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A large, stylized sunburst or fan-like graphic in a lighter shade of purple, positioned on the left side of the cover. It has a dark purple central oval and radiating segments.

BULLYING AMONG STUDENTS WITH READING DIFFICULTIES

Tiina Turunen



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ABSTRACT

Reading difficulties (RDs) constitute the most prevalent type of learning disabilities. They are easily noticed by classmates, may cause frustration, and are often accompanied by emotional, behavioral, and interpersonal problems. Previous research has paid little attention to bullying involvement among poor readers. RDs are found to co-occur with known risk factors of victimization and bullying, such as internalizing and externalizing problems. Moreover, in interview studies students with RDs have reported frequent bullying experiences, and more general learning disabilities have been associated with victimization and bullying.

In this thesis, I study bullying involvement among Finnish elementary and middle school students with RDs. I examine whether students with RDs are more at risk for bullying involvement than their peers without such difficulties and how RDs are longitudinally related to bullying involvement among school beginners and adolescents. Study I revealed that over a third of elementary and middle school students with self-reported RDs were involved in bullying as victims, bullies, or bully/victims. After controlling for self-esteem and difficulties in math, RDs were associated with peers viewing the students as victims and bully/victims. Study II examined how word-reading skills and externalizing/internalizing problems in Grades 1 and 2 predict bullying involvement in Grade 3. It showed that RDs alone do not increase the risk of bullying involvement at school but in tandem with externalizing/internalizing problems they do add to the risk of bullying others (bullies and bully/victims). Study III investigated the longitudinal interplay between reading skills (fluency and comprehension), victimization, and bullying across the transition from elementary to middle school, controlling for externalizing and internalizing problems. Poor reading fluency and comprehension were longitudinally associated with bullying perpetration but not with victimization. Put together, the studies in the thesis draw a novel picture of bullying involvement among students with RDs in elementary and middle school, both cross-sectionally and longitudinally in different age groups.

In conclusion, self-reported RDs were found to associate most strongly with victimization (being a victim or a bully/victim), whereas poor reading skills measured with reading tests were associated only with bullying perpetration. Reassuringly, the risk RDs posed for bullying involvement was relatively low.

KEYWORDS: Reading difficulties, Bullying, Victimization, Elementary school, Middle school

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Yhteiskuntatieteellinen tiedekunta

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TIIVISTELMÄ

Lukemisvaikeudet ovat yleisimpiä oppimisvaikeuksia. Ne näkyvät helposti koulussa, voivat aiheuttaa turhautumista ja niihin liittyy usein tunne-elämän, käyttäytymisen ja vuorovaikutuksen ongelmia, mutta niiden yhteyttä koulukiusaamiseen on tutkittu hyvin vähän. Tiedetään, että ne esiintyvät usein yhdessä kiusaamisen riskitekijöiden kuten sisään/ulospäin suuntautuvan oireilun kanssa. Lisäksi oppilaat, joilla on lukemisvaikeuksia, ovat haastattelututkimuksissa kertoneet kiusatuksi joutumisen kokemuksista ja yleisemmällä tasolla oppimisvaikeuksien on huomattu olevan yhteydessä kiusatuksi joutumiseen ja toisten kiusaamiseen.

Tässä väitöskirjassa tarkastelen lukemisvaikeuksien yhteyttä koulukiusaamiseen suomalaisilla ala- ja yläkoululaisilla. Tutkin, ovatko oppilaat, joilla on lukemisvaikeuksia, muita suuremmassa riskissä joutua kiusatuksi tai kiusata muita, sekä sitä, miten lukemisvaikeudet ovat pitkittäisesti yhteydessä koulukiusaamiseen koulutuloslokkailta sekä yläkouluun siirtyvillä nuorilla. Osatutkimuksen I mukaan yli kolmannes peruskoululaisista, joilla on lukemisvaikeuksia, joutui kiusatuksi, kiusasi muita, tai sekä että. Lukemisvaikeudet olivat yhteydessä kiusaavan oppilaan sekä kiusaaja/uhriin rooleihin myös, kun itsetunto ja matematiikan vaikeudet huomioitiin. Osatutkimuksessa II tutkittiin, ovatko 1. ja 2. luokilla mitatut sanatason lukemisen taidot sekä sisäänpäin/ulospäin suuntautuva oireilu yhteydessä kiusatuksi joutumiseen tai toisten kiusaamiseen 3. luokalla. Tulosten mukaan heikko lukutaito ei yksin lisää tätä riskiä, mutta yhdessä sisäänpäin/ulospäin suuntautuvan oireilun kanssa se lisää riskiä toisten kiusaamiseen. Osatutkimus III keskittyi lukemisen taitojen sekä kiusatuksi joutumisen ja toisten kiusaamisen yhteyksiin siirryttäessä yläkouluun sekä yläkoulun aikana. Heikot lukemisen sujuvuuden ja luetun ymmärtämisen taidot olivat pitkittäin yhteydessä toisten kiusaamiseen, mutta eivät kiusatuksi joutumiseen.

Yhdessä väitöskirjan osatutkimukset piirtävät kuvan koulukiusaamisesta niiden ala- ja yläkouluikäisten oppilaiden keskuudessa, joilla on lukemisvaikeuksia. Päätulos on, että itsearvioitujen lukemisvaikeuksien huomattiin olevan vahvimmin yhteydessä kiusatuksi joutumiseen, kun taas testeillä mitatut heikot lukemisen taidot liittyivät toisten kiusaamiseen. Positiivinen löydös kuitenkin oli, että lukemisvaikeuksien aiheuttama koulukiusaamisen riski todettiin varsin pieneksi.

ASIASANAT: Lukemisvaikeudet, Kiusatuksi joutuminen, Toisten kiusaaminen, Alakoulu, Yläkoulu

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28.6.2021

Tiina Turunen

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List of Original Publications

This dissertation is based on the following original publications, which are referred to in the text by their Roman numerals:

- I Turunen, T., Poskiparta, E., & Salmivalli, C. (2017). Are reading difficulties associated with bullying involvement? *Learning and Instruction*, 52, 130–138. <http://dx.doi.org/10.1016/j.learninstruc.2017.05.007>
- II Turunen, T., Kiuru, N., Poskiparta, E., Niemi, P., & Nurmi, J.-E. (2019). Word reading skills and externalizing and internalizing problems from Grade 1 to Grade 2 - Developmental trajectories and bullying involvement in Grade 3. *Scientific Studies of Reading*, 23(2), 161–177. <http://dx.doi.org/10.1080/10888438.2018.1497036>
- III Turunen, T., Poskiparta, E., Salmivalli, C., Niemi, P., & Lerkkanen, M.-K. (2021): Longitudinal associations between poor reading skills, bullying and victimization across the transition from elementary to middle school. *PLoS ONE* 16(3):e0249112. <http://dx.doi.org/10.1371/journal.pone.0249112>

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1 Introduction

Parents and teachers are often concerned about the peer relations of students with reading difficulties (RDs). Will they find friends? Are they bullied at school? Or will they even bully their peers? Common school practices, such as reading aloud, group work, and presentations make reading difficulties visible and easily noticeable to everyone in the classroom (Kaukiainen et al., 2002). It is reasonable to worry that this makes poor readers easy targets for victimization. In addition, when reading is difficult and arduous, other subjects will be challenging as well. Going to school might start feeling burdensome and aversive. This frustration is likely to influence students' behavior and reactions towards peers in school. However, little research has been conducted specifically on the associations between RDs, victimization and bullying.

Bullying is defined as aggressive behavior against a peer, that involves the intent to harm and an imbalance of power between the aggressor and the victim, and it takes place repeatedly (Menesini & Salmivalli, 2017; Olweus, 1999). Although there is plenty of research on precursors, comorbid emotional and behavioral symptoms, and interventions of reading problems (for reviews and meta-analyses, see Beitchman & Young, 1997; Bus & van IJzendoorn, 1999; Ehri et al., 2001; Lyytinen et al., 2015; Melby-Lervåg et al., 2012; Norton & Wolf, 2012), less attention has been paid to social challenges co-occurring with RDs. It is known, for example, that RDs are related to externalizing and acting-out behaviors (Halonen et al., 2006; McIntosh et al., 2012; Morgan et al., 2008, 2009). Bullying others may be one way to act out in a school setting. RDs also co-occur with known risk factors of victimization (Cook et al., 2010) such as anxiety and depression (Arnold et al., 2005; Halonen et al., 2006; Mammarella et al., 2014; Morgan et al., 2012; Willcutt & Pennington, 2000). Moreover, students with RDs are more likely than their peers to have poor social skills and social competence (Kavale & Forness, 1996; Kempe et al., 2011; Parhiala et al., 2015; Vallance et al., 1998), and to be rejected by their peers (Kiuru et al., 2012; Nabuzoka & Smith, 1993). They may also experience low self-esteem (N. Humphrey & Mullins, 2002) as well as negative feelings about themselves and their peer relations (Morgan et al., 2012).

Research further suggests that students with many types of disabilities, including learning disabilities (LDs), appear to be involved in bullying as victims and as perpetrators more often than their nondisabled peers (Estell et al., 2008; Kaukiainen et al., 2002; Luciano & Savage, 2007; Mishna, 2003; Nabuzoka, 2003; Nabuzoka & Smith, 1993; Rose et al., 2011). RDs are a special category of LDs, but previous studies have rarely distinguished between different types of LDs. Bullying research has rather focused on heterogeneous groups of students with disabilities in various educational settings and student populations, thus lacking specificity in the definition of LDs and consistency in the context (Cornwall & Bawden, 1992; Rose et al., 2011). Therefore, it is important to study whether RDs as an example of a relatively common LD are related to victimization and bullying perpetration at school.

In this thesis, the spotlight is on victimization and bullying among Finnish elementary and middle school students with reading difficulties. In international comparisons, overall prevalence of victimization and bullying is relatively low in Finland and the trend has been declining for the past decade (National Institute for Health and Welfare, 2019; Sainio et al., 2019). Majority of schools are state-owned and the national curriculum ensures equalitarian education for all the children throughout the country. Finnish adolescents are among top performers in reading literacy in OECD countries (OECD, 2019). Moreover, education providers are required by legislation to keep their students safe from bullying (Finlex, 2017). Because of the relatively low prevalence and systematic efforts to tackle bullying in schools, Finland is a good context to study bullying among students with RDs. If RDs predispose students for victimization or bullying perpetration, it is likely that the risk is even larger in a context where bullying is more prevalent and less systematic work is done to prevent and tackle it.

The thesis comprises three empirical studies focusing on different aspects of the topic. My first goal is to provide an overview of bullying involvement among students with RDs in elementary and middle school by comparing the prevalence of victims, bullies, and bully/victims among students with and without RDs (Study I). The second aim is to examine how RDs co-occur with externalizing and internalizing problems longitudinally, and how this interplay is associated with bullying involvement. This is tested in Studies II and III where I study the association in two different developmental phases. Study II looks more closely at school beginners and examines how the process of learning to read coincides with externalizing and internalizing problems possibly affecting later bullying involvement. In Study III I shift the focus to adolescence. In addition to reading fluency, comprehension skills become ever more important as adolescents are required to study more complex and advanced subjects in middle school. I will investigate the longitudinal associations between poor reading skill (fluency and comprehension), victimization and bullying during and after the transition from elementary to middle school.

1.1 Reading Difficulties

Reading is a skill needed in school every day and being able to read with understanding is crucial for academic success. Although most children learn to read fairly easily (Leppänen et al., 2004; Snow et al., 1998), reading difficulties are relatively common. According to the simple view of reading (SVR), making sense of written text requires decoding ability as well as linguistic comprehension (Gough & Tunmer, 1986; Language and Reading Research Consortium, 2015; Tunmer & Hoover, 1992). SVR model has received empirical support also in Finnish language (Torppa et al., 2016), which is considered one of the most transparent orthographies (i.e., strong correspondence between graphemes and phonemes, consistent spelling of words) among European languages (Seymour et al., 2003). Building on the model, there are two types of reading challenges: difficulties with decoding (dyslexia) and difficulties with comprehension, and some individuals encounter challenges in both (Gough & Tunmer, 1986; Snowling & Hulme, 2012; Spencer et al., 2014).

Because of the high transparency of the Finnish orthography and systematic teaching of phonological skills in a playful context in Kindergarten (Torppa et al., 2016), approximately one third of children have already learned to decode accurately before school entry (Niemi et al., 2011). For the rest, accuracy usually develops rapidly after the formal reading instruction begins (Seymour et al., 2003). However, becoming a fluent reader (i.e., reading with adequate speed) takes some more time. Even though on average Finnish students have good reading skills, the prevalence of weak readers seems to be increasing (OECD, 2019).

Children with decoding problems typically struggle with learning to read accurately and fluently (Snowling & Hulme, 2012). Even after they have learned to decode accurately, fluency deficits often persist and are more difficult to remediate (Shaywitz et al., 1999; Snowling et al., 2012). While dyslexia affects word-level decoding skills, ‘poor comprehenders’ decode well, but have difficulties in understanding what they read (Snowling & Hulme, 2012). The third subgroup of poor readers, often labeled as garden-variety poor readers or children with language-learning disabilities (LLD), have problems in both decoding and listening comprehension, and they may also have other cognitive impairments especially related to verbal abilities (Catts et al., 2003; Gough & Tunmer, 1986).

Phonological awareness, rapid naming, and letter knowledge are robust predictors of both decoding problems (Lyon et al., 2003; Lyytinen et al., 2015; Norton & Wolf, 2012; Wolf & Bowers, 1999) and reading comprehension (Hulme & Snowling, 2011; Torppa et al., 2016). In addition, listening comprehension is a strong predictor of reading comprehension. Furthermore, in English, decoding has strong influence on reading comprehension even in the upper grades, but in transparent orthographies the effect of listening comprehension appears to be stronger than that of decoding already among beginning readers (Florit & Cain, 2011). For example,

Torppa et al. (2016) found that for Finnish elementary school students the direct effect of reading fluency on reading comprehension wanes before Grade 3.

Reading disabilities constitute the most prevalent type of learning disabilities (LDs). They affect 2% to 17.5% of children and adults of the general population (Altarac & Saroha, 2007; Boyle et al., 2011; Official Statistics of Finland (OSF), 2010; Sauver et al., 2001; Shaywitz, 1998; K. Smith et al., 1995; Snow et al., 1998; Taanila et al., 2011) and up to 80% of the LD population (Beitchman & Young, 1997; Lyon et al., 2003). The large variation in prevalence estimates depends on the population examined, the evaluation methods and the cut-off criteria used. Reading comprehension problems, however, often go unnoticed in the classroom, because many poor comprehenders are able to fluently read aloud, and the problems are revealed only when they are asked questions about the meaning of what they have read (Hulme & Snowling, 2011). Strong evidence suggests that reading disorders have a significant impact on educational attainment, achievement, and psychosocial well-being throughout life (Eloranta, 2019; Snowling & Hulme, 2012).

In research, RDs are often measured by standardized reading tests assessing different skills (accuracy of decoding, fluency, reading comprehension), by evaluating skills that precede learning to read (e.g., phonological awareness, rapid naming, letter knowledge, listening comprehension), or identifying familial risk (parents, grandparents and siblings with RDs). Researchers choose a cut-off criterion (e.g., -1 SD, -1.5 SD) to identify RD group, or use continuous measures to examine the entire distribution of skills. Alternatively, researchers have utilized diagnoses obtained from educational or health-care services in identifying individuals with RDs (N. Humphrey & Mullins, 2002; Ingesson, 2007). Few studies have also utilized self-reported information on difficulties in reading among adolescents (Green et al., 2009; Undheim et al., 2011) or among adults evaluating their concurrent or past reading problems (e.g., Deacon et al., 2012; Snowling et al., 2012; Vogel & Holt, 2003; Wolff & Lundberg, 2003).

In this thesis, RDs are measured as experiencing difficulties in reading or poor achievement in standardized reading tests. Information about possible diagnosis of dyslexia and/or comprehension problems is not available in the datasets used. In Finland, it is not typical to diagnose children for reading difficulties, since special education services are available without such diagnoses. Official diagnoses are considered only when learning difficulties are severe and other services outside the school context are needed, or when an adolescent needs the diagnosis for some purpose (e.g., special arrangements in the driver's licence exam or matriculation examination). In Study I, RDs are assessed with self-reports, and thus decoding and comprehension difficulties are not distinguished. Studies II and III utilize standardized reading tests. Study II focuses on students with poor decoding skills (fluency and accuracy), since it is difficult to obtain reliable assessments of reading comprehension in

the beginning of elementary school when children are still learning to decode (Niemi et al., 2011; Torppa et al., 2016). In Study III, both decoding (fluency and accuracy) and comprehension skills of adolescents are considered.

