most children in Sweden attend pre-school from early years to age six. In 1998, the pre-school was made a part of the school system, and a new curriculum was established. National evaluations of the pre-school by the National Agency for Education (2004, 2008) have identified tendencies towards more heterogeneity of resources and activities over different municipalities as a function of the decentralization of the Swedish school system in the early 1990s. Another tendency noted in the national evaluations is an increasing tendency to focus on assessment of the development of individual children, and to see pre-school as preparatory for the first years of schooling. It is also observed that this can be seen as a shift from the so called educare type of curriculum which emphasizes development of the whole child through caring, learning and education, towards a more school-like curriculum.

The Swedish pre-school has traditionally had a strong compensatory ambition through providing resources and possibilities for development to resource-weak children. The results from our review suggest that it is important that children are well equipped with resources in the form of knowledge, skills and self-esteem when they start school. In section 4.3.6 we also concluded that skill development should start early and that resource-weak students in particular benefit from enrichment and support to do that. The changes in the pattern of resource allocation among the municipalities may threaten the compensatory function of the pre-school.

Even though it is important that skill development starts early, this does not imply that a school-like curriculum should be implemented in pre-school. The tendency observed towards more focus on assessment of knowledge and skills of individual children carries risks that children start experiencing failure already in pre-school. It also seems that it would be more useful to focus on general measures in order to sustain and stimulate the development of children in preparing them for school, than to perform assessments merely to control if the children fail to reach the goals of the curriculum. For example, several studies (e.g., Lundberg et al., 1988) have demonstrated that training of phonological awareness before school start improves early reading and prevents reading failure, and one possibility is to extend this to lower age groups, and develop ways to implement such training in ways compatible with the educare type of curriculum. This can also be done in the area of numeracy and through development of general problem solving skills.

6.2.2 Pre-school class

In 1996 the pre-school class was introduced as a new one-year school-form for six-year olds. The pre-school class is not obligatory, but the vast majority of children attend. Introduction of the pre-school class implies that the children may make a transition through three distinct educational settings (pre-school, pre-school class, and first grade) at the time of school start. The organisation of these transitions

may be different in different schools, there sometimes being a higher level of integration and sometimes a lower level. The most common organisation implies that the child at the age of six goes from pre-school to the pre-school class, which is placed within or close to a school. There the child meets a new group of children, a new pre-school teacher in the morning and other leisure time-centre educators and children in the afternoon. The following year, the child, now at the age of seven, starts first grade, often with the same peers, but often also with a new teacher. This two-step organisation of school start in Sweden is a recent introduction in the Swedish school system, so its consequences for children's well being and learning has not yet been evaluated. However, since the large number of transitions may be problematic for some children, we suggest that this is done.

6.2.3 Early school years

As we have seen, the early school years is an important period for the children's development of well-being and achievement, so we focus specially on this part of compulsory school.

6.2.3.1 Preventing early school failure

One of the most striking findings of the review is the serious consequences of early school failure. Even though not all children develop internalizing and externalizing behaviour problems as a function of failure to master reading and other fundamental skills taught in the first years at school, many seem to do. One consequence is that the externalizing behaviour problems that they run risk of will cause them to fall even further behind academically. Another consequence is that even though their behaviour problems may go away, they will have a hard time catching up. A third consequence is that externalizing behaviour problems will cause disturbance in the classrooms, with negative consequences also for the peers.

An important question to ask is if anything can be done to reduce the risk of early school failure. Even though there is considerable evidence that the risk of early school failure is determined by child characteristics and/or adversities experienced before school start, the research reviewed here suggest several mechanisms which combine to create negative spirals of increasing failure and increasing behaviour problems. Ways must thus be found to break these negative spirals, and to prevent them from starting.

International comparisons of educational achievement have demonstrated a very large variation between countries in their level of achievement, and also important changes over time within countries. In Sweden, for example, level of achievement in several areas have had a strong negative trend since the mid 1990s (Gustafsson & Yang Hansen, 2009), while in Finland there has been a strong positive trend since the late 1980s. Given that failure to learn to read occurs early, assessment results for older age groups are informative also about the rate of early school failure. According to results in the PISA assessments of 15-year-olds, Finland is currently

the top performing school system among the OECD countries. The Finnish school system is particularly successful in supporting the development of weaker students and especially so when it comes to reading literacy. For example, in Finland less than 5 % of the 15-year-old students performed at or below level 1 of the 5-grade scale used in PISA 2006, while in Sweden 15 % of the students performed at this level. It is reasonable to assume that the Finnish success in avoiding failures in reading literacy among 15-year-olds is due to a successful teaching of reading in the early school years. Kupiainen et al. (2009) propose as one of the explanations for this the large amount of remedial and special education, 27 % of the students receiving some form of special support for their learning during basic education. It also seems that the Finnish special education is organised in such a way that it is not perceived as stigmatizing by the students who receive it.

