Measuring peer victimization and school leadership

A study of definitions, measurement methods and associations with psychosomatic health

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ABSTRACT

Background: The negative impact of peer victimization on children and adolescents is a public health concern and the subject of extensive research. However, there are long-standing concerns about how to accurately measure and estimate prevalence rates of peer victimization and whether children and adults define and understand bullying in the same way. Given that prevalence rates of peer victimization are needed to evaluate mental health interventions at an individual and school level, methods for estimating the number of children experiencing peer victimization are crucial. The Swedish Education Act clearly states that schools should work actively with social, civic, as well as academic objectives and that the principal is responsible for the preventive and anti-bullying work in school. PESOC is a Swedish instrument intended for studies on school effectiveness and pedagogical leadership and has been used for school improvement efforts in Sweden. The psychometric properties of PESOC have not been examined previously. To get a clearer picture of the full extent and distribution of the social and mental health consequences of peer victimization, this thesis explores the methodological ambiguities concerning peer victimization and school leadership.

Aim: The overall aim of this thesis is to examine methods for assessing peer victimization and pedagogical leadership in school. The following research questions are asked: 1) To what degree does a measure of bullying overlap with measures of peer aggression with respect to the number of students identified as victims and association with self-reported psychosomatic problems? 2) What are Swedish adolescents’ definition and understanding of bullying? 3) Can the PESOC-PLP scale be used as a valid measure to assess the pedagogical leadership of the principal?

Method: This thesis is based on four studies. Study I and II are based on a web-based questionnaire among compulsory school students. The data were collected in a classroom setting in the city of Karlstad at two points in time, in 2009 and 2010. Altogether, 2,568 adolescents in school years 7-9 (aged 13-15) participated. Concordance and discordance between a measure of bullying and a measure of peer aggression were analyzed using contingency tables and measures of association (phi squared coefficients). Linear
regression analyses and analysis of variance (ANOVA) were applied to analyze the association between psychosomatic problems, bullying and peer aggression. In study III, data were collected among students in school years 7 and 9 with a web-based questionnaire and focus group interviews. 128 students completed the questionnaire while 21 students participated in the focus groups (four focus group interviews in total). The quantitative data were analyzed using contingency table analysis and Chi-square significance tests. The qualitative data were analyzed using qualitative content analysis. In study IV, a total of 344 teachers and special-education teachers were asked to rate their principal’s leadership skills using a web-based questionnaire distributed via e-mail. The psychometric properties of the PESOC-PLP scale were analyzed using Rasch analysis.

**Results:** *Study I:* Among the students reporting being victimized by peers, 13% reported bullying, 44% reported repeated peer aggression and 43% reported being both bullied and exposed to peer aggression. Concordance was further elucidated by phi square coefficient tests revealing that 18% of the variance in either measure was accounted for by the other measure. The results showed that a measure of bullying and a measure of peer aggression capture partly different students. *Study II:* The results show that the proportion of adolescents with psychosomatic problems is the same regardless of which measure is used. The two measures are not capturing exactly the same individuals and the proportion of adolescents with psychosomatic problems related to peer victimization is higher when measures of bullying as well as measures of peer aggression are included simultaneously in the analyses. *Study III:* The adolescents’ understanding and definition of bullying did not only include the traditional criteria of repetition and power imbalance, but also a criterion based on the health consequences of bullying. That is, a single but hurtful or harmful incident could also be considered bullying irrespective of whether the traditional criteria were fulfilled or not. Further, girls and older students had a more inclusive view of bullying and reported more types of behavior as bullying compared to boys and younger students. *Study IV:* The Rasch analysis indicated two sub dimensions of the PESOC-PLP scale and analysis of item content revealed two types of leadership: direct pedagogical leadership and indirect pedagogical leadership. One item showed misfit according to the Rasch Model and was removed without loss in content validity. The analysis of the sub dimensions showed satisfying psychometric properties of the instrument, indicating that
the PESOC-PLP scale can be useful when measuring the pedagogical leadership of principals.