1.2 Bullying among Students with Reading Difficulties

The first aim of this thesis is to provide an overview of bullying among children and adolescents with RDs. Whether RDs in particular expose students to social adaptation problems such as involvement in bullying at school as bullies, victims, or bully/victims has never been studied in a community sample to obtain reliable and generalizable information, and few studies have at all examined reading difficulties in association with bullying. However, there is some support for a link between RDs and an increased risk for both victimization and bullying others.

Bullying is a pervasive problem affecting the lives of children and adolescents everywhere. Worldwide, almost one third of students (32%) were bullied by their peers at school at least once in the last month in a survey conducted in 2019 (UNESCO, 2019). The proportion of students being bullied varies enormously across countries (Analitis et al., 2009; Craig et al., 2009; Due et al., 2005), and comparing different studies is challenging due to differences in measurement and cut-off criteria used.

In Finland, the nationwide School Health Promotion study (SHP; National Institute for Health and Welfare) that monitors the well-being and health-related issues of youth has collected data about bullying and victimization since 1996. The year 2009 seems to be the turning point after which the levels of both victimization and bullying started to decrease. In 2019, 7.2% of 4-5 graders, 5.5% of 8-9 graders, 1.1% of high-school students and 3.6% of vocational school students were bullied once a week or more often (National Institute for Health and Welfare, 2019). Moreover, 2.1% of 4-5 graders, 3% of 8-9 graders, 0.7% of high-school students and 2.8% of vocational school students admitted to bullying their peers once a week or more often. Also data collected annually in the context of KiVa antibullying program, with approximately 90% of all the schools in Finland having been registered users of the program at some point, indicate that in KiVa schools victimization and bullying perpetration have steadily declined (Sainio et al., 2019). Thus, it seems that in international comparison, the prevalence of victimization and bullying is relatively low in Finland, and the trend has been declining over the past decade.

An extensive body of research shows that children with heterogenous learning disabilities (LD) and special educational needs (SEN) are vulnerable and at risk of experiencing a wide range of psychosocial difficulties also including peer rejection, peer victimization and bullying perpetration (including being a provocative victim

or a bully/victim) (e.g., Andreou et al., 2015; Baumeister et al., 2008; Chatzitheochari et al., 2016; Estell et al., 2008; Fink et al., 2015; Kaukiainen et al., 2002; Kokkinos & Antoniadou, 2013; Kuhne & Wiener, 2000; Mishna, 2003; Nabuzoka & Smith, 1993; Norwich & Kelly, 2004; Saylor & Leach, 2009). Since up to 4/5 of those with LDs have difficulties with reading (Beitchman & Young, 1997; Lyon et al., 2003), these studies suggest that the risk might be prevalent for those with RDs as well.

In studies focusing specifically on RDs, children and adolescents with RDs have in interviews reported victimization rates from about a third (Ingesson, 2007), to 50% (N. Humphrey & Mullins, 2002), and up to 85% (Singer, 2005). Even adults have reported negative memories of victimization due to learning problems (e.g., Hellendoorn & Ruijssenaars, 2000). In interview studies, it is often the case that there is no control group interviewed, so comparing the prevalence rates between individuals with and without RDs is problematic. Poor reading skills have also been related to bullying perpetration, although relevant studies are rare. Not focusing solely on RDs, but defining LDs as difficulties in reading and writing, Kaukiainen and his colleagues (2002) found that learning difficulties were associated with bullying, but not with victimization.

It seems that only two studies examining the relationship between LDs and bullying behaviors have included a measure of reading skills in their analyses (Kaukiainen et al., 2002; Luciano & Savage, 2007). In Kaukiainen's et al. (2002) study learning skills (reading and writing ability), social intelligence and self-concept were related to each other and to bully-victim problems. As described above, researchers found that bullying was related to LD, but victimization not. Luciano and Savage (2007) included reading ability and vocabulary measures when investigating students with LDs attending inclusive schools. Results showed that students with LDs self-reported significantly more incidents of being bullied than students without LDs, although after controlling for receptive vocabulary, differences were no longer statistically significant.

The limited literature on the associations between RDs, victimization and bullying raise some methodological issues. Firstly, all previous studies are either cross-sectional or retrospective (i.e., rely on memories of past victimization). In addition, most previous studies provide information about the phenomenon within samples of RD students only, or have utilized very small samples, whereas in community samples the prevalence of victimization among students with reading difficulties has not been studied. However, in order to study whether RDs increase the risk of bullying involvement in a school setting, it is imperative to evaluate the risk in a sample where the prevalence of RDs reflects that of the entire population. Only then it is possible to compare the risk level of the small group of students with RDs with that of mainstream students not experiencing difficulties in reading. To the best of my

knowledge, this is still an open question because the previous studies did not include a comparison group, or the sample size was very small.

In addition to addressing the limitations of previous studies, methodological decisions regarding the measurement of victimization and bullying are made in the studies of this thesis. In the literature, victimization and bullying (general question or specific forms of bullying) are typically measured either with self-reports (e.g., Olweus, 1996) or peer-reports (e.g., Salmivalli & Voeten, 2004). In self-reports, participants are first provided with a definition of bullying, and then asked whether they have experienced and/or perpetrated such behaviors within a certain timeframe (last 2-3 months, this schoolyear, etc.). In peer-reports, participants are asked to nominate from among a list of their classmates those who are victimized or bully their peers. Regardless of the informant, victimization and bullying can be used as continuous variables, or students can be categorized into victims, bullies, and bully/victims (those scoring high on both measures). Since RDs are measured as self-reports in Study I, peer reports of victimization and bullying are utilized in order to avoid inflated results due to shared method variance. Studies II and III use self-reports of victimization and bullying along with standardized reading tests. The choice between categories of victims, bullies, and bully/victims (Studies I and II) and continuous victimization and bullying variables (Study III) is based on the research questions of each study.

1.3 Developmental Interplay of RDs and Externalizing/ Internalizing Problems in Relation to Bullying Involvement and School Adjustment

The second goal of this thesis is to take a developmental perspective on bullying among students with RDs and examine the longitudinal interplay between RDs and internalizing and externalizing problems in connection with bullying and victimization. To this aim, longitudinal associations between RDs and bullying involvement are examined in two different age groups, young children in the beginning of elementary school (grades 1-3) and adolescents moving from elementary to middle school (grades 6-9). As a background, previous studies on bullying involvement and RDs are addressed separately, since to the best of my knowledge all of them are cross-sectional (or retrospective), and it is not yet known whether RDs are longitudinally associated with bullying involvement. Furthermore, the association has never been systematically studied among different age groups.

1.3.1 RDs and Comorbid Risk Factors

Evidence suggests that unassertive and insecure students, who are physically weak, have low self-esteem and poor social skills, have few friends, and are rejected in the peer group seem to be easy targets for potential bullies (Card & Hodges, 2008; Menesini & Salmivalli, 2017; Salmivalli & Isaacs, 2005). Further, internalizing symptoms such as depression, anxiety, and negative self-related cognitions as well as some externalizing problems (hyperactivity, conduct problems) are common among victims of bullying (Cook et al., 2010; Menesini & Salmivalli, 2017). Conversely, bullies have on the one hand been viewed as having poor social skills and low self-esteem, academic failures as well as social information processing deficiencies, adjustment problems and low standing in a peer group (Cook et al., 2010), and on the other hand, a subgroup of them as popular and socially intelligent (Menesini & Salmivalli, 2017). This highlights that not all bullies are similar. Significant externalizing problems and some internalizing symptoms (Cook et al., 2010), tendency to aggress and have negative attitudes and beliefs about others, and having thoughts supporting the use of aggression (Cook et al., 2010; Menesini & Salmivalli, 2017) and valuing dominance (Olthof et al., 2011) are common among bullying perpetrators. The most maladjusted group involved in bullying are bully/victims, who seem to share characteristics of both victims and bullies (Cook et al., 2010).

It is well established that difficulties in reading are frequently accompanied by emotional, behavioral, and interpersonal problems at school (e.g., Taanila et al., 2011; Undheim et al., 2011). Poor readers seem to portray anxiety, depression, and negative mood (Arnold et al., 2005; Halonen et al., 2006; Mammarella et al., 2014; Morgan et al., 2012; Willcutt & Pennington, 2000), as well as aggressive, angry, and antisocial behaviors and conduct problems (Bennett et al., 2003; Carroll et al., 2005; Morgan et al., 2008; Trzesniewski et al., 2006). Thus, RDs often co-occur with internalizing symptoms, which are recognized risk factors for victimization (Cook et al., 2010; Dahle et al., 2011; Reijntjes et al., 2010; Sentse et al., 2017), as well as with externalizing symptoms, which are risk factors for both victimization (Card & Hodges, 2008) and bullying others (Cook et al., 2010). Externalizing symptoms seem to be typical especially among bully/victims (Cook et al., 2010). Moreover, RDs have been linked with poor social skills and lack of social competence (Kavale & Forness, 1996; Parhiala et al., 2015; Vallance et al., 1998), peer rejection (Kiuru et al., 2012; Nabuzoka & Smith, 1993), low self-esteem (N. Humphrey & Mullins, 2002), as well as distractibility and inattentiveness (Carroll et al., 2005; Parhiala et al., 2015). Longitudinal findings support a reciprocal relation between reading difficulties and behavioral problems, leading to a vicious cycle of increasing problem behaviors, school disengagement, and academic failure (Halonen et al., 2006; Welsh et al., 2001). It is still unclear, however, whether and how this accumulation of emotional, behavioral and academic difficulties is related to bullying involvement that

also has negative consequences spanning to adulthood (Arseneault et al., 2010; Haltigan & Vaillancourt, 2014).

1.3.2 Bullying across Schoolyears

Overall, the percentage of students who are being bullied seems to decrease in higher grades (Brendgen et al., 2016; Haltigan & Vaillancourt, 2014; National Institute for Health and Welfare, 2019; Olweus, 1991; Pellegrini & Long, 2002; Shell et al., 2014). However, victimization has been found to be highly stable across the transition from elementary to middle school as many of those victimized at the end of elementary school are also victimized in the beginning of middle school (Paul & Cillessen, 2003). It seems that students at a high risk for being victimized remain at a high risk even after the transition (Brendgen et al., 2016), especially if they affiliate primarily with other victims (Farmer et al., 2015), but the risk then starts decreasing again (Gage et al., 2014). Disturbingly, some students continue to experience victimization, and recent studies have revealed that those who remain victimized in social contexts where less victimization occurs experience more adjustment difficulties than those in contexts in which victimization is more common (the *Healthy Context Paradox*, Garandeau & Salmivalli, 2019).

Contrary to victimization, the declining tendency with age for bullying others is not that clear (e.g., Haltigan & Vaillancourt, 2014). Although the overall bullying rate decreases across the school years (Pellegrini, 2002), many studies have identified a group of students who report higher rates of bullying perpetration after the transition to middle school (Espelage et al., 2015; Pellegrini & Bartini, 2000; Pellegrini & Long, 2002; Pepler et al., 2006), or an increase in the prevalence of bullies in middle school (Kärnä, Voeten, Little, Poskiparta, Alanen, et al., 2011). Especially boys seem to bully others as much or even more in middle school than in elementary school, whereas the opposite is true for girls (Olweus, 1991). Moreover, Schäfer et al. (2005) found in their longitudinal study that bullying perpetration in elementary school increased the risk of being a bully also in middle school, but elementary school victimization was not associated with victimization in middle school. According to Farmer and colleagues (2015), adolescents with externalizing problems in elementary school have an increased risk of bullying others in middle school, and those with internalizing problems in elementary school are more likely to be victimized in middle school, especially if they affiliate with peers who are also victimized.

Transition to a new school can be a new opportunity for students involved in bullying to form new, more positive relationships with their peers (Farmer et al., 2011; Holmström et al., 2014). On the other hand, this point in time may include further risks for the development of relational problems with peers in a new environ-

ment. As described above, researchers have found evidence for both. Prior to the transition, a major concern for many elementary school students is being bullied in middle school (Ashton, 2008; G. Bailey et al., 2015; Rice et al., 2011; Zeedyk et al., 2003), and those who have difficulties in dealing with their worries are at greater risk also for social problems when they enter middle school (Duchesne et al., 2012).

Whereas the age of transition to middle school differs between countries, some researchers suggest that the change itself seems to make the difference, not the age (McGee et al., 2003). According to Pellegrini (2002), aggression declines across the school years, except when there is a transfer to a new middle school during early adolescence. After changing schools, there is first an increase in bullying before the decline resumes. This has been suggested to be at least partly due to differences between elementary and middle school characteristics, such as varying and more impersonal classes, various subject teachers, competition and social comparison between peers, and teacher attitudes toward bullying (Pellegrini, 2002). Evidence also suggests that when adolescents do not change schools at this age, bullying declines without interruption (P. K. Smith et al., 1999). However, contradictory results have also been documented (e.g., Farmer et al., 2011; Kärnä, Voeten, Little, Poskiparta, Alanen, et al., 2011). Farmer et al. (2011) compared bullying and victimization experiences of adolescents who had to transfer to a new school when entering middle school with those who did not have to transfer. They found that the former group reported being bullied and bullying others less often than those in schools without a transfer. Their findings support the view that transition to a new middle school may be a new opportunity for students to form more positive social relations with their new peers.

1.3.3 RDs and School Adjustment

In the early school years, RDs often manifest as difficulties in learning to read, resulting in slow and struggling reading. Reading aloud in the classroom or group tasks involving reading may reveal these difficulties to all classmates. In subsequent grades, children are expected to use their reading skills acquired in the first school years as learning tools in other subjects and comprehension skills become more important. A school day becomes flooded with reading tasks, and for a student with RDs, the classroom may turn into an intimidating environment, as everything revolves around something formidable. Since reading is involved in most learning situations, problems with it can often be conspicuous.

The transition from elementary to middle school poses new challenges to those experiencing RDs. In order to succeed, struggling readers need to spend a lot more time on their academic tasks than average or skilled readers. Difficulties in compre-

hension skills also become problematic since texts become longer and more complex. In addition, in middle school, the entire learning environment becomes increasingly challenging due to both academic and social demands. Students from several elementary schools often move to a new, larger school building with a different teacher for each subject. This brings about social challenges, as the size and the structure of the peer groups change, and students are looking for their own niche in the new social structure (Pellegrini, 2002; Pellegrini & Bartini, 2000). Albeit stressful to some extent for everyone, the transition to middle school may lead to aggravation and adjustment problems especially for students with learning disabilities such as RDs, since these students often come to middle school with a history of poor performance and social problems (e.g., Wenz-Gross & Siperstein, 1998).

Studies examining reading skills in general populations have revealed that during the transition from elementary to middle school, students' reading achievement may stall or even decline to levels below the elementary school achievement (Hopwood et al., 2017). Also, a more general "dip" in academic progress after transition has been reported (Galton et al., 1999; McGee et al., 2003), although Akos, Rose, & Orthner (2015) found evidence of the transition effect as an interruption in academic growth rather than decline in skills. The interruption was larger for vulnerable students, such as students receiving special education.

Although there is lack of research on middle school transition among students with RDs, a few studies have investigated the transition of students with heterogeneous Special Educational Needs (SEN). Compared with their peers, they have more concerns regarding bullying beforehand (Evangelou et al., 2008), even though their transition experience may end up being just as successful as that of their peers (Evangelou et al., 2008; Forgan & Vaughn, 2000). However, most studies on adolescents with SEN show that they experience higher rates of victimization, more adjustment and mental health problems, less social support, and academic challenges during the transitional year (Evangelou et al., 2008; Evans et al., 2018; Hughes, Banks, & Terras, 2013; Martínez, 2006; Tur-Kaspa, 2002; Vaz, Parsons, Falkmer, Passmore, & Falkmer, 2014; Wenz-Gross & Siperstein, 1998). They also seem to have more internalizing and externalizing problems, and be rejected by their peers (Tur-Kaspa, 2002). In addition to SEN, lower academic achievement has been related to poorer transition to middle school (Anderson et al., 2000; West et al., 2010). Interestingly, a study by Bailey and Baines (2012) suggests that high levels of specific resilience factors (i.e., optimism and support) in primary school may leave SEN students less prepared for middle school. Researchers speculate that these students may underestimate the challenges in middle school or may lack necessary skills because of previous overreliance on support, and thus face difficulties in adjusting to middle school.