A further explanation of the good Finnish results that needs to be emphasized is also that the Finnish teacher education established in connection with the implementation of the comprehensive school in the 1970s is very ambitious, requiring five years of study to the master level also for teachers in the early grades.

These results suggest that investment of resources in the form of teacher competence and special education are ways to prevent early reading failures. Results from a very large longitudinal field experiment, the so called STAR experiment, in the U.S. in the late 1980s demonstrated that smaller classes of around 15 students in grades 1 to 3, achieved better results than students in regular sized classes of around 22 students (see, e.g., Gustafsson, 2003, for a short description). What is even more important is that the students in the small classes kept most of their achievement advantage over their entire education. One possible explanation for both the immediate and long lasting effect is that the smaller classes made it possible for the teachers to teach reading and other basic skills in such a way that the risk of failure was reduced.

In conclusion, it thus seems that several general measures can be taken to reduce the risk of early school failure. Smaller classes in the first grades is one such measure, as is improved teacher education and particularly so when it comes to teaching of reading and other basic skills. Special education may also be needed, but the results from our review strongly suggest that this must be organized in such a manner that it is not perceived as excluding and stigmatizing by students.

6.2.3.2 Grading in early school years

In 2008 the government introduced a requirement for so called "individual developmental plans" (IUP, in Swedish) which in the form of written assessments every semester document the achievement of each child in relation to the goals, and which include plans how to improve the results. This is to be done for every child from first grade throughout comprehensive school. The IUPs can also include assessments in the form of grades, which in more summarized form characterize the achievement of each child. The IUPs are discussed at developmental meetings twice

a year with the student, the parents and the teacher (or one of the teachers that is in charge of the student, a so called mentor).

The National Agency for Education has evaluated the system after one year (National Agency of Education, 2010a). It was concluded that there are deficiencies in the way that the written assessments are formulated when it comes to assessing the knowledge of the students in relation to the goals, and in identifying what measures need to be taken to support the student's further development. Another result from the evaluation was that the written statements often refer to personal characteristics of the students rather than to knowledge and skills. It also is shown that the plans to a large extent put the burden of responsibility on the individual student rather than on the school. While the teachers generally hold a positive attitude towards the written assessments in the IUPs, teachers in the early grades are less positive.

The evaluation made by the National Agency for Education indicates that the IUP system carries risk for causing severe damage, if the system documents the student's failure to reach the goals without any other plan for how to remedy the situation, than handing over to the student and the parents to solve the problem.

6.2.4 Final years of comprehensive school

Currently the students in comprehensive school do not obtain formal grades until their 8th year of schooling. However, as was mentioned above written assessments about achievement in each subject matter area are to be included in the IUPs for each student in each grade, and formal grades will probably be assigned from the 6th grade.

The grades in the leaving certificate at the end of the 9th grade determine whether the student is formally qualified to be accepted to one of the national programs in upper secondary school, and they are used to compete for attractive programs and schools. The grades also are used as an indicator of the quality of the school, and are therefore important when recruiting students. These grades in the leaving certificate thus are very important to the students and to the school.

In the mid 1990s, Sweden abolished a norm-referenced grading system, and introduced instead a criterion-referenced system. According to this system, the students must achieve at least a grade of Pass to be awarded any grade at all in a certain subject matter. To be eligible for acceptance to a national program in upper secondary school, the student must have a grade of Pass in Swedish, English and mathematics. A rather large proportion of the students fail to do that, and these students are referred to "individual programs" (IP) at upper secondary school. The IP was expected to be very small when the new upper secondary school was introduced in 1994, but has turned out to be the largest program, about 20 % of the students being referred to it from comprehensive school. Only a small proportion of these

students manage to complete upper secondary school.