Conclusions: Ensuring a safe and positive school experience for children is of great importance as it is a good predictor of future health. All children have the right to express their opinions regarding matters that concern them and allowing children’s voices to be heard are crucial as their understanding may not always conform to the understanding of adults. This thesis highlights the deficiencies in the way bullying and school leadership are currently defined and measured. A single measure of bullying, including the traditional definition, does not fully capture the overall prevalence rate of peer victimization and its association with psychosomatic problems, nor does it fully reflect adolescents’ understanding and definition of bullying. In order to incorporate adolescents’ perception into the definition of bullying, the negative health consequences should be included as a criterion and not only be seen as a consequence of bullying. Further, by showing sound psychometric properties, the PESOC-PLP scale adds to the research field of pedagogical leadership. In Sweden and other countries that prioritize comprehensive head teacher training programs, the PESOC-PLP scale may be used as a tool for evaluating these programs. By strengthening the understanding of measurement methods of peer victimization and school leadership the results from the thesis may indirectly contribute to a safe and positive school experience for children and adolescents.
SAMMANFATTNING

**Bakgrund:** De negativa konsekvenserna av peer victimization utgör ett stort hot mot folkhälsan och är också ett viktigt forskningsområde. Det finns emellertid många frågetecken om hur man bäst mäter och beräknar förekomst av peer victimization och om hur barn och vuxna definierar och uppfattar mobbning. Metoder för att mäta förekomst av peer victimization behövs för att kunna utvärdera interventioner som syftar till en ökad psykisk hälsa på individ- och skolnivå. Enligt den svenska skollagen ska varje skola aktivt arbeta med sociala, demokratiska samt akademiska mål och huvudmannen har ansvar för förebyggande åtgärder mot mobbning i skolan. PESOK är ett svenskt mätinstrument som har använts i utvecklings- och förbättringsarbetet på svenska skolor med syfte att identifiera och studera effektiva skolor och pedagogiskt ledarskap. De psykometriska egenskaperna hos PESOK har dock inte tidigare studerats. För att få en tydligare bild av den fulla omfattningen och de sociala och psykiska konsekvenserna av mobbning är målet med denna avhandling att studera peer victimization och ledarskap i skolan med ett fokus på metod frågor.

**Syfte:** Det övergripande syftet med denna avhandling är att utforska metoder för att mäta peer victimization och ledarskap i skolan. Följande forskningsfrågor undersöks: 1) I vilken utsträckning överlappar ett mått på mobbning och ett mått på aggression med avseende på antalet elever som identifieras samt sambandet med självraperporterade psykosomatiska besvär? 2) Hur definierar svenska ungdomar mobbning? 3) Kan PESOC-PLP skalan användas som ett validerat instrument för att mäta rektorns pedagogiska ledarskap?


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1 Det finns ingen direkt svensk översättning på begreppet ”peer victimization”, men det engelska begreppet är övergripande och innefattar såväl mobbning som andra aggressiva handlingar.
III samlades data in bland elever i årskurs 7 och 9 med dels en webbaserad enkät och dels med fokusgruppsintervjuer. 128 elever deltog i enkäten medan 21 elever (totalt fyra fokusgruppsintervjuer) deltog i fokusgrupperna. Den kvantitativa studien analyserades med korstabeller och signifikans test ($\chi^2$) och den kvalitativa studien analyserades med hjälp av kvalitativ innehållsanalys. I studie IV deltog totalt 344 lärare och specialpedagoger i en webbaserad enkät. Enkäten distribuerades via e-post där lärarna ombads värdera sin rektors ledarskapsförmågor. De psykometriska egenskaperna hos PESOC-PLP skalan analyserades med hjälp av Rasch analyser.

**Resultat:** *Studie I:* Av de elever som rapporterade att de blivit utsatta för peer victimization rapporterade 13 % att de blivit mobbade, 44 % rapporterade att de blivit utsatta för upprepad aggression och 43 % rapporterade att de blivit utsatta både för mobbning och för upprepad aggression. Överensstämmelsen mellan de två måtten belystes ytterligare med hjälp av phi square coefficient tester som visade att 18 % av variansen i endera måttet utgjordes av det andra måttet. Resultaten visade att ett mätt på mobbning och ett mätt på aggression fångar in delvis olika elever. *Studie II:* Resultaten visade att andelen ungdomar med psykosomatiska problem var den samma oavsett vilket mätinstrument som användes. De två måtten fångar in delvis olika individer och andelen ungdomar som rapporterar psykosomatiska besvär i samband med peer victimization blir högre då frågor om både mobbning och aggression inkluderas. *Studie III:* Utöver de traditionella kriterierna repetition och maktobalans inkluderade ungdomarna även hälsokonsekvenser av mobbning i sin förståelse för och definition av mobbning. Det vill säga, en enstaka händelse som sårar eller skadar kan också anses som mobbning oavsett om de traditionella kriterierna var uppfyllda eller inte. Vidare visade resultaten att flickor och äldre ungdomar har en vidare syn på vad mobbning är och rapporterade fler typer av beteenden som mobbning jämfört med pojkar och yngre ungdomar. *Studie IV:* Rasch analyser indikerade två underdimensioner av PESOC-PLP skalan och en analys av innehållet i frågorna i de två dimensionerna visade på två olika typer av ledarskap; direkt pedagogiskt ledarskap samt indirekt pedagogiskt ledarskap. En fråga visade avvikelse från Rasch modellen och kunde exkluderas eftersom innehållssvaliditeten inte försämrades. Rasch analyser av de två underdimensionerna visade tillfredsställande psykometriska
egenskaper vilket indikerar att PESOC-PLP skalan kan vara användbar för att mäta rektorns pedagogiska ledarskap.