In general, researchers define adjustment to secondary education as social, academic, and emotional adaptation (Duchesne et al., 2012; D. Evans et al., 2018). Although for most adolescents acclimatization to middle school is fast and successful (Evangelou et al., 2008; Gillison et al., 2008; Pietarinen, 2000; Virtanen et al., 2019), transition brings along increased academic and social demands that can lead to stress and adjustment problems (McGee et al., 2003; Waters et al., 2012). Adjustment to middle school seems to involve developing a new set of social skills (January et al., 2011), which may be especially strenuous for students with RDs, since they are often deficient in social competencies to begin with (Kavale & Forness, 1996; Parhiala et al., 2015; Vallance et al., 1998). While the difficulties poor readers experience with their academic work and relationships with peers may not be new, they are likely to become more stressful when entering adolescence, a period of seeking greater autonomy from adults, greater intimacy in peer relationships and a search for identity (Wenz-Gross & Siperstein, 1998). In addition to being faced with an increasingly complex social and learning environment, adolescents experience less support and warmth from teachers (Hughes & Cao, 2018), and, at least in Finland, fewer special education services are available in middle school compared with elementary school (Official Statistics of Finland (OSF), 2010).

The extant literature points out that being bullied in school is a harmful experience for the academic adjustment and physical and mental health of youth (Due et al., 2005; Fekkes et al., 2004, 2006; Gini & Pozzoli, 2013; Glew et al., 2005; Hawker & Boulton, 2000; Kaltiala-Heino et al., 2000), and it has long-lasting effects that can persist until late adolescence and adulthood (Arseneault et al., 2010; Haltigan & Vaillancourt, 2014). Children who are frequently bullied are also more likely to leave formal education after finishing middle school compared with children who are not frequently bullied (UNESCO, 2019). Consequently, bullying experiences affect the career choice and income levels throughout the life span. Given the deleterious effects of bullying for those affected, it is important to study bullying involvement in potential risk groups such as students with RDs. Building on the descriptions of bullies, victims, and bully/victims above, it is reasonable to hypothesize RDs to be associated with bullying others (being a bully or a bully/victim). However, since RDs are easily noticeable to everyone in the classroom (Kaukiainen et al., 2002) and also co-occur with several characteristics associated with victimization, the association between RDs and victimization is also tested in this thesis. Few previous studies have examined these questions, and none of them in a longitudinal design.

2 Aims of the thesis

The purpose of this thesis is to examine victimization and bullying among students with RDs. This has never been studied before in a community sample of students or in a longitudinal design. In the three empirical studies of this thesis, this aim was addressed among different age groups of elementary and middle school students. Study I aims at drawing an overall picture of bullying among students with RDs in elementary and middle school. Studies II and III are based on a simple theoretical model in which reading difficulties and externalizing/internalizing problems co-occur (Morgan et al., 2008; Vaillancourt et al., 2013) and accumulate forming a risk of bullying involvement (G. W. Evans et al., 2013; Rönkä et al., 2001; Rutter, 1979, 1981; Sameroff, 2006). Moreover, these studies look at the associations between RDs and bullying from a developmental perspective. In Study II, the attention is in the beginning of elementary school when children are learning to read and improving their word reading skills. Study III shifts the focus to adolescence during which, in addition to reading fluency, comprehension skills become increasingly important, as adolescents are required to study more complex and advanced subjects in middle school. Thus, Study III considers both reading fluency and comprehension.

The specific questions addressed in the thesis were as follows:

1. Are students with reading difficulties more at risk for bullying involvement as victims, bullies, and bully/victims than their peers without such difficulties? (Studies I, II)
2. How are RDs associated with bullying involvement longitudinally in two developmentally different age groups, when internalizing and externalizing problems are taken into account?
 - a. Among school beginners, how are the development of decoding and reading fluency linked to later bullying involvement in Grade 3? (Study II)
 - b. In adolescence, do slow reading fluency and poor reading comprehension predict later involvement in school bullying across the transition from elementary to middle school? (Study III)

3 Method

3.1 Participants and Procedure

The empirical studies presented in this thesis utilized data from two research projects, randomized controlled trial of the KiVa antibullying program (Study I) and longitudinal First Steps Study (Studies II & III). The characteristics of the samples and the measures of each project are summarized in Table 1.

3.1.1 The KiVa Sample

Study I utilized data from the first wave (pretest) of the randomized controlled trial (RCT) of the KiVa antibullying program that took place in the end of the schoolyear preceding the intervention, in May 2007 for Grades 3–5 and May 2008 for Grades 7–8 (Kärnä et al., 2013; Kärnä, Voeten, Little, Poskiparta, Kaljonen, et al., 2011). From the target sample of 19,191 students from 78 elementary and 74 middle schools, the study included all the students with an informed consent and active parental consent, who had answered to the question of reading difficulties, and had peer-reports of their victimization and bullying perpetration. This criterion led to the final sample of 17,188 students (48.9% boys) nested within 1045 classrooms in 147 schools: 6,991 in grades 3-5 of elementary school (49.6% boys), and 10,197 in grades 7-8 of middle school (48.4% boys).

Students completed Internet-based questionnaires in the schools' computer labs during school hours. They were assured anonymity and confidentiality of their responses. The process was administered by teachers who had been provided with detailed instructions, and who were offered support via phone or e-mail prior to and during data collection. Students received individual passwords to log in to the questionnaire. The order of the questions was randomized across the participants.

Table 1. Summary of the samples and measures of the three empirical studies

	Study I	Study II	Study III
DATA SET	KiVa RCT	First Steps	First Steps
DATA COLLECTION	2007 for Grades 3–5 2008 for Grades 7–8	2007-2010	2013-2016
DESIGN	Cross-sectional	Longitudinal	Longitudinal
GRADE LEVELS	3,4,5,7,8	1 (T1) – 3 (T4)	6 (T1) – 9 (T3)
STUDENTS, <i>N</i>	17,188 students (48.9% boys)	480 students (218 girls, 262 boys; 43.1% with RD risk and 56.9% without RD risk)	1,824 students (47.3% female)
CLASSROOMS, <i>N</i>	1045	140 (T3)*	154 (T1)
SCHOOLS, <i>N</i>	147	74 (T4)*	75 (T1)*
READING SKILLS / DIFFICULTIES	Self-reported reading difficulties	Test scores: Word-reading skills	Test scores: Reading fluency and reading comprehension
VICTIMIZATION AND BULLYING	Peer-reports, 4 categories (>1.0 SD: victims, bullies, bully/victims, noninvolved)	Self-reports, 4 categories (2-3 times or more per month: victims, bullies, bully/victims, noninvolved)	Self-reports, victimization and bullying (continuous)
OTHER MEASURES	Self-reported math difficulties Self-esteem Gender School level (elementary vs. middle)	Externalizing and internalizing problems	Externalizing and internalizing problems
STATISTICAL ANALYSES	χ^2 tests Multilevel multinomial logistic regression	ANOVA Factor Mixture Analysis (FMA) Cross-tabulation	Cross-lagged panel model

*not taken into account in the analyses

3.1.2 The First Steps Sample

The data for Studies II and III came from an extensive longitudinal age cohort study (First Steps study, Lerkkanen et al., 2006-2016), in which a community sample of children born in 2000 ($n = 1,880$) were followed from kindergarten entry (Grade 0, age $M = 74.0 \pm 3.6$ months) to the end of middle school (Grade 9). The study was evaluated and approved by the ethics committee of the University of Jyväskylä (June 6, 2006). It included the entire age cohort in one rural municipality and two medium size towns, plus about a half of the age cohort from one big city. Parents gave their written consent for their child to participate two times, separately from kindergarten to Grade 4, and for Grades 6-9. In addition to original kindergarten sample, classmates of these children were included in the sample in Grades 1 and 2, and at best the sample size was 2005. In Finland, nine-year comprehensive school starts in the year children turn seven years of age (Grade 1). The transition from elementary to middle school takes place between Grades 6 and 7.

Study II focused on the beginning of elementary school when the participants were in Grades 1 (T1 September 2007 and T2 March 2008), 2 (T3, March 2009), and 3 (T4, March 2010). Participants comprised a subsample of 480 children (218 girls, 262 boys; 43.1% with RD risk¹ and 56.9% without RD risk) and their teachers ($n = 130-133$). They were part of an intensively followed subsample of 608 students drawn from the community sample (see Figure 1) that included both students at risk for reading disabilities (50%) and students not at risk (50%). Study II included all children out of the 608 who at the end of the third school year (T4, 2010) were in Grade 3, had answered the questions about victimization and bullying others, and whose teacher had reported the child's externalizing/internalizing problems at least once during Grades 1 and 2. At T1, T2, and T3, the children's reading skills were tested by trained research assistants during regular school hours in the presence of

¹ Reading disability risk had been determined in kindergarten spring as scoring either under the 15th percentile in at least two out of three pre-reading skills (phonemic awareness, naming letters, or rapid serial naming); or under the 15th percentile in one of them and in addition, parents reporting reading problems in the family (for details, see Lerkkanen, Ahonen, & Poikkeus, 2011). This original risk group (50%) made up approximately 15% of the total sample of 1880 children. Therefore, the standardization of variables used in Study II was based on means and standard deviations of a subsample of 378 children, in which the number of the children with RD risk was randomly drawn to equal 15% (Kiuru et al., 2013). This sample is referred to as a random sample in the study and it is representative in regard to the original community sample of 1880 children (see Zhang et al., 2014).

the classroom teacher, and their teachers completed questionnaires about externalizing/internalizing problems of each student. The questionnaire about bullying experiences was answered by the students in T4.

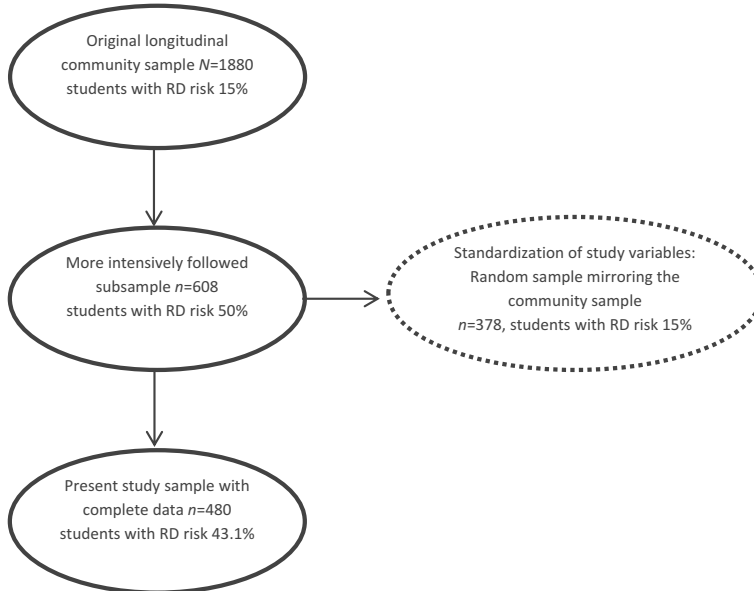


Figure 1. The sampling procedure of Study II

Study III followed the students participating in the First Steps study across the transition to middle school that is, during Grades 6, 7, and 9. The sample consisted of 1,824 students (47.3% female), who belonged to the original community sample and whose parents gave a new informed consent for their child to participate the study in Grade 6 (T1, April 2013). Of these students, 1,715 (47.3% female) participated also in Grade 7 (T2, April 2014), and 1,647 (47.1% female) in Grade 9 (T3, April 2016). The students' reading fluency and comprehension skills were tested by trained research assistants during school hours, and the students answered questionnaires about their victimization and bullying experiences, as well as externalizing and internalizing problems.

3.2 Measures

In each of the three empirical studies, reading difficulties (Study I) or reading skills (Studies II and III), as well as victimization and bullying were assessed as main measures. In addition, externalizing and internalizing problems were considered in

Studies II and III. Analyses in Study I were conducted taking into account control variables such as difficulties in math, self-esteem, gender, and level of schooling.

3.2.1 Reading Difficulties and Reading Skills

A measure of either reading difficulties (RDs) or reading skills was utilized in all three studies. In KiVa RCT, self-evaluated reading difficulties were recorded and used in Study I. Students evaluated on a 4-point scale (0=no difficulties, 1=small difficulties, 2=medium difficulties, and 3=large difficulties) whether they had encountered difficulties in reading. In the first part of the analyses, those who reported having medium or large difficulties in reading were classified into the reading difficulty group (RD), and in the second part of the analyses, RD scores were used as a continuous variable. Due to the low frequency (only 0.7%) of the students reporting large difficulties in reading, medium difficulties and large difficulties categories were combined. Thus, in the final model, reading difficulties were evaluated in a 3-point scale (0=no difficulties, 1=small difficulties, 2=medium or large difficulties).

Standardized reading test scores were collected in the First Steps project, and in Studies II and III age-appropriate measures of reading skills were used. In Study II, word-reading skills were measured in Grades 1 and 2 with two nationally normed reading tests (Häyrynen et al., 1999; Lindeman, 1998). Both fluency and accuracy of decoding were assessed, since with transparent orthographies such as Finnish these skills usually develop rapidly in the beginning of elementary school. This enabled the total distribution of readers to be studied. A reading comprehension measure was not included because 65% of the students entered Grade 1 as non-readers in the sample (Niemi et al., 2011). Moreover, in the spring of Grade 1 the average reading comprehension score exceeded the guessing level by less than 1 SD (Torppa et al., 2016), indicating that a relatively large subgroup of students performed at a level which is not measurable through the first Grade. The sums of the two different word-reading test scores were standardized according to the distribution of the random sample and then averaged, creating the total word-reading skill variable for T1, T2, and T3.

Since Study III focused on adolescence, reading comprehension test scores were also utilized in addition to measuring reading fluency with two group-administered tests. The sum scores of a word reading fluency task (Lindeman, 1998) and a word-chain task (Holopainen et al., 2004; Nevala & Lyytinen, 2000) were standardized and averaged to the total fluency score separately for each Grade (Grades 6, 7, and 9). To assess reading comprehension in Grade 6, a subtest of the nationally normed reading test battery (ALLU; Lindeman, 1998) was used. In Grades 7 and 9, a similar standardized reading comprehension test developed for middle school was utilized

(YKÄ; Lerkkanen, Eklund, Löytynoja, Aro, & Poikkeus, 2018). Analyses were conducted separately for reading fluency and comprehension.

3.2.2 Victimization and Bullying

Victimization and bullying measures were utilized in all three studies. In Study I, peer-reported victimization and bullying were measured with victimization and bullying subscales from the Participant Role Questionnaire (PRQ; Salmivalli & Voeten, 2004). Students were asked to nominate an unlimited number of classmates from the list of their names appearing on the computer screen, and they were also allowed to select “no one”. The classmates without parental consent or not participating in the study for other reasons could also be nominated, but they were excluded from the final study sample. The order of the names was randomized across participants to avoid response bias.

Victimization was measured by asking students to report which of their classmates are treated in the following three ways: “He/She gets shoved and hit,” “He/She is called names and made fun of,” and “Rumors are spread about him/her”. Bullying was measured by asking students to evaluate which of their classmates behaved in the following ways: “Starts bullying,” “Makes the others join in the bullying,” and “Always finds new ways of harassing the victim”. Peer nominations received for each item were divided by the number of possible nominations, resulting in a proportion score ranging from 0.00 to 1.00 for each student on each item. The scores were then averaged across the three items. Students who were systematically involved in bullying at school were identified by the criterion used by several other researchers (e.g., Kaukiainen et al., 2002; Yang & Salmivalli, 2013). Students with only a victimization score more than 1.0 SD above the sample mean were identified as victims, and those with only a bullying score more than 1.0 SD above the sample mean were identified as bullies. If both victimization and bullying scores were more than 1.0 SD above the sample mean, the student was identified as a bully/victim, whereas individuals whose victimization and bullying scores were both less than 1.0 SD above the mean were categorized as noninvolved.

Studies II and III measured self-reported victimization and bullying with the global, single item bullying and victimization questions from the revised Olweus Bully/Victim Questionnaire (Olweus, 1996). The students were explained the definition of bullying, emphasizing its repetitive nature and the power imbalance between bully and victim, and they could also read the definition on the self-report questionnaire. They were asked how often they had been bullied, and how often they had bullied others at school in the last couple of months. Answer was given on a 5-point scale (1 = not at all, 2 = only once or twice, 3 = two or three times a month, 4 = about once a week, and 5 = several times a week). In Study II, bullies, victims and

bully/victims were identified by the criteria suggested by Solberg and Olweus (2003). Those who had not bullied others but had been bullied 2-3 times or more per month were categorized as victims; while those who had bullied others but had not been bullied 2-3 times or more a month were categorized as bullies. Children who reported having both bullied and been bullied 2-3 times or more a month were categorized as bully/victims. The remaining participants were categorized as uninvolved. In Study III, bullying and victimization were used as continuous variables.