This system puts considerable pressure on students, parents, teachers and schools, because it makes the failure to reach the minimum requirements clearly visible, and such failure has serious negative consequences for the youth. The review of qualitative studies gives several examples of these "trajectories of failure" and of what the students may feel about themselves and about the educational system when they are in these circumstances.

Some students are also under great pressure to achieve the highest grades, because of plans to attend a particular upper secondary school or a particular program.

The great importance of the final grades from comprehensive school for the students, the teachers and the schools makes it important that the grades are assigned in a fair and comparable manner. However, there is little trust in the fairness of grades among students, and several studies show that the mistrust in the quality of the grades is warranted. There is grade inflation (Gustafsson & Yang Hansen, 2009), and schools and teachers vary in their grading practices, some being more lenient than others (National Agency of Education, 2007). There are national tests in Swedish, English and mathematics to guide the grading, but this guidance only exerts a weak influence on the grades actually assigned (National Agency for Education, 2010b).

Examinations and grading is by many students perceived to be the single most important source of stress in the school environment (Frydenberg, 2008). It would seem that the grading system implemented in compulsory school in the mid 1990s has many negative consequences for the well-being and mental health of students, and particularly so the risk for serious failure through not achieving a grade of Pass in a sufficient number of subjects.

The grading system should thus be revised in such a way that it not unnecessarily generates stress and burdens on students in comprehensive school. In particular the necessity of maintaining a strict pass/fail distinction should be reconsidered.

6.2.5 Upper secondary school

Much of what has been said about grades in comprehensive school also applies to grades in upper secondary school. The grades become even more important at this level, and here too there are problems of inflation and comparability of grades (National Agency for Education, 2009)

In upper secondary school it is important to get a Pass in a sufficient number of course grades, because otherwise successful graduation from upper secondary school cannot be achieved, and a substantial proportion of the students fail to do that with negative consequences for self-esteem and job opportunities. These grades are also a key to gain access to postsecondary programs. The higher the grades, the larger are the choices among programs that open up possibilities of

future occupations and careers. The points from the final grades earned in many subjects and during all three years of upper secondary education are evaluated according to complicated rules that are changed more or less constantly. Thus, not only are students pressed to achieve the highest grades in all courses during the three years of upper-secondary education, but they also run a risk that their efforts are in vain, because the complex rules of the game may suddenly change. There is, furthermore, at this level even more distrust in the fairness and comparability of grades assigned by different teachers and schools. Several reports from the qualitative studies described in Chapter 5 describe examples of the distress that high achieving students feel as a consequence of these uncertainties. Thus, the grading system of the upper secondary school, and the admission system to postsecondary education, should be revised in such a way that they not unnecessarily generate uncertainties and stress. Here too the necessity of the fail/pass distinction should be taken under consideration.

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HEALTH COMMITTEE
THE ROYAL SWEDISH ACADEMY OF SCIENCES

8   APPENDIX

8.1   Protocol: Fulltext review

Section 1: Administrative details

Name of the reviewer	
PAR _GRANSKARE_ skriv bokstav och siffra t.ex. A2 eller D1	
Date of the review: yyyy-mm-dd	
REF ID Number	
Author's Name/s	
PUB Year	

Section 2: Inclusion

A Inclusion / Exclusion	Type in each of the following rows your comment after the code:YES or NO When necessary, add also the applicable code (for example: A2a, NO)
A0 NOT Duplicate	A0, YES
A1 Language: English: type YES Not English: type NO	A1, YES
A2 Empirical study: If it is an empirical study type YES. If it is not an empirical study type NO and add the applicable code: A2a, review; A2b, policy document; A2c,comment; A2d, book or book chapter; A2e, other).	A2, YES
A3 Relevant contents: The aims and the results of the study are clearly related both to aspects of children's mental health and to aspects of educational settings. (type YES or NO).	A3, YES
A4 Population: Children and youth: age 2-19. (In longitudinal studies older age groups at follow up are allowed) (type YES or NO).	A4, YES
A5 Not an Intervention study If the study is **not** an intervention study or a treatment, type YES (the study is included). If the study is an intervention study, type NO (the study is excluded)	A5, YES
Include the study if all the answers in the six rows above are YES (type YES and proceed with the review at the following sections of the protocol). Exclude the study if at least one of the five answers above is NO (type NO and do not proceed further with the review of this study).	YES