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II. Hellström, L., Beckman, L., & Hagquist, C. Does the strength of the association between peer victimization and psychosomatic health problems depend on whether bullying or peer aggression is measured? *Manuscript*


IV. Hellström, L., Hagquist, C. Psychometric properties of the PESOC-PLP scale, a Swedish teacher instrument measuring Pedagogical Leadership – a Rasch analysis. *Submitted*
AUTHORS’ CONTRIBUTIONS

Study I + II
Lisa Hellström participated in the preparation of the questionnaire, the data collection, the design of the study, conducted the statistical analyses and interpretation of data and drafted the manuscript. Linda Beckman participated in the preparation of the questionnaire, the data collection and helped to draft the manuscript. Curt Hagquist participated in the design of the study, participated in the data analysis and helped to draft the manuscript. All authors read and approved the final manuscript.

Study III
Lisa Hellström initiated and implemented the study, conducted the data collection, analyzed the data and drafted the manuscript. Louise Persson participated in the data analysis and provided critical review of the manuscript. Curt Hagquist participated in the design of the study, participated in the data analysis and helped to draft the manuscript. All authors read and approved the final manuscript.

Study IV
Lisa Hellström initiated and implemented the study, conducted the data collection, analyzed the data and drafted the manuscript. Curt Hagquist participated in the design of the study, participated in the data analysis and helped to draft the manuscript. All authors read and approved the final manuscript.
INTRODUCTION

Ensuring a safe and secure school experience is important for the protection of children’s health and is a relevant public health issue as the childhood health status can be seen as a determinant factor of future health. While strong leadership and social relations can be seen as a positive determinant for mental health, academic achievement (Gustafsson et al., 2010) and lower levels of drug use (LaRusso, Romer, & Selman, 2008), negative school experiences and social relations can be linked to lower student engagement (Mehta, Cornell, Fan, & Gregory, 2013) and mental ill-health (Gådin, Gillander, & Hammarström, 2003). Peer victimization was once thought of as a character-building rite of passage or harmless behavior among peers. Today, however, it is well known that peer victimization is associated with poor school performance (Glew, Fan, Katon, Rivara, & Kernic, 2005; Lien & Welander-Vatn, 2013), feelings of loneliness and emotional problems (Woods, Done, & Kalsi, 2009) and mental health complaints (Beckman, Hagquist, & Hellström, 2012; Stapinski, Araya, Heron, Montgomery, & Stallard, 2014). Recent studies have shown that bullying can have long-lasting effects on both mental and physical health (Holt et al., 2014) as well as motivation for further education (Liu, Lan, Hsu, Huang, & Chen, 2014). Peer victimization affect children’s perception of the school as an unwelcome and unsafe place, and the negative effects associated with peer victimization are experienced also by students not directly involved (Lacey & Cornell, 2013; Swearer, Espelage, Vaillancourt, & Hymel, 2010). Because of its’ negative effects, many schools struggle to find ways to prevent peer victimization to offset the adverse outcomes (Espelage, 2014). Even though the awareness of the problems associated with peer victimization is growing, there are long-standing concerns about how to accurately define, measure and estimate prevalence rates of peer victimization (e.g., Felix, Sharkey, Green, Furlong, & Tanigawa, 2011; Greif & Furlong, 2006; Monks & Smith, 2006; Smith, Cowie, Olafsson, & Liefooghe, 2002).