3.2.3 Externalizing and Internalizing Problems

In Studies II and III, externalizing and internalizing problems were evaluated with the Finnish version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997, 2001). The SDQ consists of 25 items rated on a 3-point scale (i.e., 0 = not true; 1 = somewhat true; 2 = certainly true), producing scales for hyperactivity/inattention, conduct problems, emotional symptoms, peer problems, and prosociality.

Study II utilized the teacher form of the measure in T1, T2, and T3. To measure externalizing problems, sum scores were calculated for hyperactivity/inattention (five items, e.g., restless, cannot stay still for long) and conduct problems (five items, e.g., often fights with other children or bullies them) scales. To measure internalizing problems, emotional symptoms and peer problems subscales were summed up.

In Study III, self-report form of the SDQ was used. The composite score for externalizing problems for each grade was formed as the mean score of the hyperactivity/inattention and conduct problems scales. Internalizing problems subscale was computed as a mean score of items on the emotional problems scale.

3.2.4 Control Variables

In Study I, several control variables were included in the analyses. Gender (0=girl, 1=boy) and school level (1=elementary, 2=middle) were self-reported by the students. Moreover, they evaluated on a 4-point scale (0=no difficulties, 1=small difficulties, 2=medium difficulties, and 3=large difficulties) whether they had difficulties in math (MDs). MD scores were used as a continuous control variable. Finally, students' self-esteem in the peer context was measured on a 10-item scale derived from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The questions were slightly adapted by instructing students to "report the way you feel about yourself when around peers" (Salmivalli & Isaacs, 2005). Participants responded on a 5-point Likert-type scale (0=not true at all, 4=exactly true) to items such as "I feel that I have a number of good qualities" and "Sometimes I feel really useless". Five negatively worded items were reversely coded. The scores for the 10 items were averaged and used as a continuous control variable in the analyses.

3.2.5 Statistical Analyses

The objectives of the Study I were to provide prevalence information on victims, bullies, and bully/victims among RD students (reporting medium or large difficulties in reading) compared with their peers without RDs, and to test how strongly RDs are cross-sectionally associated with peer-reported involvement in school bullying as victims, bullies, and bully/victims. For prevalence, χ^2 tests were conducted to examine the distribution of victims, bullies, bully/victims, and noninvolved students among RD and non-RD students, and the adjusted standardized residuals were inspected to reveal differences between the two groups. For the second aim, multilevel analyses were performed with the Mplus statistical package (Version 7.11; Muthén & Muthén, 1998-2018). Multinomial logistic regression analysis was conducted at the individual level, two-level modeling was used to account for the classroom-level variation (using random classroom intercepts) and the COMPLEX command was used to account for the school-level variation.

In Study II, firstly, to gain descriptive information about how reading skills and externalizing/internalizing problems relate to involvement with bullying, a series of repeated measure ANOVAs were calculated, taking into account nestedness due to differences between classrooms by introducing classroom identification number in Grade 3 as a random factor. Secondly, in order to prepare for testing the hypotheses of the study, a factor mixture analysis (FMA, mixture modeling; Lubke & Muthén, 2005) was used to identify subgroups of students based on their word reading skills and externalizing/internalizing problems across Grades 1-2 by using the Mplus statistical package (Version 7.4; Muthén & Muthén, 1998-2018). The COMPLEX command was used to deal with the possible differences between classrooms (Muthén & Muthén, 1998-2018). Finally, to test the hypotheses and to better understand how developmental subgroups related to the categorized self-reports of bullying involvement, cross-tabulations were used to calculate the standardized residuals for each cell, taking into account the main effects of each.

Study III aimed to investigate, how poor reading skills are related to bullying and victimization across the transition from elementary to middle school, controlling for externalizing and internalizing problems. Two longitudinal cross-lagged panel models² with 3 time-points (T1, T2, and T3) were fitted to the data separately for reading fluency (Model A) and comprehension (Model B), utilizing Mplus statistical package (Version 7.4; Muthén & Muthén, 1998-2018). The differences between classrooms were controlled for by using COMPLEX option (Muthén & Muthén, 1998-2018).

² For technical reasons the Figures in the published article of Study III included in the end of this thesis are small. The original article including zoomable figures can be found from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0249112>

4 Overview of the Studies

STUDY I

Turunen, T., Poskiparta, E., & Salmivalli, C. (2017). Are reading difficulties associated with bullying involvement? *Learning and Instruction, 52*, 130–138.

In Study I, the association of self-reported reading difficulties (RDs) with peer-reported involvement in bullying was tested in a nationally representative sample of 17,188 students (Grades 3-8) from 1045 classrooms in 147 schools. Because classmates easily notice RDs, these may cause frustration in the affected students. Difficulties are also often accompanied by emotional, behavioral, and interpersonal problems at school. Although interviews with students with RDs have revealed bullying experiences, whether RDs actually increase the risk of bullying involvement has not been investigated before.

Students completed Internet-based questionnaires in the schools' computer labs during school hours. They responded to questions concerning their RDs, difficulties in math (MDs), and self-esteem, and reported their gender and school level. Furthermore, they also gave peer-nominations on victimization and bullying perpetration in their classroom. Based on these peer-reports, students were classified as victims, bullies, bully/victims and noninvolved students (>1.0 SD). The objectives were to provide prevalence information on victims, bullies, and bully/victims among RD students (reporting medium or large difficulties in reading) compared with their peers without RDs, and to test how strongly RDs are cross-sectionally associated with peer-reported involvement in school bullying as victims, bullies, or bully/victims.

Results indicated that, in general, over a third of students with RDs were involved in bullying as victims, bullies, or bully/victims, compared with approximately a fifth of students without RDs. Moreover, RDs were associated with involvement in bullying as victims, bullies, and bully/victims also when gender and school level were controlled for. When self-esteem was added to the model, all results regarding RDs remained the same, and RDs were still associated with being a victim, a bully, and a bully/victim. When math difficulties (MDs) were added to the model, RDs were still associated with the victim and the bully/victim statuses, but the association was no longer statistically significant for the bully status. According to the

results, experiencing difficulties in the most fundamental learning skill seems to put students at risk especially for victimization at school (viewed by peers as victims and bully/victims).

STUDY II

Turunen, T., Kiuru, N., Poskiparta, E., Niemi, P., & Nurmi, J.-E. (2019). Word reading skills and externalizing and internalizing problems from Grade 1 to Grade 2 – Developmental trajectories and bullying involvement in Grade 3. *Scientific Studies of Reading*, 23(2), 161–177.

Study II, using a sample of 480 Finnish children (mean age 7 years 2 months in the beginning of the study, 43.1% with previously identified RD risk), examined how word-reading skills and externalizing/internalizing problems in Grades 1 and 2 predict the degree to which students are involved in bullying in Grade 3. School bullying is associated with externalizing and internalizing problems, but little is known about whether reading difficulties (RDs) also play a part.

The children's word reading skills (fluency and accuracy of decoding) were tested by trained research assistants during school hours in the presence of the classroom teacher in the fall of Grade 1 (T1, September 2007), spring of Grade 1 (T2, March 2008), and spring of Grade 2 (T3, March 2009). Teachers completed questionnaires about externalizing/internalizing problems also at T1, T2, and T3. The self-reports of victimization and bullying were collected in the spring of Grade 3 (T4, March 2010). Word reading skills, externalizing problems and internalizing problems were used as continuous variables, and based on self-reports of victimization and bullying, students were classified (2-3 times or more per month) as victims, bullies, bully/victims and noninvolved students. Developmental profiles were identified using mixture modeling (FMA) based on reading skills, as well as externalizing and internalizing problems at T1, T2, and T3. Developmental subgroups were cross-tabulated with the categorized self-reports of bullying involvement.

In Grade 3, a fifth of the students were involved in bullying either as victims, bullies, or bully/victims. Grade 3 bullies had had significantly weaker reading skills, bullies and bully/victims more externalizing problems, and bully/victims more internalizing problems than others in previous grades. Further, Grade 3 victims had experienced more internalizing problems in Grade 2 but not in Grade 1. FMA identified five subgroups of students based on their word-reading skills, externalizing problems and internalizing problems in Grades 1 and 2. Largest group (53.1%) had below average reading skills without externalizing/internalizing problems. 18.1% had no externalizing/internalizing problems and their reading skills were above average. 15.2% were poor readers with both externalizing and internalizing problems, and

3.3% had only externalizing and internalizing problems without RDs. Finally, 10.2% were skilled readers without externalizing or internalizing problems.

Poor readers with externalizing/internalizing problems were most involved as bullies and bully/victims, but not as victims. Average readers with externalizing/internalizing problems were also involved in bullying, while students with only RDs were not. Skilled readers displayed little externalizing/internalizing problems and were not involved in bullying. It seems that poor reading skills alone do not increase the risk of bullying involvement at school. However, in tandem with externalizing/internalizing problems, they *do* add to the risk of bullying others.

STUDY III

Turunen, T., Poskiparta, E., Salmivalli, C., Niemi, P., & Lerkkanen, M.-K. (2021): Longitudinal associations between poor reading skills, bullying and victimization across the transition from elementary to middle school. PLoS ONE, 16(3):e0249112.

Study III investigated the longitudinal interplay between reading skills (fluency and comprehension), victimization, and bullying across the transition from elementary to middle school, controlling for externalizing and internalizing problems. Students with poor reading skills and reading difficulties (RDs) are at elevated risk for bullying involvement in elementary school but it is not known whether they are at risk also later in adolescence. In Finland, the nine-year comprehensive school begins in the year children turn seven years of age. The transition from elementary to middle school takes place between Grades 6 and 7.

The sample consisted of 1,824 students (47.3% girls, T1 mean age was 12 years 9 months) from 150 Grade 6 classrooms, whose reading fluency and comprehension were tested during regular school lessons by trained research assistants in Grades 6 (T1), 7 (T2), and 9 (T3). In addition, they replied to questionnaires about their self-reported victimization and bullying, and self-reported externalizing and internalizing problems. Two cross-lagged panel models with three time-points were fitted to the data separately for reading fluency and comprehension. Fluency, comprehension, victimization, bullying, externalizing problems and internalizing problems were all used as continuous variables.

The results indicated that poorer fluency and comprehension skills in Grade 6 predicted bullying in Grade 7, and poorer fluency and comprehension skills in Grade 7 predicted bullying in Grade 9. These associations were small but statistically significant. Neither fluency nor comprehension were longitudinally associated with victimization. Externalizing and internalizing problems were interrelated and associated

with RDs somewhat differently. Reading fluency in Grade 7 predicted more internalizing problems and less externalizing problems in Grade 9, and reading comprehension in Grade 7 predicted less externalizing problems in Grade 9. There were no significant longitudinal associations between Grades 6 and 7. Furthermore, externalizing problems negatively predicted subsequent reading measures both between Grades 6-7 and 7-9. Internalizing problems positively predicted reading measures between Grades 7-9. In Grade 6, neither reading fluency nor comprehension were concurrently associated with externalizing/internalizing problems. In Grade 7, (residuals of) both fluency and comprehension were negatively associated with externalizing problems, and in Grade 9, (residual of) reading fluency negatively correlated with internalizing problems.

Overall, the effects of reading skills on bullying perpetration were relatively small and externalizing problems increased the risk for bullying others more than poor reading skills did.

5 Discussion

Victimization and bullying among students with reading difficulties were the topic of the present thesis. So far, research has focused on students with general learning disabilities, and when RDs in particular have been examined in relation to bullying; most studies have utilized interviews of students with RDs without a control group. Furthermore, no previous studies have examined RDs and bullying involvement longitudinally. In this thesis, the focus was on students with RDs, measured both as experienced difficulties in reading (self-reported RDs) and as poor achievement in standardized reading tests (accuracy of decoding, fluency, and reading comprehension).

Two goals were set. Firstly, to examine whether students with reading difficulties are more at risk for bullying involvement than their peers without such difficulties. Secondly, to study how the longitudinal interplay between poor reading skills (decoding and fluency / comprehension) and externalizing/internalizing problems is related to bullying involvement. I was interested in how the accumulation of these risk factors influences bullying involvement among children and adolescents in two different developmental phases. Among school beginners, I wanted to find out how struggles in the process of learning to read co-occurring with externalizing and internalizing problems associate with later bullying involvement. In adolescence, I tested how poor reading skills (fluency and comprehension) are associated with victimization and bullying during and after the transition from elementary to middle school, when externalizing/internalizing problems are taken into account.

To summarize the results, students with RDs were found to be more often involved in bullying than those without RDs. Reassuringly, the risk RDs posed for bullying involvement was not very high. Self-reported RDs were found to associate most strongly with victimization (being a victim or a bully/victim), whereas RDs measured with reading tests were associated only with bullying perpetration, not with victimization. Compared with all other subgroups identified among school beginners, those with accumulated RDs and externalizing/internalizing problems were most at risk to get involved as bullies and bully/victims. In adolescence, controlling for externalizing and internalizing problems, RDs were related to later bullying perpetration. The association was similar during and after the transition from elementary

to middle school. However, although statistically significant, in all studies the association of RDs with bullying involvement or perpetration was rather weak.

5.1 Bullying Involvement among Students with RDs

As an answer to the first goal of the thesis, Study I revealed that, in general, students with self-reported RDs were more often involved in bullying as victims, bullies, or bully/victims than their peers without RDs. RDs were associated with all bullying statuses even when controlling for gender and self-esteem of the students. When difficulties in math were further controlled for, the association between RDs and bully status disappeared, and RDs were related only with the victim and the bully/victim statuses. Inconsistently in Study II, bullies in Grade 3 had been weaker readers in Grades 1 and 2 than their peers. Previous challenges in accuracy and fluency of reading occurring together with externalizing and internalizing problems were a risk factor for being a bully or a bully/victim in third grade, but not for being a victim. Although in Study III victimization and bullying were measured as continuous variables instead of categorizing students into victims, bullies, bully/victims, and noninvolved groups, results supported those of Study II and indicated that both reading fluency and comprehension were associated only with bullying, not with victimization.

There were differences between studies on how victimization and bullying were measured (self-reports in Studies II and III vs. peer-reports in Study I). However, the analyses of Study I were also conducted with self-reports in order to see whether this influenced the results. All results were stronger with self-reports (shared method variance), and RDs were related with all bullying statuses, including being a victim, even when controlling for both self-esteem and MDs. Thus, methodological issues related to measuring victimization and bullying do not explain the different results. However, measurement of RDs seems to affect the results. RDs measured with self-reports were significantly associated with victimization (being a victim or a bully/victim), whereas RDs measured as poor performance in standardized reading tests were associated only with bullying perpetration (being a bully or a bully/victim, or bullying perpetration as a continuous variable). Results were similar for school beginners and adolescents, and for reading fluency and comprehension tests. This is somewhat surprising, since based on previous literature I expected that RDs would be associated with both victimization and bullying perpetration. Instead, results differed between self-reports and reading test measures, which is not easy to explain. Looking more closely at self-reports of RDs may provide some explanation to this.

A more in-depth analysis showed that in Study I the prevalence of students with self-reported RDs corresponded with RDs reported previously in Finland. The low percentage also suggested that self-reports did not overestimate the frequency of

RDs, but rather might have captured the most severe difficulties. Conversely, in both studies utilizing reading test scores reading skills were used as continuous variables. We did not categorize reading test scores to form the group with the most severe challenges in reading, which may partly explain the differences in the results. However, the associations between measured reading skills and victimization were either very weak or nonexistent in both studies. This suggests that for some reason self-reports and reading test scores relate to victimization and bullying differently.

Although, as explained in Study I and its Appendices, self-reported RDs corresponded relatively well to teacher-reports for elementary-school students and to results on reading tests for middle-school students, they appear to tap different aspects of poor reading ability. Self-reports of RDs are also likely to capture students who feel that they read at an insufficient level in relation to the demands they face in school, even if no RDs have been diagnosed. Self-reports of RDs are rarely used in research, and all previous studies that I found had been conducted among adolescents (Green et al., 2009; Undheim et al., 2011) and adults (e.g., Deacon et al., 2012; Snowling et al., 2012; Vogel & Holt, 2003; Wolff & Lundberg, 2003). Deacon et al. (2012) compared university students with diagnosed and self-reported RDs to students without such difficulties on several standardized measures of reading and phonological awareness. In their study, the students without RDs outperformed both groups of RD students on almost all measures, and although the self-report and diagnosed groups performed similarly on most tasks, some differences were found. Those with self-reported RDs read faster but had poorer reading comprehension than those with diagnosed RDs. The researchers concluded that the two recruitment methods (self-reports vs. diagnosed RDs) likely sample from the same underlying population but identify individuals with different adaptive strategies.