Section 3: Purpose /aims

P Purpose If the aim is present in the study type YES If it is not present in the study type NO	Type in each of the following rows your comment, after the code: YES or NO t.ex. P1 YES
P1 Effects of achievement and learning on mental health and well being	P1, NO
P2 Effects of mental health on achievement and learning results	P2, YES
P3 Peer effects on mental health and well being	P3, NO
P4 Teacher effects on mental health and well being	P4, NO
P5 Mental health antecedents and consequences on mental health and well being of victimisation, bullying, harassment and violence in educational settings	P5, NO
P6 Effects of various organisational aspects (testing, tracking, selection, grades, placements) on mental health and well being	P6, NO
P7 Effects of school climate, school connectedness, belongingness, and similar on mental health and well being	P7, NO
P8 Effects of aspects of educational settings on the mental health of vulnerable or risk groups	P8, NO
P9 Effects of background factors on mental health and achievement	P9, NO
P10 Other, specify	P10, NO
P11 Comments: Effects of <u>ability</u> self-perception on achievement is studied, not self-perception as such.	P11, YES

Section 4. Aspects of Mental Health and Well Being

C Mental health If the aspect is present in the study type YES If it is not present in the study type NO	Type YES or NO for each code.
C1 internalizing behaviour a) mood, depression; b) anxiety; c) eating disorders; d) sleep disorders; e) stress; f) psychosomatic and somatic disorders and symptoms; g) post-traumatic stress disorder; h) suicide, suicidal- and self harm behaviours	C1a, NO C1c, NO C1c, NO C1d, NO C1e, NO C1f, NO C1g, NO C1h, NO
C2 externalizing behaviour a) hyperactivity; b) impulsivity; c) attention; d) conduct disorder; e) oppositional behaviour; f) antisocial disorders, violence	C2a, NO C2b, NO C2c, NO C2d, NO C2e, NO C2f, NO
C3 other psychiatric conditions a) psychotic disorders, b) autism spectrum, c) dissociative disorders; d) tics	C3a, NO C3b, NO C3c, NO C3d, NO

C4 positive aspects of mental health a) psychological well-being; b) self-perception, self-esteem, self-efficacy, self-concept; c) coping; d) resilience; e) mastery	C4a, NO C4b, YES C4c, NO C4d, NO C4e, NO
C5 Other, specify	C5, NO
C6 Comments	C6, NO

Section 5. Educational settings

D Educational settings and achievement If the aspects present in the study type YES If it is not not present in the study type NO	Type in each of the following rows your comment: YES or NO
D1a Achievement achievement, results	D1a, YES
D1b Teaching, instruction, teaching methods instruction, teaching methods, curriculum goals, teachers behaviors, independent work, homework etc.	D1b, NO
D1c Test, grades assessment testing, grades, summative evaluation, curriculum based assessment, national standards, high stakes, minimum competency testing	D1c, NO
D2 Selection, ability grouping, tracking selection, ability grouping, big-fish-little-pound effect, track system, elite classes, age-mixed group	D2, NO
D3 Special education, individual plans special education, inclusive education, referral, labeling	D3, NO
D4a School failure and dropout drop out, truancy, school absenteism, school failure, other risk factors	D4a, NO
D4c Perceived stress	D4c, NO
D4d School adjustment	D4d, NO
D5a Relations teacher-student	D5a, NO
D5b Relations with peers	D5b, NO
D5c Relations in the broader group or educational setting (climate, connectedness, belonging)	D5c, NO
D5d Bullying, victimization, violence, harassment in educational settings	D5d, NO
D6a School organisation and leadership management, administration, funding, accountability systems	D6a, NO
D6b Educational reforms	D6b, NO
D6c Reward, discipline or punitive systems	D6c, NO
D6d Grade transition	D6d, NO
D7 National educational system, reforms, effects of reforms and changes	D7, NO
D8 Other, specify	D8, NO
D9 Comments	NO

Section 6. Individual, background and context variables (moderators of relations between educational variables and mental health)

	Type YES or NO in each row
G1 Differences among students Comparison of groups of students, differences in ability and background	G1, NO
G2 Risk factors Individual risk factors: pre-term born, malnutrition, abuse and neglect, violence exposition etc.	G2, NO
G3 Other, specify Twin-study	G3, YES
G4 Comments	