The meaning and manifestations of bullying may differ over time and between different cultural contexts. The concept of bullying may also mean different things from person to person, which indicates that there is a great complexity involved in understanding bullying behavior among children and adolescents (SNAE, 2009b). The terms peer victimization, bullying, and aggression are sometimes used interchangeably even
though they are defined differently. Due to the inconsistent use of measurement methods, terminology and definitions the prevalence rates of peer victimization can vary greatly from study to study. The conceptual confusion and measurement ambiguities in victimization research need further illumination. According to the UN Convention on the Rights of the Child (UNCRC), every child has the right to be heard in matters that concerns them (General Assembly, 1989). Still, definitions of bullying are coined by adults while children’s own understandings and perceptions have largely been neglected. This is very unsatisfactory since adults and children have somewhat different perceptions of bullying (e.g., Guerin & Hennessy, 2002; Madsen, 1996). Children’s perception of what bullying is could be an important missing component in the pursuit of understanding and addressing bullying in schools (Varjas et al., 2008). Finding effective methods to reduce peer victimization requires the use of measurement methods that accurately reflect the challenges facing children today.

Efforts to prevent bullying have been an integral part of the Swedish school mission since the 1990s. Successful approaches to reduce bullying, mental ill health, and poor academic achievement are those that attempt to create a supportive school ethos and school environment by involving all personnel at school (Stewart, 2008). Many approaches to reduce bullying are based on the assumption that bullying is a systematic problem reflecting a school context rather than individual characteristics of bullies and victims (Richard, Schneider, & Mallet, 2012). Measurement methods that assess effective and successful leadership are important since strong school leaders are important not only for the anti-bullying efforts in schools, but also for the creation of a positive school climate and academic success (Dake, Price, Telljohann, & Funk, 2004; Höög, Johansson, & Olofsson, 2005; Törnsén, 2009; Yukl, 2012). However, there is a scarcity of psychometrically sound instruments assessing principal performance (Condon & Clifford, 2010; Tejeda, Scandura, & Pillai, 2001). In Sweden, the instrument Pedagogical and Social Climate in School (PESOC), designed to measure school effectiveness and pedagogical leadership, has been widely used for school improvement efforts (Grosin, 2002). However, the psychometric properties of PESOC have not been examined previously, which calls for an examination of its validity for future use. To compare schools and determine the impact of leadership management on the individual school more knowledge and awareness are needed of what is being measured and how the different
instruments and techniques are being used (Höög, 2011). Current methodological ambiguities in research on peer victimization and school leadership, such as lack of valid measurement methods, inconsistent definitions and operationalizations are of concern to public health as this lack of knowledge indicates that the understanding of what to do to reduce every child’s negative experiences in school is incomplete.

**Positive and negative school experiences – a public health perspective**

School achievement is associated with mental health and poor academic achievement can lead to truancy and bullying. Such behavioral problems, in turn, increase the risk of aggravating the peer-teacher relations and produce even weaker school performance. Since school performance affects mental health and mental health affects school performance, there is a risk of a vicious circle (Gustafsson et al., 2010). A study by Juvonen, Wang and Espinoza (2011) reported that peer victimization can account for an average of a 1.5 letter grade decrease in an academic subject (e.g., math) across three years of middle school. Further, Glew, Fan, Katon and Rivara (2008) found that for each 1-point increase in grade point average, the odds of being a victim versus a bystander of peer victimization decreased by 10%. It is possible that the impact of peer victimization on academic achievement can be explained by mediating or moderating factors such as internalizing behaviors, low self-esteem, difficulty concentrating, friendship quality and social support (See Espelage, 2014). Since young people spend most hours of the day in school, school is an important arena for health promotion (Gådin, Gillander, & Hammarström, 2003). The overall goal of the public health work in Sweden is to create societal conditions for a good health on equal terms for the entire population. It has been shown that childhood social and educational factors are strongly linked to adult mental and physical health, and to adult health-related behavior such as smoking, alcohol consumption, exercise and dietary habits (Wadsworth & Kuh, 1997). Therefore, children and youth are prioritized target groups in public health promotion. Conditions during childhood and adolescence constitute one of the main areas in Sweden’s public health policy and focuses on, among other things, high quality schools and healthy development (Proposition, 2007/08:110).
School exists to meet the needs of children and adolescents and according to the UN Convention on the Rights of the Child (UNCRC) every child has the right to an education that develops their full potential and that respects human rights (General Assembly, 1989). The UNCRC further states that all children have the same rights and equal worth and no child should be discriminated against. When it comes to children’s economic, social and cultural rights, the state shall use the utmost of their resources to satisfy the needs of the children. Ensuring a safe and secure school experience is a relevant public health issue and can be seen as an implementation of the UNCRC. Since school attendance is compulsory for Swedish children and adolescents, positive and negative experiences in school in terms of relationships with peers, teachers and other leaders are unavoidable. Promoting positive social relations, strong leadership and school climate as well as preventing peer victimization is important for the health of all children (Modin, 2012).