Because the dataset used in Study I did not have other measures of reading skills or RDs besides self-reports, it was decided that utilizing self-evaluations of reading difficulties also among elementary school students seemed conceivable. Along with age, students become increasingly aware of individual differences in abilities and achievement (Renick & Harter, 1989). Although five-year-olds still tend to view themselves overly positively, already by nine years of age children evaluate their skills quite realistically (Nicholls, 1978), and this accuracy keeps improving throughout the schoolyears. Low academic self-concept related to dyslexia (Burden, 2008; N. Humphrey & Mullins, 2002; Zeleke, 2004), which might especially be typical of those self-reporting RDs, has been associated with lower social self-concept in adolescence (Preckel et al., 2013), victimization and aggressive behavior (Blakely-McClure & Ostrov, 2016; Jenkins & Demaray, 2015), and poor school adjustment (Antonio-Agirre et al., 2015). The subjective disadvantage experienced due to RDs is likely to be associated with emotional, behavioral, and interpersonal prob-

lems, even if RDs have not been noticed in the school or formally diagnosed. Therefore, self-reports may be helpful in understanding social consequences of RDs. However, the possibility needs to be acknowledged that low self-esteem and emotional burden related to victimization and bullying may also be reflected in all self-assessments, including those concerning academic difficulties.

5.2 RDs and Externalizing/ Internalizing Problems in Relation to Bullying Involvement

The second aim of this thesis was to examine longitudinally how RDs co-occur with externalizing and internalizing problems, and how this interplay is associated with bullying involvement. Taking a developmental perspective, this was studied separately in two distinct age groups. Study II focused on school beginners and explored how the development of decoding and fluency, as well as internalizing/externalizing problems in Grades 1 and 2 of elementary school were linked to bullying involvement in Grade 3 as a bully, victim, or a bully/victim. Study III looked at adolescents transitioning from elementary to middle school by examining how poor reading skills (fluency and comprehension), externalizing problems and internalizing problems were associated with each other and later victimization and bullying in Grades 6, 7, and 9.

In line with other studies suggesting that problem behavior and academic difficulties tend to be interlinked (e.g., Cook et al., 2010), RDs were concurrently and longitudinally associated with externalizing and internalizing problems. However, the association was relatively weak and somewhat complicated. In Study II, most of the students with below average word-reading skills did not portray externalizing or internalizing problems as identified by their teachers, whereas fewer than a quarter did. When they did, they had comorbid externalizing and internalizing problems. Looking from the other perspective, externalizing and internalizing problems were usually accompanied by struggling reading. Internalizing problems did not emerge as an independent factor distinct from externalizing ones among either poor or average readers. The explanation of this discrepancy may be the age of the participants: it is possible that acting-out behaviors at the beginning of elementary school are symptomatic of both behavioral and emotional problems, resulting in few students portraying internalizing symptoms only. Another explanation could be related to teacher reports. Teachers seem to be less adept at identifying internalizing problems among children (Dwyer et al., 2006) and adolescents (Undheim et al., 2016), whereas they quite accurately evaluate externalizing problems (Sourander & Helstelä, 2005). Since externalizing problems such as restlessness or aggressive behavior are acting-out behaviors by definition, this seems natural. Hiding internalizing problems such as depression or anxiety from adults is much easier and relatively common for youth.

Moreover, promoting mental health is typically absent in teacher training which may further explain the unintended ignorance (Askell-Williams & Cefai, 2014). The challenges with teacher-reports were overcome in Study III by assessing internalizing and externalizing problems with adolescents' self-reports. The results indicated some concurrent and cross-lagged associations between reading and problem behaviors, although no very clear pattern emerged. There were no significant longitudinal associations from reading to problem behaviors between Grades 6 and 7, but in middle school, poor reading fluency and comprehension were related to subsequent externalizing problems. Reversed, higher levels of externalizing problems were associated with poorer fluency and comprehension later on during and after the transition to middle school.

The results regarding reading test scores and bullying involvement were more consistent: RDs were, weakly but consistently, associated with bullying perpetration but not victimization among both children and adolescents. As for school beginners, struggling readers with externalizing/ internalizing problems were most often involved in bullying as bullies or bully/victims, and in adolescence, both fluency and comprehension negatively predicted later bullying perpetration. This is in line with the results of Kaukiainen et al. (2002) and support the notion that RDs may trigger frustration and antisocial behavior in children and adolescents. The accumulation of risk factors (RDs and externalizing/internalizing problems) was apparent especially among school beginners. However, research has also suggested that bullying is used as a strategy to increase dominance status especially in adolescence (Pellegrini & Bartini, 2000; Pellegrini & Long, 2002). It is also possible that this is the motivation behind poor readers' bullying perpetration. RDs may be a factor threatening one's social status and gaining social dominance by academic means may be difficult. Since SEN students worry more than their peers about being bullied in middle school (Evangelou et al., 2008), it is possible that poor readers are particularly concerned about their position in the new group and compensate their worries by aggressive means, such as bullying others. According to Study III, in adolescence poor reading skills were associated with bullying perpetration over and above externalizing/internalizing problems. However, based on the results of this thesis, the motives behind the bullying perpetration among school beginners and adolescents with RDs remain unknown. Nevertheless, it is important to remember that although the association between RDs and bullying perpetration turned consistent in both age groups, it was small in magnitude. Only a minority of struggling readers end up frustrated, aggressive, or bullying their peers.

Contrary to the expectations, reading skills measured with standardized reading tests were not longitudinally associated with victimization among either school beginners or adolescents. Previous interview studies (Hellendoorn & Ruijsenaars, 2000; N. Humphrey & Mullins, 2002; Ingesson, 2007; Singer, 2005), as well as

Study I of this thesis utilizing self-reports of RDs, have associated RDs also with victimization. In the beginning of the elementary school, none of the groups identified with FMA were linked to being a victim, and in adolescence Grade 6 or Grade 7 reading skills (fluency or comprehension) were not associated with victimization. This is in line with the research showing that poor academic performance is a significant predictor of bullying behavior, but the same cannot be said about victimization (Cook et al., 2010). It seems that being a poor reader is not likely to make students easy targets for later victimization.

In Study III it was further predicted that reading skills would be associated with bullying and victimization more strongly across the transition from elementary to middle school (between Grades 6 and 7) than during middle school (between Grades 7 and 9). This was not the case. For both measures of reading skills, the small association with bullying was equal between Grades 6 and 7 as it was between Grades 7 and 9, and the association between reading skills and victimization was not significant in either comparison. The transition to middle school does not seem to add to the risk poor reading skills pose to bullying or victimization.

5.3 Limitations and Strengths

In general, each subsequent study was planned to overcome the major challenges of the preceding study. Providing reliable information combining two low-prevalence phenomena such as RDs and bullying involvement is challenging. For this reason, there are several limitations associated with the individual studies, and compromises had to be made when weighing sample size against measures chosen to evaluate RDs.

In Study I, utilizing self-reports of RDs enabled gathering information about RDs from a large group of students. Further, the data used in this study were cross-sectional. Most previous studies assessing RDs, LDs, or academic challenges in connection to bullying have utilized relatively small samples also cross-sectionally. To acquire robust frequency estimates of bullying among students with RDs, a large sample was considered essential. The evaluation of RDs of a large group of students with standardized testing requires time and resources, and difficulties recognized by schools are seldom accurate enough, resulting in examinations of heterogeneous groups of students with learning problems which has burdened many previous studies (Cornwall & Bawden, 1992; Rose et al., 2011). As explained in Study I and its Appendices, we had an opportunity to validate the measures by comparing the self-reports with teacher evaluations in elementary school one year later, and by comparing them with standardized reading test scores in middle school on another nationally representative student sample. Finally, in the dataset used in Study I, there was no

information about internalizing and externalizing problems that are considered robust predictors of bullying involvement, which often co-occur with RDs. Instead, self-esteem and MDs were used as covariates as an attempt to ensure that the results would reflect the true association between RDs and bullying involvement. Although the results of this study provided a contribution to the existing literature, they were left warranting replication using standardized reading tests and a longitudinal design and taking into account internalizing and externalizing problems in the analyses. Studies II and III were designed to take this into account.

In Study II, the limitations of Study I were addressed by utilizing standardized reading tests, longitudinal design, and externalizing and internalizing problems as covariates. This resulted in sacrificing the sample size, which was small for the purpose of evaluating a low frequency phenomenon such as school bullying – only one fifth of the participating students were involved in some capacity. Consequently, only cross-tabulation could be used for evaluating bullying involvement among groups identified by mixture analysis instead of more complex analyses. Moreover, considering other factors possibly affecting the associations proved impossible. A second limitation in Study II was the over-representation of students at risk for reading failure, which enabled identifying more students involved in bullying than would have been possible with a random sample of the same size. As an attempt to avoid biased results, and to use all available data, all continuous variables were standardized in relation to the random sample, where the number of the children at RD risk was randomly drawn to equal 15%. Finally, reading comprehension measure was not included in the analyses, because there was a floor effect in the measure with only a third of the students being able to read in T1 (Niemi et al., 2011). Moreover, bullying and victimization were measured by single items (Olweus, 1996).

Study III managed to overcome many limitations of Study II. First, a larger sample without the over-representation of students at-risk for reading problems was recruited. Second, a reading comprehension measure was added to the analyses. Although the study utilized the same longitudinal project, with adolescents it was possible to assess externalizing and internalizing problems by self-reports instead of teacher-reports. The problem of using single items to measure victimization and bullying was still present in Study III. Alternatively, forms of bullying and victimization (Olweus, 1996), or peer reports (Salmivalli & Voeten, 2004) could have been utilized, but those measures were not available in the project and they also have limitations. Nevertheless, the global items have been shown to be valid measures of bullying and victimization in previous studies (Solberg & Olweus, 2003). As a new challenge, due to attrition, the sample size decreased from Grade 6 to Grade 9. To take this into account, full information maximum likelihood (FIML) estimation with robust standard errors was used to handle the missing data in the cross-lagged panel

model (Muthén & Muthén, 1998-2018). Finally, the levels of victimization and bullying, or the associations between poor reading and bullying or victimization during elementary school before the transition to middle school were not considered in the analyses. Thus, we have no information about whether poor reading predicts bullying perpetration (or victimization) differently during elementary school than across or after the transition to middle school.

The three empirical studies of this thesis are the first ones to examine the associations between RDs and bullying involvement in a community sample (Study I) and longitudinally with different age groups (Studies II and III). As described above, most limitations of the preceding studies were overcome with the subsequent ones. Although this resulted in differences in the three studies included in the thesis that challenge the comparisons between them, improving the methodology along the way clearly strengthens the integrity of the thesis. In addition, I examined the associations between RDs and bullying involvement among children and adolescents of different ages and developmental stages, which has not been done previously. Further, in addition to utilizing self-reports of RDs in Study I, standardized tests were used when word reading skills (accuracy and fluency of reading) were assessed in Study II in a sample of school beginners in Grades 1 and 2, and when reading fluency and comprehension were measured in Study III in adolescence in Grades 6, 7, and 9.

5.4 Conclusions and Future Directions

The overarching aim of this thesis has been to examine whether RDs put students of different ages at risk for being victimized, bullying others, or both. Based on the three empirical studies it is, however, difficult to draw clear conclusions. Self-reported RDs were associated with being viewed by peers as a victim, a bully, and a bully/victim, and after taking difficulties in math into account, with being victimized in particular (as a victim or a bully/victim). Conversely, RDs measured as poor performance in standardized reading tests (accuracy, reading fluency, comprehension) were longitudinally associated with bullying perpetration but not with victimization. This pattern of findings is not easy to explain, although several aspects related to study designs as described above may partly explain it. Although it is reassuring that the association between RDs and bullying involvement was not very strong, the relatively weak association was also surprising to me, as I initially expected RDs to pose a higher risk for both victimization and bullying perpetration. Since previous studies are limited both in number and in quality, more research is needed to explain these new findings.

Firstly, to understand why students with RDs are at increased risk for bullying, it would be important to examine the moderators of the association between RDs,

bullying and victimizations. Since preventive and predictive factors related to victimization and bullying perpetration in students with LDs can be divided into disability type, personal attributes, and school factors (Rose et al., 2011), this needs to be done both at individual and contextual level.

RDs are a special category of LDs, and as students with non-visible disabilities experience less victimization than students with more observable cognitive or physical disabilities, it is likely that RDs pose a smaller risk to bullying involvement compared with more visible disabilities. For example children with language impairments (Hugh-Jones & Smith, 1999), as well as emotional problems (Carran & Kellner, 2009) and ADHD (J. L. Humphrey et al., 2007) seem to have challenges in peer relations and become victims easily, and it seems that students with emotional or behavioral disorders demonstrate the highest levels of perpetration (Carran & Kellner, 2009; Van Cleave & Davis, 2006). Another risk factor is co-occurrence of several disabilities (Brunstein Klomek et al., 2016). Further, studies examining heterogeneous LDs have hypothesized that personal characteristics often related to LDs, such as problem behavior, poor social skills, and difficulties comprehending social cues or applying strategies to avoid victimization could contribute to victimization and bullying perpetration (Kaukiainen et al., 2002). Finally, although gender was used as a control variable in Study I of this thesis, it was not considered as a moderator. Since both RDs and behavioral problems (including bullying, Cook et al., 2010) are more prevalent among boys, it would be important to examine whether gender would (at least partly) explain the association between RDs and bullying perpetration. To my knowledge, these possible individual level moderators have never been empirically tested either among students with LDs or among those with RDs. Examining the individual level moderators of the association is my first recommendation for future studies in this field.

Secondly, on the contextual level it is known from studies concerning heterogeneous LDs that children with LDs educated in exclusive settings such as segregated schools or special classes experience more rejection and bullying than those educated in inclusive settings (e.g., Carran & Kellner, 2009; Griffiths, 2007; Hartley et al., 2015; Norwich & Kelly, 2004; Rose et al., 2009). They have also been reported to bully others more often than their peers in general education classes (O'Moore & Hillery, 1989). All studies in this thesis were conducted among students in general education schools, but it is very likely that there are classroom and school-level contextual factors contributing to bullying involvement of students with RDs in general education as well. These factors could include for example the size of the classroom/school, as well as occurrence of RDs or bullying in the educational context. Since these contextual factors contributing to the bullying involvement among students with RDs (and whether and how these would be different from students with-

out RDs) have not been studied before, my second recommendation for future research is to examine contextual moderators of the association between RDs and bullying involvement.

Thirdly, the data for Study I of this thesis came from the pretest of a large, nationally representative KiVa antibullying intervention program, and hence reflect the situation before intervention. KiVa antibullying intervention has been proven to be effective in reducing both victimization and bullying among students in elementary and middle school in general (Kärnä et al., 2013; Kärnä, Voeten, Little, Poskiparta, Kaljonen, et al., 2011). In future, it would be important to examine the effects of a whole school antibullying intervention on at-risk groups of students including students with RDs. My third recommendation for future research is to examine whether students with RDs benefit from antibullying intervention targeting the whole school population as much as students without difficulties, or if there is a need for some targeted actions for students with RDs in tackling school bullying.

5.5 Practical Implications

The results of this thesis have many practical implications. Although it is troublesome that a common learning difficulty such as RD may increase the risk for victimization and/or bullying perpetration, it is important to remember that the associations between RDs and victimization (Study I) as well as RDs and bullying perpetration (Studies II and III) were relatively weak in all three studies. As such, this outcome can be seen as encouraging, as the risk seems to be realized only in a small subgroup of students with RDs. It is possible (and even likely) that this subgroup suffers also from other accumulated challenges that were not measured in the present studies. Supporting the learning skills, school adjustment, and well-being of these students is a challenge to the classroom and special education teachers, as well as psychologists and social workers in schools.

Although the risk that RDs alone leads to victimization or bullying perpetration seems to be small, RDs do co-occur with other risk factors related to bullying involvement (such as low self-esteem, other LDs, and internalizing/externalizing problems) and this needs to be recognized. In order to minimize the negative consequences related to the accumulation of risk factors (G. W. Evans et al., 2013; Rönkä et al., 2001; Rutter, 1979, 1981; Sameroff, 2006), students with RDs need support in school. They should be provided with reading instruction, remedial education and special support when needed, tools and skills to cope with the challenges, as well as emotional support from teachers and parents.