Section 7 Method

E. Type of study	Type YES or NO in each row
E1 Longitudinal study, cohort studies, prospective, follow up	E1, NO
E2 Quasi-experimental	E2, NO
E3 Comparative study	E3, NO
E4 Cross sectional study	E4, YES
E5 Multilevel study	E5, NO
E6 Qualitative designs	E6, NO
E7 Mixed methods	E7, NO
E8 Other, specify	E8, NO
B Population	
B1a Kindergarten: 2-5	B1a, NO
B1b Pre-school+ primary school = 6-9	B1b, YES
B1c Middle school +junior high= 10-15	B1c, NO
B1d Secondary school =16-19	B1d, NO
F Other information about the study	Type the responses in the rows below. When applicable type: information not available
F1 Country, specify	F1, UK
F2a The study has a specific focus on themes that are highly relevant for the systematic review	F4a, Yes
F2b The themes in the study are of broad relevance for the systematic review	F4b, YES

8.2 Data Extraction Protocol

Data Extraction Protocol[1]

Section A: Administrative details	
A.1 Name of the reviewer	Jan-Eric Gustafsson
A.2 Date of the review	2009-11-22
A.3 Please enter the details of this paper	Title: The role of coping styles as predictors of depressive symptoms among adolescents: A prospective study Journal: Scandinavian Journal of Psychology REF ID 4800 Authors: Murberg, T. & Bru, E Year
A.4 Name of the longitudinal study	
Section R: Relevance	
R.1 Please evaluate the overall relevance of the study for the specific aims of this systematic review	1.High relevance
R.2 If the study has low relevance, please specify the reasons of your assessment	
N.B. A study rated at R.1 with "3.Low relevance" will be excluded and no further extraction is to be made	

[1]Detta protokoll används på artiklar som uppfyller följande krav:

1. inkluderas efter fulltextgranskningen

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)

3. är longitudinella (kodas med E1 i fulltextprotokollet)

4. mätningar av samma beroende variabler vid åtminstone två tidpunkter (måtten behöver inte vara identiska)

Section B: Study aims and rationale	
B.1 Please give details of the theories referred to or the conceptual models used? (include references if applicable)	The cognitive and contextual coping model of Lazarus and Folkman (1984) serves as the basis for the present study. Within this model, coping may be defined as the changing thoughts and acts the individual uses to manage the external and/or internal demands of a specific person-environment transaction that is appraised as stressful (Lazarus & Folkman, 1984). According to this model, coping can be organized into broader band categories of approach and avoidance coping (Ebata & Moos, 1991), which reflect effort or responses toward or away from the stressors. Several researches have investigated the influence of maladaptive coping styles like avoidance on adolescent adjustment. In general, they report that avoidant coping styles are frequently used styles in different clinical populations. For example, Seiffge-Krenke (1998) and Chan (1995) found that adolescents diagnosed as depressed and anxious were all characterized by frequent use of withdrawal. Others suggest that depressive symptomatology among adolescents is accompanied by higher levels of passive and avoidant coping but lower levels of active and approach coping styles (Herman-Stahl & Petersen, 1999, 1996). In contrast, others propose that less depressed individuals are more likely to rely on active coping styles (Vickers, Patten, Lane et al. , 2003; Lewinsohn et al. , 1998). Moreover, approach coping styles have generally been found to be consistently better predictors of desirable outcomes in school than avoidance styles (see Seiffge-Krenke, 2000, Causey & Dubow, 1992). As adolescents are faced with a variety of stressful circumstances in school that require adequate coping responses, several previous prospective studies have explored the impact of active coping on adolescent adaptation, and have reported findings of a significant effect of active coping on subsequent symptomatology. Sandler, Tein and West (1994) reported a negative prospective effect of active coping on depressive symptoms. n contrast, Herman-Stahl and Petersen (1999) failed to detect any significant prospective effect of such coping styles on symptoms of depression. The use of active coping involves adolescents taking active steps to try to do something or circumvent the stressor or to ameliorate its effects (Carver, Sheier & Weintraub, 1989). For the distinction between approaches versus avoidance coping, active coping and seeking parental support represent approach coping, whereas aggressive coping and mental disengagement represent avoidance coping in this study. An important resource in successful coping with adolescent stress is the social support system. Although peers gradually become a more important source of support for adolescents, parents remain consistently important sources of support for most adolescents. However, the literature of social support is limited by its failure to differentiate social support as a resource from social support as a coping response. The former refers to the actual or perceived availability of supporting others, whereas the latter refers to seeking others for coping assistance. Because of the focus of this study, social support is seen as a coping response and refers to seeking parents for coping assistance. Literature on the role of seeking social support as a coping response suggests that it is considered as an important and helpful way of coping with stress among adolescents (see Seiffge-Krenke, 2000; Printz, Shermis & Webb, 1999).
B.2 What is the purpose of the study?	To examine the effect of different coping styles on subsequent depressive symptomatology among a sample of adolescents encountering school-related stress.
B.3 What are the study research questions and hypotheses?	On the basis of these considerations, the specific hypothesis was that high levels of approach coping like styles as active coping and/or seeking parental support would be negatively linked to depressive symptoms among this sample of adolescents. For some adolescents, conflict with teachers and co-students, as well as fear of academic failure, may result in an aggressive or a hostile way of coping with these problems.