Health, ill health and mental health

Health concerns many aspects and areas of society, making it a complex concept that is not easily defined. There is disagreement concerning the meaning of health since health can have medical, social, economic, spiritual, and many other components (Larson, 1999). The most commonly used definition, formulated by the World Health Organization, states that health is “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (WHO, 1948). WHO’s definition highlights both physical and psychological components of health but has been criticized for demanding states of complete health (See Larson, 1999). Health can also be seen as a continuum with good health at one end and ill health at the other end. While it is hard to determine when good health is attained, it may be easier to recognize when health is not attained, i.e., when individuals are experiencing ill health (Gadamer, 2003). Ill health can be described in terms of disease and illness. While disease is defined as disturbed bodily functions, illness is an individual’s perception of suffering from a disease or experience of mental well-being or lack thereof (SOU, 2006). There is no generally accepted division between what
is considered normal and abnormal conditions in health and this division often varies across different time periods and cultures (SOU, 2006). This thesis examines the association between peer victimization and adolescent mental health by investigating self-reported psychosomatic problems.

**Stress and psychosomatic problems**

In the last decades, self-reported mental ill health has increased among youth in Sweden and globally (Hagquist, 2010). Recent reports have shown that adolescent reports of sadness, anxiousness, sleeping problems and different forms of pain and ache have increased. In the public debate, these symptoms are often described as signs of stress (SOU, 2006). For scientific purposes, mental ill health among children is often divided into two main categories: internalizing and externalizing problems. Externalized problems often include behaviors such as defiance, aggression and impulsivity, while internalized problems often include symptoms such as anxiety, depression, eating disorders as well as self-harm and suicidal behavior. The division of externalizing and internalizing problems is, however, partly arbitrary and problematic, since both types of problems often occur simultaneously (SBU, 2010).

Stress is a growing problem among children and adolescents. When debated in media, the concept of stress has a wide meaning. To feel strained, not to have time to do the things you want to do, to be frustrated, to be worried and having trouble falling asleep are described as stress, or as signs of stress. In its basic form, stress is a natural reaction to a situation that is perceived as challenging. Stress becomes harmful if it is prolonged and does not allow for recovery (SBU, 2010).

From a psychological perspective, stress is when an individual feels that the strains he or she is exposed to exceed the own ability to cope with the strains. If the strains become too heavy they can lead to feelings of worry, frustration or tension (Lazarus & Folkman, 1984). Somatic symptoms which are perceived to be the consequences of prolonged stress, such as headaches or stomach aches, are often included in this everyday description of stress (SOU, 2006). These symptoms such as head, stomach and back pain may precede mental disorders, but they can also be a
consequence of mental illness and is therefore often used as an indicator of milder forms of mental illness symptoms (known as psychosomatic symptoms). Psychosomatic symptoms are psychologically induced and problems from two or more parts of the body, such as the stomach, head, leg, chest and back, often co-exist (Petersen, Brulin, & Bergström, 2006). Psychosomatic symptom is a term often used without definition although the term can have different meanings. In modern dictionaries, it is defined in the following two ways: 1) a disorder having physical symptoms but originating from mental or emotional causes; 2) the influence of the mind on the body, and the body on the mind, especially with respect to disease. In this thesis the term psychosomatic problems is used according to the first definition, i.e., as physical/somatic symptoms caused by emotional stress. Signs of mental ill health, such as stress and psychosomatic symptoms, must be understood in relation to the child’s age, developmental level and the social context. Whereas worry, distress and trouble sleeping for most children are transient reactions and part of the normal development, persistent symptoms may inhibit children’s development and increase the risk of serious problems such as anxiety and depression (SBU, 2010).

New arenas for peer relations

To understand peer relations and bullying among today’s youth one must consider the social context, including the increasing influence of mass media on the lives of children and adolescents. Today, most adolescents own a mobile phone and are linked to each other through facebook, twitter, instagram or other social networking sites (SNS). Research from the United States shows that among internet users aged 18-29, 89% reported using SNS (Brenner & Smith, 2013). Further, posting comments to pictures or profiles is the most popular activity on SNS and 94% of older teens report sharing photos of themselves on their social media profiles (Livingstone, Haddon, & Ólafsson, 2011; Madden et al., 2013). Teens also take active steps to shape their reputation on SNS; research among college students has found that young women remove photos of themselves with too few “likes” or pictures that are not in accordance with societal ideals of beauty (Madden et al., 2013; Vitak & McLaughlin, 2011). Given the emphasis placed

2 http://www.thefreedictionary.com/psychosomatic
on weight and looks in present day society, bullying based on appearance may have serious implications for the emotional well-being of young people (Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006; Thompson, Coover, Richards, Johnson, & Cattarin, 1995).