The Finnish legislation calls upon multiprofessional evaluation of special needs when necessary, but RDs (both fluency and comprehension difficulties) can rather easily be assessed by classroom or special education teachers. The evaluation of the

accumulated difficulties is more challenging but, in my experience as a psychologist, teachers are often correct in their worries about certain students. When concern arises, their assessment should be enough to enable the school to provide short-term support, enhanced support, and even special-needs support if needed as stated in Basic Education Act (628/1998) and its amendments (642/2010). A detailed assessment by a school psychologist or other professionals outside school may sometimes be necessary but starting the academic support at school should not be dependent on or wait for this. This is in accordance with the purpose of the recent changes in legislation that aimed at securing the basic conditions for all students to learn and attend school, reduce bureaucracy, and shift the focus of the evaluation more to the school level.

Students with RDs are entitled to continuous support and may benefit from remedial teaching, special education, and learning tools/aids in reading and writing tasks in all the subjects, exams, and homework. Special support does not mean giving some students unfair extra benefits, but instead helps them to get to the same starting line with their peers. At best, getting timely and adequate support in learning and schoolgoing might alleviate the frustration and externalizing symptoms and suppress problems from accumulating to bullying perpetration. Targeted reading instruction should be kept separate from other academic support that helps students meet the learning goals set for each grade level. Along with specific reading instruction in school, teachers can encourage recreational reading by trying to find motivating reading material for individual students and demonstrating the benefits of reading practice for academic skills in general. Supporting reading skills and reading motivation of these students is one tool for educators to invite them to a school participation unclouded by social problems.

In addition to starting the support measures immediately when difficulties are noticed, it is also important to provide students with RDs support throughout their school careers. Understandably, special education resources are targeted especially to the early school years with the goal of diminishing the learning gap between students with learning difficulties and their peers as early as possible. However, students with RDs would benefit from extra support much longer. Along with upper grades, academic demands increase, and adequate reading skills are needed to get through the tasks in other subjects. Since students with RDs tend to read less, they also get less practice and may fall even further behind from their peers in their reading fluency and comprehension skills (Stanovich, 1986). Therefore, the need for special support is not diminishing along with the resources for academic support. The transition to middle school brings with it a potential new opportunity for schools to provide support to those who need it, as they continue to be at a disadvantage after the transition (Vaz et al., 2014). It is possible that in addition to academic benefits, acquiring better literacy skills also helps students become more confident in making

friends, interacting with peers and participating in social exchanges (Chong et al., 2014). So far, although evidence-based reading interventions have reported positive literacy outcomes, they usually seem to have had little or no effect on behavioral or social skills (Roberts et al., 2015, 2020). However, some evidence suggests that intensive reading instruction may decrease the risk which RDs pose for behavioral problems (McIntosh et al., 2012).

On top of reading instruction and special support in school, emotional and instructional support provided by the teacher can protect children with learning related risks against peer-relation problems (Kiuru et al., 2012). Thus, unsupportive and uncaring teaching practices in everyday educational interactions may put students at risk for victimization and bullying perpetration despite antibullying intervention efforts attempted at school level. Both elementary and middle school teachers should pay attention to how they deal with someone who struggles with reading or otherwise. Do they get proper (instructional, social, and emotional) support in school that might prevent them from getting frustrated and acting out? Finally, what opportunities are provided and what future directions opened and portayed as possible to those with RDs? Observing the teacher engaging in positive interactions with children with RDs and other disabilities might influence peer perceptions, as well as promote an atmosphere of acceptance, and thus prevent victimization and bullying in the peer group.

Abbreviations

RD	Reading difficulty
LD	Learning disability

List of References

- Akos, P., Rose, R. A., & Orthner, D. (2015). Sociodemographic moderators of middle school transition effects on academic achievement. *The Journal of Early Adolescence*, *35*(2), 170–198. <https://doi.org/10.1177/0272431614529367>
- Altarac, M., & Saroha, E. (2007). Lifetime prevalence of learning disability among US children. *Pediatrics*, *119*(Supplement), S77–S83. <https://doi.org/10.1542/peds.2006-2089L>
- Analitis, F., Velderman, M. K., Ravens-Sieberer, U., Detmar, S., Erhart, M., Herdman, M., Berra, S., Alonso, J., Rajmil, L., & others. (2009). Being bullied: Associated factors in children and adolescents 8 to 18 years old in 11 European countries. *Pediatrics*, *123*(2), 569–577.
- Anderson, L. W., Jacobs, J., Schramm, S., & Splittgerber, F. (2000). School transitions: Beginning of the end or a new beginning? *International Journal of Educational Research*, *33*(4), 325–339. [https://doi.org/10.1016/S0883-0355\(00\)00020-3](https://doi.org/10.1016/S0883-0355(00)00020-3)
- Andreou, E., Didaskalou, E., & Vlachou, A. (2015). Bully/victim problems among Greek pupils with special educational needs: Associations with loneliness and self-efficacy for peer interactions. *Journal of Research in Special Educational Needs*, *15*(4), 235–246. <https://doi.org/10.1111/1471-3802.12028>
- Antonio-Agirre, I., Azpiazu Izaguirre, L., Esnaola Echániz, I., & Sarasa Maya, M. (2015). Capacidad predictiva del autoconcepto y la inteligencia emocional en el ajuste escolar autopercepido. *Bordón. Revista de Pedagogía*. <https://doi.org/10.13042/Bordon.2015.67401>
- Arnold, E. M., Goldston, D. B., Walsh, A. K., Reboussin, B. A., Daniel, S. S., Hickman, E., & Wood, F. B. (2005). Severity of emotional and behavioral problems among poor and typical readers. *Journal of Abnormal Child Psychology*, *33*(2), 205–217. <https://doi.org/10.1007/s10802-005-1828-9>
- Arseneault, L., Bowes, L., & Shakoor, S. (2010). Bullying victimization in youths and mental health problems: ‘Much ado about nothing’? *Psychological Medicine*, *40*(05), 717–729. <https://doi.org/10.1017/S0033291709991383>
- Ashton, R. (2008). Improving the transfer to secondary school: How every child’s voice can matter. *Support for Learning*, *23*(4), 176–182. <https://doi.org/10.1111/j.1467-9604.2008.00391.x>
- Askell-Williams, H., & Cefai, C. (2014). Australian and Maltese teachers’ perspectives about their capabilities for mental health promotion in school settings. *Teaching and Teacher Education*, *40*, 61–72. <https://doi.org/10.1016/j.tate.2014.02.003>
- Bailey, G., Giles, R. M., & Rogers, S. E. (2015). An investigation of the concerns of fifth graders transitioning to middle school. *RMLE Online*, *38*(5), 1–12. <https://doi.org/10.1080/19404476.2015.11462118>
- Bailey, S., & Baines, E. (2012). The impact of risk and resiliency factors on the adjustment of children after the transition from primary to secondary school. *Educational & Child Psychology*, *29*(1), 47–63.
- Baumeister, A. L., Storch, E. A., & Geffken, G. R. (2008). Peer victimization in children with learning disabilities. *Child and Adolescent Social Work Journal*, *25*(1), 11–23. <https://doi.org/10.1007/s10560-007-0109-6>

- Beitchman, J. H., & Young, A. R. (1997). Learning disorders with a special emphasis on reading disorders: A review of the past 10 years. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36(8), 1020–1032. <https://doi.org/10.1097/00004583-199708000-00009>
- Bennett, K. J., Brown, K. S., Boyle, M., Racine, Y., & Offord, D. (2003). Does low reading achievement at school entry cause conduct problems? *Social Science & Medicine*, 56(12), 2443–2448. [https://doi.org/doi:10.1016/S0277-9536\(02\)00247-2](https://doi.org/doi:10.1016/S0277-9536(02)00247-2)
- Blakely-McClure, S. J., & Ostrov, J. M. (2016). Relational aggression, victimization and self-concept: Testing pathways from middle childhood to adolescence. *Journal of Youth and Adolescence*, 45(2), 376–390. <https://doi.org/10.1007/s10964-015-0357-2>
- Boyle, C. A., Boulet, S., Schieve, L. A., Cohen, R. A., Blumberg, S. J., Yeargin-Allsopp, M., Visser, S., & Kogan, M. D. (2011). Trends in the prevalence of developmental disabilities in US children, 1997–2008. *Pediatrics*, 127(6), 1034–1042. <https://doi.org/10.1542/peds.2010-2989>
- Brendgen, M., Girard, A., Vitaro, F., Dionne, G., & Boivin, M. (2016). Personal and familial predictors of peer victimization trajectories from primary to secondary school. *Developmental Psychology*, 52(7), 1103–1114. <https://doi.org/10.1037/dev0000107>
- Brunstein Klomek, A., Kopelman-Rubin, D., Al-Yagon, M., Berkowitz, R., Apter, A., & Mikulincer, M. (2016). Victimization by bullying and attachment to parents and teachers among student who report learning disorders and/or attention deficit hyperactivity disorder. *Learning Disability Quarterly*, 39(3), 182–190.
- Burden, R. (2008). Is dyslexia necessarily associated with negative feelings of self-worth? A review and implications for future research. *Dyslexia*, 14(3), 188–196. <https://doi.org/10.1002/dys.371>
- Bus, A. G., & van IJzendoorn, M. H. (1999). Phonological awareness and early reading: A meta-analysis of experimental training studies. *Journal of Educational Psychology*, 91(3), 403–414. <https://doi.org/10.1037/0022-0663.91.3.403>
- Card, N. A., & Hodges, E. V. E. (2008). Peer victimization among schoolchildren: Correlations, causes, consequences, and considerations in assessment and intervention. *School Psychology Quarterly*, 23(4), 451–461. <https://doi.org/10.1037/a0012769>
- Carran, D. T., & Kellner, M. H. (2009). Characteristics of bullies and victims among students with emotional disturbance attending approved private special education schools. *Behavioral Disorders*, 34(3), 151–163.
- Carroll, J. M., Maughan, B., Goodman, R., & Meltzer, H. (2005). Literacy difficulties and psychiatric disorders: Evidence for comorbidity. *Journal of Child Psychology and Psychiatry*, 46(5), 524–532. <https://doi.org/10.1111/j.1469-7610.2004.00366.x>
- Catts, H. W., Hogan, T., & Fey, M. E. (2003). Subgrouping poor readers on the basis of individual differences in reading-related abilities. *Journal of Learning Disabilities*, 36(2), 151–164.
- Chatzitheochari, S., Parsons, S., & Platt, L. (2016). Doubly disadvantaged? Bullying experiences among disabled children and young people in England. *Sociology*, 50(4), 695–713. <https://doi.org/10.1177/0038038515574813>
- Chong, W. H., Moore, D. W., Nonis, K. P., Tang, H. N., Koh, P., & Wee, S. (2014). Mission I'm possible: Effects of a community-based project on the basic literacy skills of at-risk kindergarteners. *Infants & Young Children*, 27(1), 60–73. <https://doi.org/10.1097/YYC.0b013e3182a60281>
- Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. *School Psychology Quarterly*, 25(2), 65–83. <https://doi.org/10.1037/a0020149>
- Cornwall, A., & Bawden, H. N. (1992). Reading disabilities and aggression: A critical review. *Journal of Learning Disabilities*, 25(5), 281–288. <https://doi.org/10.1177/002221949202500503>
- Craig, W., Harel-Fisch, Y., Fogel-Grinvald, H., Dostaler, S., Hetland, J., Simons-Morton, B., Molcho, M., de Mato, M. G., Overpeck, M., Due, P., Pickett, W., the HBSC Violence & Injuries Prevention Focus Group, & the HBSC Bullying Writing Group. (2009). A cross-national profile of bullying and victimization among adolescents in 40 countries. *International Journal of Public Health*, 54, 216–224. <https://doi.org/10.1007/s00038-009-5413-9>

- Dahle, A. E., Knivsberg, A.-M., & Andreassen, A. B. (2011). Coexisting problem behaviour in severe dyslexia. *Journal of Research in Special Educational Needs*, *11*(3), 162–170. <https://doi.org/10.1111/j.1471-3802.2010.01190.x>
- Deacon, S. H., Cook, K., & Parrila, R. (2012). Identifying high-functioning dyslexics: Is self-report of early reading problems enough? *Annals of Dyslexia*, *62*(2), 120–134. <https://doi.org/10.1007/s11881-012-0068-2>
- Duchesne, S., Ratelle, C. F., & Roy, A. (2012). Worries about middle school transition and subsequent adjustment: The moderating role of classroom goal structure. *The Journal of Early Adolescence*, *32*(5), 681–710. <https://doi.org/10.1177/0272431611419506>
- Due, P., Holstein, B. E., Lynch, J., Diderichsen, F., Gabhain, S. N., Scheidt, P., & Currie, C. (2005). Bullying and symptoms among school-aged children: International comparative cross sectional study in 28 countries. *European Journal of Public Health*, *15*(2), 128–132. <https://doi.org/10.1093/eurpub/cki105>
- Dwyer, S. B., Nicholson, J. M., & Battistutta, D. (2006). Parent and teacher identification of children at risk of developing internalizing or externalizing mental health problems: A comparison of screening methods. *Prevention Science*, *7*(4), 343–357. <https://doi.org/10.1007/s11121-006-0026-5>
- Ehri, L. C., Nunes, S. R., Willows, D. M., Schuster, B. V., Yaghoub-Zadeh, Z., & Shanahan, T. (2001). Phonemic awareness instruction helps children learn to read: Evidence from the National Reading Panel's meta-analysis. *Reading Research Quarterly*, *36*(3), 250–287. <https://doi.org/10.2307/748111>
- Eloranta, A.-K. (2019). A follow-up study of childhood learning disabilities: Pathways to adult-age education, employment and psychosocial wellbeing. *JYU Dissertations*. <https://jyx.jyu.fi/handle/123456789/66402>
- Espelage, D. L., Hong, J. S., Rao, M. A., & Thornberg, R. (2015). Understanding ecological factors associated with bullying across the elementary to middle school transition in the United States. *Violence and Victims; New York*, *30*(3), 470–487. <http://dx.doi.org/10.1891/0886-6708.VV-D-14-00046>
- Estell, D. B., Farmer, T. W., Irvin, M. J., Crowther, A., Akos, P., & Boudah, D. J. (2008). Students with exceptionalities and the peer group context of bullying and victimization in late elementary school. *Journal of Child and Family Studies*, *18*(2), 136–150. <https://doi.org/10.1007/s10826-008-9214-1>
- Evangelou, M., Taggart, B., Sylva, K., Melhuish, E., Sammons, P., & Blatchford, I. S.-. (2008). *What makes a successful transition from primary to secondary school?* Institute of Education, University of London.
- Evans, D., Borriello, G. A., & Field, A. P. (2018). A review of the academic and psychological impact of the transition to secondary education. *Frontiers in Psychology*, *9*. <https://doi.org/10.3389/fpsyg.2018.01482>
- Evans, G. W., Li, D., & Whipple, S. S. (2013). Cumulative risk and child development. *Psychological Bulletin*, *139*(6), 1342–1396. <https://doi.org/10.1037/a0031808>
- Farmer, T. W., Hamm, J. V., Leung, M.-C., Lambert, K., & Gravelle, M. (2011). Early adolescent peer ecologies in rural communities: Bullying in schools that do and do not have a transition during the middle grades. *Journal of Youth and Adolescence*, *40*(9), 1106–1117. <https://doi.org/10.1007/s10964-011-9684-0>
- Farmer, T. W., Irvin, M. J., Motoca, L. M., Leung, M.-C., Hutchins, B. C., Brooks, D. S., & Hall, C. M. (2015). Externalizing and internalizing behavior problems, peer affiliations, and bullying involvement across the transition to middle school. *Journal of Emotional and Behavioral Disorders*, *23*(1), 3–16. <https://doi.org/10.1177/1063426613491286>
- Fekkes, M., Pijpers, F. I. M., Fredriks, A. M., Vogels, T., & Verloove-Vanhorick, S. P. (2006). Do bullied children get ill, or do ill children get bullied? A prospective cohort study on the relationship between bullying and health-related symptoms. *Pediatrics*, *117*(5), 1568–1574. <https://doi.org/10.1542/peds.2005-0187>