Section C: Study mental health focus	
C.1 Please describe in more details the specific mental health phenomena or factors with which the study is concerned 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.	Depression
C.2. Are the mental health factors seen as contributing to effects on learning and achievement?	No
C.3 Are the mental health factors seen as affected by educational factors?	Yes
Section D: School and achievement	
D.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.	Stress

Section F: Sample and context	
F.1. What is the sample in the study? Specify information about the participants (number and size of schools, number of teachers, students involved)	The sample consisted of students in grades 8–10 (13–16 years old) from two secondary schools in a city in South West Norway. Participation in the study was voluntary and required both written parent and student consent. Consent was obtained from approximately 82% of the eligible students enrolled in the participating schools. Data were collected at two time points. The second assessment (T2) occurred 1 year after the first (T1) in the same spring month of each year. Data were obtained at follow-up from 327 of the students in the original T1 sample (n = 535). The follow-up group, for whom both T1 and T2 data were available, constituted our sample. Most of the attrition from the original sample was a result of the 10th grade students at T1 having left secondary school at T2. Students who were in the 8th grade at T2 were not enrolled in the present study. Thus, follow-up data were limited to those students who had been in the 8th and 9th grades at the time of initial assessment (n = 347), of whom 20 were unavailable at T2 due to having transferred to another school or being absent during the assessment. The gender distribution in the sample was fairly equal: 167 girls (51.1%) and 160 boys (48.9%) participated.
F.3. Please specify any other information about the sample	
F4. In which country or countries was the study carried out?	Norway
F.5. What is the educational setting of the study?	5. Junior high school 6. Secondary school

Section H: Study Method	
H1 When was the study carried out?	No information given
H.2. What is the total duration of the longitudinal study reported in this paper?	One year
H. 3. Please describe the study design	Longitudinal design in three grades
H.4 How many waves of measurement are used in the study?	Two
H.5 Specify the time between the measurements (months, years etc.)	One year
H.6 Do the authors provide baseline values of key variables, such as those being used as outcomes, and relevant socio-demographic	Yes

Section I: Methods, groups	
I.1 If comparisons are made between two or more groups (gender, background, ethnic), please specify the basis of any divisions	
I 2. How many groups are considered?	

Section J: Sampling strategy	
J.1 Are the authors trying to produce findings that are representative of a given population?	
J.2 What is the sampling frame (if any) from which the participants are chosen?	All students in three grades at two schools
J.3 Which method does the study use to select people, or groups of people (from the sampling frame)?	All students included
J.4 Planned sample size	652
J.5 How representative was the actual sample (as recruited at the start of the study) in relation to the aims of the sampling frame?	Students and parents not giving their consent were excluded (remaining T1 n = 535).
J.6 What proportion of the sample dropped out over the course of the study?	327 students had data at both T1 and T2. Most of the dropout was due to the fact that students in grade 10 were not followed up, and students in grade 8 did not have any T1 data.
J.7 Do the authors provide any information on whether, and/or how, those who dropped out of the study differ from those who remained in the study?	No