Being constantly connected to the internet via smart phones means that much of adolescents' social interactions take place on the internet (Cassidy, Faucher, & Jackson, 2013). Judgment of what is considered acceptable behavior may in some sense be influenced by the exploitation of hurtful and humiliating behavior portrayed on television and on the internet. For example, Swedish media recently highlighted cases of public shaming, i.e., the publishing of offensive pictures and comments, on the picture-sharing website Instagram which lead to riots and the prosecution of two adolescent girls (Aftonbladet News, 2013). Another recent case highlighted in Swedish media was the creation of Instagram accounts where children upload pictures of themselves for others to rate (Värmlands Folkblad News, 2013). A study among adolescent girls showed that the more time spent using SNS the higher level of self-objectification, i.e., the internalization of an observer's perspective on one's own body (Fredrickson & Roberts, 1997; Vandenbosch & Eggermont, 2012). However, removing themselves from those platforms may not be an option as it would mean exclusion from the social community (Cassidy et al., 2013). The internet, mobile phones and other electronic media provide young children access to information, culture, communication and entertainment to an extent impossible to imagine only a few decades ago (UNICEF, 2011). At the same time, information and communication technologies (ICT) influence many aspects in the lives of adolescents into which school personnel and parents have little insight (Cassidy, Jackson, & Brown, 2009; Lenhart, Purcell, Smith, & Zickuhr, 2010). Being brought up in a world full of technology, younger people may not share older people's balanced view and a sense of caution not to trust technology blindly (Fisher, 2013). It has been pointed out that the changing nature of peer relations may alter the conceptions of what is unacceptable behavior and how to react to it (Abt & Seesholtz, 1994). To define bullying among today’s youth, it is imperative to understand the new arenas for peer relations such as the internet.
School climate

School climate is a complicated concept that is frequently used but poorly defined (Libbey, 2004). Cohen, McCabe, Michelli, and Pickeral (2009) proposed that school climate “refers to the quality and character of school life...based on patterns of people’s experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures” (p. 180). There is extensive research showing that school climate effect the life of youth and adolescents in many different ways. A positive school climate, for example, has shown to affect students’ motivation to learn (Goodenow & Grady, 1993) and is associated with lower levels of drug use (LaRusso et al., 2008) and decreased student absenteeism (Purkey & Smith, 1983). On the other hand, a negative school climate has shown associations with negative psychosomatic health (Modin & Östberg, 2009) and academic failure (McEvoy & Welker, 2000). School climate is also seen as an important component to include in school improvement efforts and to prevent bullying (Thapa, Cohen, Guffey, & Higgins-D’Alessandro, 2013). A positive school climate is of great importance for ensuring a positive school experience, and together with the variables leadership and quality instruction, school climate is often associated with what has been defined as effective schools (R. C. Kelley, Thornton, & Daugherty, 2005). School Effectiveness Research (SER) is a research track focusing on the roles of the school leaders as well as the organizational structures.

Effective schools and school leadership

The early stages of SER found that academic results and school adaptation among students could be explained not only by students’ genetic abilities and social factors, but also by factors relating to the organization of the school and leadership (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; Edmonds, 1979; Rutter, Maugham, Mortimore, Ousten, & Smith, 1979; Sammons, Thomas, & Mortimore, 1997; Weber, 1971). The early stages of SER and the later stages of Educational Effectiveness Research (EER) focus on the roles of the school leaders as well as the organisational structures and other school variables in order to investigate what makes good schools (D. Reynolds et
A meta-analysis from 2005 covering 35 years of research indicated that school leadership can have a substantial effect on student achievement (Marzano, Waters, & McNulty, 2005). It has further been discussed whether different types of leadership styles affect student achievement differently. Some scholars highlight the principal’s knowledge of curricular content and instructional materials as most important for successful leadership (e.g., Robinson, 2007; Stein & Nelson, 2003), while others emphasize the principal’s ability to empower, support and distribute leadership to others (e.g., Leithwood, 2001). A study by Seashore Louis, Dretzke and Wahlstrom (2010) showed that leadership variables such as focused instruction, shared leadership and teachers’ trust in the principal are positively related to student learning.