- Fekkes, M., Pijpers, F. I. M., & Verloove-Vanhorick, S. P. (2004). Bullying behavior and associations with psychosomatic complaints and depression in victims. *The Journal of Pediatrics*, *144*(1), 17–22. <https://doi.org/10.1016/j.jpeds.2003.09.025>
- Fink, E., Deighton, J., Humphrey, N., & Wolpert, M. (2015). Assessing the bullying and victimisation experiences of children with special educational needs in mainstream schools: Development and validation of the Bullying Behaviour and Experience Scale. *Research in Developmental Disabilities*, *36*, 611–619. <https://doi.org/10.1016/j.ridd.2014.10.048>
- Finlex. (2017). *Basic Education Act 628/1998: Amendments up to 1136/2010*. <http://www.finlex.fi/en/laki/kaannokset/1998/en19980628.pdf>
- Forgan, J. W., & Vaughn, S. (2000). Adolescents with and without LD make the transition to middle school. *Journal of Learning Disabilities*, *33*(1), 33–43. <https://doi.org/10.1177/002221940003300107>
- Gage, N. A., Prykanowski, D. A., & Larson, A. (2014). School climate and bullying victimization: A latent class growth model analysis. *School Psychology Quarterly*, *29*(3), 256–271. <https://doi.org/10.1037/spq0000064>
- Galton, M. J., Gray, J., & Ruddick, J. (1999). *The impact of school transitions and transfers on pupil progress and attainment*. UK: Department of Employment and Education.
- Garandeau, C. F., & Salmivalli, C. (2019). Can healthier contexts be harmful? A new perspective on the plight of victims of bullying. *Child Development Perspectives*, *13*(3), 147–152. <https://doi.org/10.1111/cdep.12331>
- Gillison, F., Standage, M., & Skevington, S. (2008). Changes in quality of life and psychological need satisfaction following the transition to secondary school. *British Journal of Educational Psychology*, *78*(1), 149–162. <https://doi.org/10.1348/000709907X209863>
- Gini, G., & Pozzoli, T. (2013). Bullied children and psychosomatic problems: A meta-analysis. *Pediatrics*, peds.2013-0614. <https://doi.org/10.1542/peds.2013-0614>
- Glew, G. M., Fan, M.-Y., Katon, W., Rivara, F. P., & Kernic, M. A. (2005). Bullying, psychosocial adjustment, and academic performance in elementary school. *Archives of Pediatrics & Adolescent Medicine*, *159*(11), 1026–1031. <https://doi.org/10.1001/archpedi.159.11.1026>
- Gough, P. B., & Tunmer, W. E. (1986). Decoding, reading, and reading disability. *Remedial and Special Education*, *7*(1), 6–10. <https://doi.org/10.1177/074193258600700104>
- Green, K., Tønnessen, F. E., Tambs, K., Thoresen, M., & Bjertness, E. (2009). Dyslexia: Group screening among 15–16-year-olds in Oslo, Norway. *Scandinavian Journal of Educational Research*, *53*(3), 217–227. <https://doi.org/10.1080/00313830902917246>
- Griffiths, E. (2007). ‘They’re gonna think we’re the dumb lot because we go to the special school’: A teacher research study of how mainstream and special school pupils view each other. *Research in Education*, *78*(1), 78–87.
- 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. *British Journal of Educational Psychology*, *76*(3), 517–534. <https://doi.org/10.1348/000709905X51590>
- Haltigan, J. D., & Vaillancourt, T. (2014). Joint trajectories of bullying and peer victimization across elementary and middle school and associations with symptoms of psychopathology. *Developmental Psychology*, *50*(11), 2426–2436. <http://dx.doi.org/10.1037/a0038030>
- Hartley, M. T., Bauman, S., Nixon, C. L., & Davis, S. (2015). Comparative study of bullying victimization among students in general and special education. *Exceptional Children*, *81*(2), 176–193. <https://doi.org/10.1177/0014402914551741>
- Hawker, D. S. J., & Boulton, M. J. (2000). Twenty years’ research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry*, *41*(4), 441–455. <https://doi.org/10.1111/1469-7610.00629>
- Häyrynen, T., Serenius-Sirve, S., Korkman, M., Ekeboom, U.-M., Kivelä, A., Lassander, P., & Repokari, R. (1999). *Lukilasse: Lukemisen, kirjoittamisen ja laskemisen seulantatetestistö peruskoulun alasteen luokille 1-6*. Helsinki, Finland: Psykologien kustannus.

- Hellendoorn, J., & Ruijsenaars, W. (2000). Personal experiences and adjustment of Dutch adults with dyslexia. *Remedial and Special Education, 21*(4), 227–239. <https://doi.org/10.1177/074193250002100405>
- Holmström, M. R., Olofsson, N., Asplund, K., & Kristiansen, L. (2014). Transitions in the Swedish school system and the impact on student's positive self-reported-health. *BMC Public Health, 14*(1), 1045. <https://doi.org/10.1186/1471-2458-14-1045>
- Holopainen, L., Kairaluoma, L., Nevala, J., Ahonen, T., & Aro, M. (2004). *Lukivaikeuksien seulontamenetelmä nuorille ja aikuisille [Screening test battery for reading difficulties for adolescents and adults]*. Jyväskylä, Finland: Niilo Mäki Institute.
- Hopwood, B., Hay, I., & Dymont, J. (2017). Students' reading achievement during the transition from primary to secondary school. *Australian Journal of Language & Literacy, 40*(1), 46–58.
- Hughes, J. N., & Cao, Q. (2018). Trajectories of teacher-student warmth and conflict at the transition to middle school: Effects on academic engagement and achievement. *Journal of School Psychology, 67*, 148–162. <https://doi.org/10.1016/j.jsp.2017.10.003>
- Hughes, L. A., Banks, P., & Terras, M. M. (2013). Secondary school transition for children with special educational needs: A literature review. *Support for Learning, 28*(1), 24–34. <https://doi.org/10.1111/1467-9604.12012>
- Hugh-Jones, S., & Smith, P. K. (1999). Self-reports of short-and long-term effects of bullying on children who stammer. *British Journal of Educational Psychology, 69*(2), 141–158. <https://doi.org/10.1348/000709999157626>
- Hulme, C., & Snowling, M. J. (2011). Children's reading comprehension difficulties: Nature, causes, and treatments. *Current Directions in Psychological Science, 20*(3), 139–142. <https://doi.org/10.1177/0963721411408673>
- Humphrey, J. L., Storch, E. A., & Geffken, G. R. (2007). Peer victimization in children with attention-deficit hyperactivity disorder. *Journal of Child Health Care, 11*(3), 248–260. <https://doi.org/10.1177/1367493507079571>
- Humphrey, N., & Mullins, P. M. (2002). Self-concept and self-esteem in developmental dyslexia. *Journal of Research in Special Educational Needs, 2*(2). <https://doi.org/10.1111/j.1471-3802.2002.00163.x>
- Ingesson, S. G. (2007). Growing up with dyslexia: Interviews with teenagers and young adults. *School Psychology International, 28*(5), 574–591. <https://doi.org/10.1177/0143034307085659>
- January, A. M., Casey, R. J., & Paulson, D. (2011). A meta-analysis of classroom-wide interventions to build social skills: Do they work? *School Psychology Review, 40*(2), 242–256.
- Jenkins, L. N., & Demaray, M. K. (2015). Indirect effects in the peer victimization-academic achievement relation: Academic self-concept and gender in peer victimization. *Psychology in the Schools, 52*(3), 235–247. <https://doi.org/10.1002/pits.21824>
- Kaltiala-Heino, R., Rimpelä, M., Rantanen, P., & Rimpelä, A. (2000). Bullying at school—An indicator of adolescents at risk for mental disorders. *Journal of Adolescence, 23*(6), 661–674. <https://doi.org/10.1006/jado.2000.0351>
- Kärnä, A., Voeten, M., Little, T. D., Alanen, E., Poskiparta, E., & Salmivalli, C. (2013). Effectiveness of the KiVa antibullying program: Grades 1–3 and 7–9. *Journal of Educational Psychology, 105*(2), 535–551. <https://doi.org/10.1037/a0030417>
- Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Alanen, E., & Salmivalli, C. (2011). Going to scale: A nonrandomized nationwide trial of the KiVa antibullying program for grades 1–9. *Journal of Consulting and Clinical Psychology, 79*(6), 796–805. <https://doi.org/10.1037/a0029174>
- Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A large-scale evaluation of the KiVa antibullying program: Grades 4–6: Evaluation of KiVa antibullying program. *Child Development, 82*(1), 311–330. <https://doi.org/10.1111/j.1467-8624.2010.01557.x>
- Kaukiainen, A., Salmivalli, C., Lagerspetz, K., Tamminen, M., Vauras, M., Mäki, H., & Poskiparta, E. (2002). Learning difficulties, social intelligence, and self-concept: Connections to bully-victim

- problems. *Scandinavian Journal of Psychology*, 43(3), 269–278. <https://doi.org/10.1111/1467-9450.00295>
- Kavale, K. A., & Forness, S. R. (1996). Social skill deficits and learning disabilities: A meta-analysis. *Journal of Learning Disabilities*, 29(3), 226–237. <https://doi.org/10.1177/002221949602900301>
- Kempe, C., Gustafson, S., & Samuelsson, S. (2011). A longitudinal study of early reading difficulties and subsequent problem behaviors: Early reading difficulties. *Scandinavian Journal of Psychology*, 52(3), 242–250. <https://doi.org/10.1111/j.1467-9450.2011.00870.x>
- Kiuru, N., Poikkeus, A.-M., Lerkkanen, M.-K., Pakarinen, E., Siekkinen, M., Ahonen, T., & Nurmi, J.-E. (2012). Teacher-perceived supportive classroom climate protects against detrimental impact of reading disability risk on peer rejection. *Learning and Instruction*, 22(5), 331–339. <https://doi.org/10.1016/j.learninstruc.2011.12.003>
- Kokkinos, C. M., & Antoniadou, N. (2013). Bullying and victimization experiences in elementary school students nominated by their teachers for Specific Learning Disabilities. *School Psychology International*, 34(6), 674–690. <https://doi.org/10.1177/0143034313479712>
- Kuhne, M., & Wiener, J. (2000). Stability of social status of children with and without learning disabilities. *Learning Disability Quarterly*, 23(1), 64–75. <https://doi.org/10.2307/1511100>
- Leppänen, U., Niemi, P., Aunola, K., & Nurmi, J.-E. (2004). Development of reading skills among preschool and primary school pupils. *Reading Research Quarterly*, 39(1), 72–93. <https://doi.org/10.1598/RRQ.39.1.5>
- Lerkkanen, M.-K., Niemi, P., Poikkeus, A.-M., Poskiparta, E., Siekkinen, M., & Nurmi, J.-E. (2006). *The First Steps Study [Alkuportaat]*. Finland: University of Jyväskylä, University of Turku, and University of Eastern Finland.
- Lindeman, J. (1998). *ALLU-Ala-asteen lukutesti [ALLU – Reading Test for Primary School]*. University of Turku, Finland: Center for Learning Research.
- Luciano, S., & Savage, R. S. (2007). Bullying risk in children with learning difficulties in inclusive educational settings. *Canadian Journal of School Psychology*, 22(1), 14–31. <https://doi.org/10.1177/0829573507301039>
- Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2003). A definition of dyslexia. *Annals of Dyslexia*, 53(1), 1–14. <https://doi.org/10.1007/s11881-003-0001-9>
- Lyytinen, H., Erskine, J., Hämäläinen, J., Torppa, M., & Ronimus, M. (2015). Dyslexia—early identification and prevention: Highlights from the Jyväskylä longitudinal study of dyslexia. *Current Developmental Disorders Reports*, 2(4), 330–338. <https://doi.org/10.1007/s40474-015-0067-1>
- Mammarella, I. C., Ghisi, M., Bomba, M., Bottesi, G., Caviola, S., Broggi, F., & Naciovich, R. (2014). Anxiety and depression in children with nonverbal learning disabilities, reading disabilities, or typical development. *Journal of Learning Disabilities*, April 14, 1–10. <https://doi.org/10.1177/0022219414529336>
- Martínez, R. S. (2006). Social support in inclusive middle schools: Perceptions of youth with learning disabilities. *Psychology in the Schools*, 43(2), 197–209. <https://doi.org/10.1002/pits.20142>
- McGee, C., Ward, R., Gibbons, J., & Harlow, A. (2003). *Transition to secondary school: A literature review*. Ministry of Education, New Zealand.
- McIntosh, K., Sadler, C., & Brown, J. A. (2012). Kindergarten reading skill level and change as risk factors for chronic problem behavior. *Journal of Positive Behavior Interventions*, 14(1), 17–28. <https://doi.org/10.1177/1098300711403153>
- Melby-Lervåg, M., Lyster, S.-A. H., & Hulme, C. (2012). Phonological skills and their role in learning to read: A meta-analytic review. *Psychological Bulletin*, 138(2), 322–352. <https://doi.org/10.1037/a0026744>
- Menesini, E., & Salmivalli, C. (2017). Bullying in schools: The state of knowledge and effective interventions. *Psychology, Health & Medicine*, 22(sup1), 240–253. <https://doi.org/10.1080/13548506.2017.1279740>
- Mishna, F. (2003). Learning disabilities and bullying: Double jeopardy. *Journal of Learning Disabilities*, 36(4), 336–347. <https://doi.org/10.1177/00222194030360040501>

- Morgan, P. L., Farkas, G., Tufis, P. A., & Sperling, R. A. (2008). Are reading and behavior problems risk factors for each other? *Journal of Learning Disabilities, 41*(5), 417–436. <https://doi.org/10.1177/0022219408321123>
- Morgan, P. L., Farkas, G., & Wu, Q. (2009). Kindergarten predictors of recurring externalizing and internalizing psychopathology in the third and fifth grades. *Journal of Emotional and Behavioral Disorders, 17*(2), 67–79. <https://doi.org/10.1177/1063426608324724>
- Morgan, P. L., Farkas, G., & Wu, Q. (2012). Do poor readers feel angry, sad, and unpopular? *Scientific Studies of Reading, 16*(4), 360–381. <https://doi.org/10.1080/10888438.2011.570397>
- Muthén, L. K., & Muthén, B. O. (1998). *Mplus User's Guide* (Seventh Edition). Muthén & Muthén. https://www.statmodel.com/download/usersguide/MplusUserGuideVer_7.pdf
- Nabuzoka, D. (2003). Teacher ratings and peer nominations of bullying and other behaviour of children with and without learning difficulties. *Educational Psychology, 23*(3), 307–321. <https://doi.org/10.1080/0144341032000060147>
- Nabuzoka, D., & Smith, P. K. (1993). Sociometric status and social behaviour of children with and without learning difficulties. *Journal of Child Psychology and Psychiatry, 34*(8), 1435–1448. <https://doi.org/10.1111/j.1469-7610.1993.tb02101.x>
- National Institute for Health and Welfare. (2019). *School Health Promotion Study. Results. Question-specific tables*. <https://www.thl.fi/fi/web/thlfi-en/research-and-expertwork/population-studies/school-health-promotion-study>
- Nevala, J., & Lyytinen, H. (2000). *Sanaketjutesti [Word Chain Test]*. Jyväskylä, Finland: Niilo Mäki Institute.
- Nicholls, J. G. (1978). The development of the concepts of effort and ability, perception of academic attainment, and the understanding that difficult tasks require more ability. *Child Development, 49*(3), 800–814. <https://doi.org/10.2307/1128250>
- Niemi, P., Nurmi, J.-E., Lyyra, A.-L., Lerkkanen, M.-K., Lepola, J., Poskiparta, E., & Poikkeus, A.-M. (2011). Task avoidance, number skills and parental learning difficulties as predictors of poor response to instruction. *Journal of Learning Disabilities, 44*(5), 459–471. <https://doi.org/10.1177/0022219411410290>
- Norton, E. S., & Wolf, M. (2012). Rapid automatized naming (RAN) and reading fluency: Implications for understanding and treatment of reading disabilities. *Annual Review of Psychology, 63*(1), 427–452. <https://doi.org/10.1146/annurev-psych-120710-100431>
- Norwich, B., & Kelly, N. (2004). Pupils' views on inclusion: Moderate learning difficulties and bullying in mainstream and special schools. *British Educational Research Journal, 30*(1), 43–65. <https://doi.org/10.1080/01411920310001629965>
- OECD. (2019). *PISA 18 first results – Finland among top performers*. <https://julkaisut.valtioneuvosto.fi/handle/10024/161921>
- Official Statistics of Finland (OSF). (2010). Special education [e-publication]. Appendix table 5. Comprehensive school pupils receiving part-time special education in the academic year 2009-2010 by primary reason for special education. *Helsinki: Statistics Finland*. http://www.stat.fi/til/erop/2010/erop_2010_2011-06-09_tau_005_en.html
- Olthof, T., Goossens, F. A., Vermande, M. M., Aleva, E. A., & van der Meulen, M. (2011). Bullying as strategic behavior: Relations with desired and acquired dominance in the peer group. *Journal of School Psychology, 49*(3), 339–359. <https://doi.org/10.1016/j.jsp.2011.03.003>
- Olweus, D. (1991). Bully/victim problems among schoolchildren: Basic facts and effects of a school based intervention program. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 411–448). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Olweus, D. (1996). *The Revised Olweus Bully/Victim Questionnaire*. Bergen, Norway: University of Bergen.
- Olweus, D. (1999). Sweden. In P. K. Smith, Y. Morita, J. Junger-Tas, D. Olweus, R. Catalano, & P. Slee (Eds.), *The nature of school bullying: A cross-national perspective*. (pp. 2–27). London & New York: Routledge.