Section K: Methods – Data Collection	
K.1 Which methods were used to collect the data?	**1. Self-completion questionnaire** Depressive symptoms. Depressive symptoms were assessed on the basis of seven slightly modified items that covered depressive complaints (feeling low in energy, slowed down; crying easily, "feeling blue"; feeling no interest in things; feeling everything is an effort; "poor appetite", and "difficulty falling asleep or staying asleep") from the 25-item version of the Hopkins Symptoms Checklist (Derogatis, Lipman, Rickels, Uhlenhuth & Lino, 1974; Winokur, Winokur, Rickels & Cox, 1984). Stress. Seventeen items covering different stressful situations – conflicts with peers, study pressure, work pressure, and conflict with parent(s) and conflict with teacher(s) – were hypothesized as common stressors among Norwegian adolescents and were selected to assess students' stress. A stress-index score was computed as the sum of all seventeen items. Coping styles. Adolescents' coping styles were assessed by selecting items from the Adolescent Orientation for Problem Experiences dispositional inventory (A-COPE; Patterson & McCubbin, 1987). Subjects respond on a 5-point scale (ranging from 1 = never to 5 = most of the time) to indicate how often they used each coping style when feeling tense or facing a problem or difficulty. A set of 16 items covering active- and avoidance-oriented coping styles were presented to the students, who were instructed to indicate how often they used a given response when they experienced problems related to the school environment. Exploratory factor analyses, implementing principal axis factoring and oblique rotation, revealed four coping factors that satisfied statistical and theoretical considerations. This factor structure was tested by confirmatory factor analysis implementing maximum likelihood estimation. This analysis indicated close fit for the 5-factor solution [RMSEA = 0.057, 90% CI = (0.046, 0.068)]. The four factors were labeled: (1) "Active coping"; (2) "Aggressive coping", (3) "Mental disengagement", and (4) "Seeking parental support".
K.3. Do the authors describe any ways they have addressed the repeatability or reliability of their collection tools / methods?	Yes
K.4. Do the authors describe any ways they have addressed the validity or trustworthiness of their data collection tools /methods?	Yes

Section L: Methods – data analysis	
L.1. Which statistical methods were used?	Multiple regression, confirmatory and exploratory factor analysis
L.3. Control for bias from confounding variables?	Example: 2. Sex

Section G: Results and conclusions	
G.1. What are the relevant results of the study as reported by the authors?	Results from this prospective analysis indicated a significant negative effect of seeking parental support at T1 on T2 depressive symptoms (see Table 3). In the second step, as a test of the stress-buffering effects, significant negative interactions with stress were found for aggressive coping. The increment in R2 was 1.0%.
G.2. What do the authors conclude about the findings of the study?	The results were consistent with our prediction in several respects. The coping style, "seeking parental support" was inversely related to subsequent symptoms of depression obtained 1 year later. This association was evident even when we controlled for initial symptomatology, stress, as well as for confounding effects of the other coping styles. The results show interesting parallels with findings from other prospective studies among adolescents of the main effects of social support from family on mental health (DuBois et al.,1992; Ystgaard, Tambs & Dalgaard, 1999). Possible explanations may be that seeking supportive interactions with parents may bolster self-esteem during stressful periods, which in turn may facilitate positive adaptation. In addition, parents may affect coping behaviors through rules and regulatory mechanisms (see Hirschi, 1969). Perceived stress at T1 also predicted depression at T2. Moreover, the interaction between stress and aggressive coping measured in T1 predicted depressive symptoms in T2, indicating that aggressive coping might be a more important predictor of depression among adolescents perceiving high levels of stress.
G.3. Which answers does the study offer to the review question?	The results show that the effects of self-perceived school-related stress on depressive symptoms is moderated by coping strategies, "seeking parental support" being a protective factor while aggressive coping added to risk of developing depression.

Section M: Quality of study: description	
M.1 Is the context (school factors and out of school factors, e.g. family) clearly described?	NO
M.2 Are the aims stated?	YES,
M.3 Is there an adequate description of the sample used and how the sample was identified and recruited	YES,
M.4 Are there adequate descriptions of the methods used to collect data?	YES,
M.5 Is there adequate description of the data analysis?	YES,
M.6 Is the study replicable?	YES,
M.7 Do the authors avoid selective reporting bias?	YES,

Section N: Overall quality of study	
N.1 Was the choice of research design appropriate for addressing the research question(s) posed?	YES,
N.2 Have sufficient attempts been made to establish the reliability and validity of data collection and data analysis?	YES,
N.3 To what extent are the research design and methods employed able to rule out any other sources of error/ bias which would lead to alternative explanations for the findings of the study?	1.High
N.4 How generalisable are the study results?	
N.5. Please evaluate the overall quality of the study	1. High
N.6 If the study has low quality, please specify the reasons of your assessment and describe these problematic aspects in details	

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