A recent focus in EER is the development of school policy and teaching as the most important factors for school effectiveness while leadership factors are seen as less important (Creemers & Kyriakides, 2008; D. Reynolds et al., 2014; Scheerens, 2013). The ambiguous empirical results of SER are further illustrated by a recent meta-analysis suggesting that leadership has only a weak effect on student achievement and suggests that focus should rather be on the content of school policy and the type of activities that take place in schools (Kyriakides, Creemers, Antoniou, & Demetriou, 2010). The mixed results concerning the associations between leadership and student outcomes may partly reflect disparities as regards methodology, e.g., how the direct effects of leadership and the indirect effects such as school leaders’ influence on teachers are distinguished. Relatively few studies look at the connection between direct instructional leadership and student outcomes, while the association between the principal’s indirect influence and student achievement is generally more accepted (Seashore Louis et al., 2010; Stronge, Richard, & Catano, 2008). While a great deal of attention has been paid to outcome measures of student achievement in public education, only limited attention has been paid to measures of leadership practice that may promote student learning (C. Kelley & Halverson, 2012; R. C. Kelley et al., 2005). Moreover, the fact that many instruments for measuring school leader performance are obsolete also warrants updated assessments of their continued validity (Hallinger, Wang, & Chen, 2013). The scarcity of psychometrically sound instruments may have contributed to the inconsistent results of different studies on school effectiveness (Condon & Clifford, 2010; Tejeda et al., 2001).
The Swedish Education Act (SFS, 2010:800) includes both social/democratic and academic goals and highlights the principal as the responsible pedagogical leader. As a pedagogical leader, the principal is expected to provide opportunities for the education to develop through discussion of pedagogical matters, leading discussions and meetings, evaluating teaching activities, supporting the teachers and conducting systematic follow-ups of students’ academic results (Rapp, 2009; Ärlestig, 2011). There is no agreed upon definition but an often used definition states that pedagogical leadership is “the influence a school leader exerts in relation to teachers through various actions, which aim to influence them to improve their teaching in accordance with the objectives and guidelines stated in the curriculum and Education Act” (Nestor, 1993, p. 183). Pedagogical leadership has also been defined to include indirect and direct forms of leadership. Indirect pedagogical leadership includes providing opportunities for teaching and learning, for example organising activities by creating a clear structure for teacher- and student schedules, meeting formats and allocating time for collaboration between teachers. Direct pedagogical leadership, on the other hand, includes, for example, giving feedback to teachers on teaching methods and analysing academic results in relation to teaching methods, giving support, challenging and developing teachers through dialogue and communication (The Swedish School Inspectorate, 2012; Törnsén, 2009).

**Pedagogical and Social Climate in School (PESOC)**

Pedagogical and Social Climate in School (PESOC) is a Swedish instrument designed for studies on school effectiveness and pedagogical leadership. The first version was developed at the beginning of the 1990s and later versions have been updated based on the school reforms in 1990 and 2000 (Grosin, 2004). The instrument is based on the theoretical framework of the early stages of SER and the conceptual understanding of pedagogical leadership. PESOC includes pedagogical as well as social dimensions of school climate aiming to capture the dynamic interplay between cultural and structural factors as well as the interaction between students, teachers and school leaders (Grosin, 2002). The conceptual understanding of PESOC rests on the assumptions that the social and pedagogical school climate is established by the expectations and norms of the
principal, school management and teachers, as well as by their perceptions of the purpose of school, its potentials and limitations and by the consequent action patterns towards students, colleagues and parents. In PESOC, the pedagogical leadership of the principal is included as a sub scale (PLP scale) and is defined as a responsibility of the central activities in school and aims to capture both the structure of the school (i.e. content and form of teaching and education as well as the social interaction between the principal, teacher and students) and the culture of the school (i.e. goal fulfilment, values and theoretical assumptions of the principal and the teachers) (Grosin, 2002; Höög et al., 2005). The definition is based on the assumption that student adjustment and actions, attendance, performance and behavior in school are formed as they become aware of the adults’ core values, expectations and behavior patterns (Grosin, 2002). In PESOC, pedagogical leadership could be seen as a wider conceptualisation of instructional leadership3 (Grosin, 2003). However, since pedagogical leadership is a concept that is used mainly in a Scandinavian context, it is hard to find a direct analogy to international research on school leadership (Rapp, 2009). The psychometric properties of PESOC have not been examined previously and the results of studies using PESOC have not been published in scientific journals. PESOC has been widely used for school improvement efforts in Sweden, which warrants an examination of its validity for future use.