- O'Moore, A. M., & Hillery, B. (1989). Bullying in Dublin Schools. *The Irish Journal of Psychology*, *10*(3), 426–441. <https://doi.org/10.1080/03033910.1989.10557759>
- Parhiala, P., Torppa, M., Eklund, K., Aro, T., Poikkeus, A.-M., Heikkilä, R., & Ahonen, T. (2015). Psychosocial functioning of children with and without dyslexia: A follow-up study from ages four to nine. *Dyslexia*, *21*(3), 197–211. <https://doi.org/10.1002/dys.1486>
- Paul, J. J., & Cillessen, A. H. N. (2003). Dynamics of peer victimization in early adolescence. *Journal of Applied School Psychology*, *19*(2), 25–43. https://doi.org/10.1300/J008v19n02_03
- Pellegrini, A. D. (2002). Bullying, victimization, and sexual harassment during the transition to middle school. *Educational Psychologist*, *37*(3), 151–163. https://doi.org/10.1207/S15326985EP3703_2
- Pellegrini, A. D., & Bartini, M. (2000). A longitudinal study of bullying, victimization, and peer affiliation during the transition from primary school to middle school. *American Educational Research Journal*, *37*(3), 699–725. <https://doi.org/10.3102/00028312037003699>
- Pellegrini, A. D., & Long, J. D. (2002). A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *British Journal of Developmental Psychology*, *20*(2), 259–280. <https://doi.org/10.1348/026151002166442>
- Pepler, D. J., Craig, W. M., Connolly, J. A., Yuile, A., McMaster, L., & Jiang, D. (2006). A developmental perspective on bullying. *Aggressive Behavior*, *32*(4), 376–384. <https://doi.org/10.1002/ab.20136>
- Pietarinen, J. (2000). Transfer to and study at secondary school in Finnish school culture: Developing schools on the basis of pupils' experiences. *International Journal of Educational Research*, *33*(4), 383–400. [https://doi.org/10.1016/S0883-0355\(00\)00024-0](https://doi.org/10.1016/S0883-0355(00)00024-0)
- Preckel, F., Niepel, C., Schneider, M., & Brunner, M. (2013). Self-concept in adolescence: A longitudinal study on reciprocal effects of self-perceptions in academic and social domains. *Journal of Adolescence*, *36*(6), 1165–1175. <https://doi.org/10.1016/j.adolescence.2013.09.001>
- Reijntjes, A., Kamphuis, J. H., Prinzie, P., & Telch, M. J. (2010). Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. *Child Abuse & Neglect*, *34*(4), 244–252. <https://doi.org/10.1016/j.chiabu.2009.07.009>
- Renick, M. J., & Harter, S. (1989). Impact of social comparisons on the developing self-perceptions of learning disabled students. *Journal of Educational Psychology*, *81*(4), 631–638. <https://doi.org/10.1037/0022-0663.81.4.631>
- Rice, F., Frederickson, N., & Seymour, J. (2011). Assessing pupil concerns about transition to secondary school: Pupil concerns about transition. *British Journal of Educational Psychology*, *81*(2), 244–263. <https://doi.org/10.1348/000709910X519333>
- Roberts, G. J., Cho, E., Garwood, J. D., Goble, G. H., Robertson, T., & Hodges, A. (2020). Reading interventions for students with reading and behavioral difficulties: A meta-analysis and evaluation of co-occurring difficulties. *Educational Psychology Review*, *32*(1), 17–47. <https://doi.org/10.1007/s10648-019-09485-1>
- Roberts, G. J., Solis, M., Ciullo, S., McKenna, J. W., & Vaughn, S. (2015). Reading interventions with behavioral and social skill outcomes: A synthesis of research. *Behavior Modification*, *39*(1), 8–42. <https://doi.org/10.1177/0145445514561318>
- Rönkä, A., Kinnunen, U., & Pulkkinen, L. (2001). Continuity in problems of social functioning in adulthood: A cumulative perspective. *Journal of Adult Development*, *8*(3), 161–171. <https://doi.org/10.1023/A:1009590223686>
- Rose, C. A., Espelage, D. L., & Monda-Amaya, L. E. (2009). Bullying and victimisation rates among students in general and special education: A comparative analysis. *Educational Psychology*, *29*(7), 761–776. <https://doi.org/10.1080/01443410903254864>
- Rose, C. A., Monda-Amaya, L. E., & Espelage, D. L. (2011). Bullying perpetration and victimization in special education: A review of the literature. *Remedial and Special Education*, *32*(2), 114–130. <https://doi.org/10.1177/0741932510361247>
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. *Annals of the Academy of Medicine*, *8*, 324–338.

- Rutter, M. (1981). Stress, coping and development: Some issues and some questions*. *Journal of Child Psychology and Psychiatry*, 22(4), 323–356. <https://doi.org/10.1111/j.1469-7610.1981.tb00560.x>
- Sainio, M., Herkama, S., Kontio, M., & Salmivalli, C. (2019). KiVa anti-bullying programme. In P. K. Smith (Ed.), *Making an Impact on School Bullying: Interventions and Recommendations* (pp. 45–66). UK: Routledge.
- Salmivalli, C., & Isaacs, J. (2005). Prospective relations among victimization, rejection, friendlessness, and children's self- and peer-perceptions. *Child Development*, 76(6), 1161–1171. <https://doi.org/10.1111/j.1467-8624.2005.00841.x-i1>
- Salmivalli, C., & Voeten, M. (2004). Connections between attitudes, group norms, and behaviour in bullying situations. *International Journal of Behavioral Development*, 28(3), 246–258. <https://doi.org/10.1080/01650250344000488>
- Sameroff, A. J. (2006). Identifying risk and protective factors for healthy child development. In A. Clarke-Stewart & J. Dunn (Eds.), *Families count. Effects on child and adolescent development*. (pp. 53–76). Cambridge University Press.
- Sauver, J. L. S., Katusic, S. K., Barbaresi, W. J., Colligan, R. C., & Jacobsen, S. J. (2001). Boy/girl differences in risk for reading disability: Potential clues? *American Journal of Epidemiology*, 154(9), 787–794. <https://doi.org/10.1093/aje/154.9.787>
- Saylor, C. F., & Leach, J. B. (2009). Perceived bullying and social support in students accessing special inclusion programming. *Journal of Developmental and Physical Disabilities*, 21(1), 69–80. <https://doi.org/10.1007/s10882-008-9126-4>
- Schäfer, M., Korn, S., Brodbeck, F., Wolke, D., & Schulz, H. (2005). Bullying roles in changing contexts: The stability of victim and bully roles from primary to secondary school. *International Journal of Behavioral Development*, 29(4), 323–335. <https://doi.org/10.1080/01650250544000107>
- Sentse, M., Prinzie, P., & Salmivalli, C. (2017). Testing the direction of longitudinal paths between victimization, peer rejection, and different types of internalizing problems in adolescence. *Journal of Abnormal Child Psychology*, 45(5), 1013–1023. <https://doi.org/10.1007/s10802-016-0216-y>
- Seymour, P. H. K., Aro, M., & Erskine, J. M. (2003). Foundation literacy acquisition in European orthographies. *British Journal of Psychology*, 94(2), 143–174. <https://doi.org/10.1348/000712603321661859>
- Shaywitz, S. E. (1998). Dyslexia. *New England Journal of Medicine*, 338(5), 307–312. <https://doi.org/10.1056/NEJM199801293380507>
- Shaywitz, S. E., Fletcher, J. M., Holahan, J. M., Shneider, A. E., Marchione, K. E., Stuebing, K. K., Francis, D. J., Pugh, K. R., & Shaywitz, B. A. (1999). Persistence of dyslexia: The Connecticut longitudinal study at adolescence. *Pediatrics*, 104(6), 1351–1359. <https://doi.org/10.1542/peds.104.6.1351>
- Shell, M. D., Gazelle, H., & Faldowski, R. A. (2014). Anxious solitude and the middle school transition: A diathesis x stress model of peer exclusion and victimization trajectories. *Developmental Psychology*, 50(5), 1569–1583. <https://doi.org/10.1037/a0035528>
- Singer, E. (2005). The strategies adopted by Dutch children with dyslexia to maintain their self-esteem when teased at school. *Journal of Learning Disabilities*, 38, 411–423. <https://doi.org/10.1177/00222194050380050401>
- Smith, K., Shah, A., Wright, K., & Lewis, G. (1995). The prevalence and costs of psychiatric disorders and learning disabilities. *The British Journal of Psychiatry*, 166(1), 9–18. <https://doi.org/10.1192/bjp.166.1.9>
- Smith, P. K., Madsen, K. C., & Moody, J. C. (1999). What causes the age decline in reports of being bullied at school? Towards a developmental analysis of risks of being bullied. *Educational Research*, 41(3), 267–285. <https://doi.org/10.1080/0013188990410303>
- Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: The National Academies Press. http://www.nap.edu/openbook.php?record_id=6023

- Snowling, M., Dawes, P., Nash, H., & Hulme, C. (2012). Validity of a protocol for adult self-report of dyslexia and related difficulties: Adult reading self-report. *Dyslexia*, *18*(1), 1–15. <https://doi.org/10.1002/dys.1432>
- Snowling, M., & Hulme, C. (2012). Annual Research Review: The nature and classification of reading disorders - a commentary on proposals for DSM-5: DSM-5 reading disorders. *Journal of Child Psychology and Psychiatry*, *53*(5), 593–607. <https://doi.org/10.1111/j.1469-7610.2011.02495.x>
- Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behavior*, *29*(3), 239–268. <https://doi.org/10.1002/ab.10047>
- Sourander, A., & Helstelä, L. (2005). Childhood predictors of externalizing and internalizing problems in adolescence. *European Child & Adolescent Psychiatry*, *14*(8), 415–423. <https://doi.org/10.1007/s00787-005-0475-6>
- Spencer, M., Quinn, J. M., & Wagner, R. K. (2014). Specific reading comprehension disability: Major problem, myth, or misnomer? *Learning Disabilities Research & Practice*, *29*(1), 3–9. <https://doi.org/10.1111/ldrp.12024>
- Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, *21*(4), 360–407. <https://doi.org/10.2307/747612>
- Taanila, A., Yliherva, A., Kaakinen, M., Moilanen, I., & Ebeling, H. (2011). An epidemiological study on Finnish school-aged children with learning difficulties and behavioural problems. *International Journal of Circumpolar Health*, *70*(1), 59–71. <https://doi.org/10.3402/ijch.v70i1.17799>
- Torppa, M., Georgiou, G. K., Lerkkanen, M.-K., Niemi, P., Poikkeus, A.-M., & Nurmi, J.-E. (2016). Examining the simple view of reading in a transparent orthography: A longitudinal study from kindergarten to grade 3. *Merrill-Palmer Quarterly*, *62*(2), 179–206.
- Trzesniewski, K. H., Moffitt, T. E., Caspi, A., Taylor, A., & Maughan, B. (2006). Revisiting the association between reading achievement and antisocial behavior: New evidence of an environmental explanation from a twin study. *Child Development*, *77*(1), 72–88. <https://doi.org/10.1111/j.1467-8624.2006.00857.x>
- Tur-Kaspa, H. (2002). The socioemotional adjustment of adolescents with LD in the Kibbutz during high school transition periods. *Journal of Learning Disabilities*, *35*(1), 87–96. <https://doi.org/10.1177/002221940203500107>
- Undheim, A. M., Lydersen, S., & Kaye, N. S. (2016). Do school teachers and primary contacts in residential youth care institutions recognize mental health problems in adolescents? *Child and Adolescent Psychiatry and Mental Health*, *10*, 19. <https://doi.org/10.1186/s13034-016-0109-4>
- Undheim, A. M., Wichstrøm, L., & Sund, A. M. (2011). Emotional and behavioral problems among school adolescents with and without reading difficulties as measured by the youth self-report: A one-year follow-up study. *Scandinavian Journal of Educational Research*, *55*(3), 291–305. <https://doi.org/10.1080/00313831.2011.576879>
- UNESCO. (2019). *Behind the numbers: Ending school violence and bullying*. United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/in/documentViewer.xhtml?v=2.1.196&id=p::usmarcdef_0000366483&file=/in/rest/annotationSVC/DownloadWatermarkedAttachment/attach_import_2c74d466-b2a7-47f9-a10c-9e84e9667e22%3F_%3D366483eng.pdf&locale=en&multi=true&ark=/ark:/48223/pf0000366483/PDF/366483eng.pdf#2423_18_Bullying_EN_INT.indd%3A.71503%3A268
- Vaillancourt, T., Brittain, H. L., McDougall, P., & Duku, E. (2013). Longitudinal links between childhood peer victimization, internalizing and externalizing problems, and academic functioning: Developmental cascades. *Journal of Abnormal Child Psychology*, *41*(8), 1203–1215. <https://doi.org/10.1007/s10802-013-9781-5>

- Vallance, D. D., Cummings, R. L., & Humphries, T. (1998). Mediators of the risk for problem behavior in children with language learning disabilities. *Journal of Learning Disabilities, 31*(2), 160–171. <https://doi.org/10.1177/002221949803100206>
- Van Cleave, J., & Davis, M. M. (2006). Bullying and peer victimization among children with special health care needs. *Pediatrics, 118*(4), e1212–e1219. <https://doi.org/10.1542/peds.2005-3034>
- Vaz, S., Parsons, R., Falkmer, T., Passmore, A. E., & Falkmer, M. (2014). The impact of personal background and school contextual factors on academic competence and mental health functioning across the primary-secondary school transition. *PLOS ONE, 9*(3), e89874. <https://doi.org/10.1371/journal.pone.0089874>
- Virtanen, T. E., Vasalampi, K., Torppa, M., Lerkkanen, M.-K., & Nurmi, J.-E. (2019). Changes in students' psychological well-being during transition from primary school to lower secondary school: A person-centered approach. *Learning and Individual Differences, 69*, 138–149. <https://doi.org/10.1016/j.lindif.2018.12.001>
- Vogel, S. A., & Holt, J. K. (2003). A comparative study of adults with and without self-reported learning disabilities in six English-speaking populations: What have we learned? *Dyslexia, 9*(4), 193–228. <https://doi.org/10.1002/dys.244>
- Waters, S. K., Lester, L., Wenden, E., & Cross, D. (2012). A theoretically grounded exploration of the social and emotional outcomes of transition to secondary school. *Australian Journal of Guidance and Counselling, 22*(02), 190–205. <https://doi.org/10.1017/jgc.2012.26>
- Welsh, M., Parke, R. D., Widaman, K., & O'Neil, R. (2001). Linkages between children's social and academic competence: A longitudinal analysis. *Journal of School Psychology, 39*(6), 463–482. [https://doi.org/10.1016/S0022-4405\(01\)00084-X](https://doi.org/10.1016/S0022-4405(01)00084-X)
- Wenz-Gross, M., & Siperstein, G. N. (1998). Students with learning problems at risk in middle school: Stress, social support, and adjustment. *Exceptional Children, 65*(1), 91–100. <https://doi.org/10.1177/001440299806500107>
- West, P., Sweeting, H., & Young, R. (2010). Transition matters: Pupils' experiences of the primary-secondary school transition in the West of Scotland and consequences for well-being and attainment. *Research Papers in Education, 25*(1), 21–50. Scopus. <https://doi.org/10.1080/02671520802308677>
- Willcutt, E. G., & Pennington, B. F. (2000). Psychiatric comorbidity in children and adolescents with reading disability. *Journal of Child Psychology and Psychiatry, 41*(8), 1039–1048. <https://doi.org/10.1111/1469-7610.00691>
- Wolf, M., & Bowers, P. G. (1999). The double-deficit hypothesis for the developmental dyslexias. *Journal of Educational Psychology, 91*(3), 415–438. <https://doi.org/10.1037/0022-0663.91.3.415>
- Wolff, U., & Lundberg, I. (2003). A technique for group screening of dyslexia among adults. *Annals of Dyslexia, 53*, 324–339.
- Zeedyk, M. S., Gallacher, J., Henderson, M., Hope, G., Husband, B., & Lindsay, K. (2003). Negotiating the transition from primary to secondary school: Perceptions of pupils, parents and teachers. *School Psychology International, 24*(1), 67–79. <https://doi.org/10.1177/0143034303024001010>
- Zelege, S. (2004). Self-concepts of students with learning disabilities and their normally achieving peers: A review. *European Journal of Special Needs Education, 19*(2), 145–170. <https://doi.org/10.1080/08856250410001678469>



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