Concepts and definitions in peer victimization research

A historical review of the term bullying

Bullying is a historical concept and its meaning has changed along with changes in societal values (SNAE, 2009b). The acknowledgement of bullying as something problematic is fairly new, but peer harassment is hardly new in the school setting. Already in the 1700s it was common for older students to harass new and younger students in order to maintain the hierarchical structure that existed in the schools. This organized type of peer harassment, called penalism, manifested itself in very sadistic forms varying from verbal

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3 The most frequently used conceptualisation of instructional leadership includes three dimensions; defining the school's mission, managing the instructional program, and promoting a positive school-learning climate (Hallinger & Murphy, 1985).
harassment to assault (See Bliding, 2002). The phenomenon of bullying was first noted by ornithologists as a behavior among birds and in the late 1960s, Konrad Lorenz used the term “mobbing” to explain animal behavior. In ethology, the term mobbing describes a collective attack by a group of animals on an animal of another species, which is usually larger and a natural enemy of the group (Olweus, 2001). Lorenz (1968) also characterized mobbing as actions of a school class or a group of soldiers ganging up against a deviating individual. The word mobbing was first used in the Swedish debate at the beginning of 1970 by the physician Peter-Paul Heinemann (1972), who used it to describe the phenomenon of aggressive group behavior towards a single child. According to Heinemann, bullying behaviors occur naturally in humans as a biological species, but are made possible by certain social factors. It was partially in the role of parent that Heinemann acknowledged the phenomenon as his adopted son was exposed to degrading comments about his skin color. Heinemann objected to the acceptance of this type of behavior and deemed it unacceptable, demanding counteraction (Larsson, 2008). Heinemann’s argument was that deviation does not cause abuse but rather triggers it. The notion that the bullied child is different was an obvious assumption. In an interview for a Swedish newspaper [Dagens Nyheter, November 13, 1969], Heinemann claims that the prevalence of bullying is higher in urban and overcrowded cities and advises parents with “deviant adoptive children” to move to small towns, preferably in northern Sweden, and place the child in a small school (SNAE, 2009b). The deterministic view of bullying as a naturally occurring behavior has later been criticized and an alternative explanation is that bullying behavior is learned through interactions with other people (Ahlström, 2009).

In the scientific field the term bullying was first used at the beginning of the 1970s. The psychologist Dan Olweus conducted research on Swedish schoolboys and found that both personality traits and the home environment were possible factors associated with bullying involvement. During this time, the perception of bullying was influenced by the understanding of penalism and was primarily described as a problem among boys (SNAE, 2009b). In 1978, Dan Olweus’ book *Aggression in the schools: Bullies and Whipping Boys* (1978) attracted attention internationally and aroused scientific interest in bullying as an object of research. Olweus used somewhat different explanations to describe bullying. Unlike Heinemann, he pointed to the fact that bullying does not have

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4 Mobbing was later re-written as Sw. *mobbning*, which was considered to be more in line with Swedish spelling.
to be a collective action by a homogenous group but could also be the actions of individual members. He also questioned the overemphasis on temporary and ‘spur of the moment’ reactions and directed attention to bullying as a situation in which an individual student is exposed to aggression systematically and over long periods of time – either from another individual, a small group, or a whole class (Olweus, 1978, p. 5; Olweus, 2001). Led by the pioneering work of Olweus, research on bullying has flourished internationally during the last three decades (Richard et al., 2012). Today, there is hardly a published study on bullying that does not cite his groundbreaking work.

Definitions

The following section aims to illuminate similarities and differences regarding three central concepts in peer victimization research: peer victimization, aggression and bullying.

Peer victimization

Even though the term ‘peer victimization’ is sometimes used synonymously with the term bullying, peer victimization can be seen as an umbrella term that includes all types of negative actions between children (Greif & Furlong, 2006). Peer victimization has been defined as experiences among children of being a target of the aggressive behavior of other children, who are not siblings and not necessarily age-mates (Hawker & Boulton, 2000). It can be seen as a form of abuse that undermines children’s healthy development that increases the risk of psychosocial dysfunction (e.g., Kochenderfer-Ladd & Ladd, 2001; Kochenderfer & Ladd, 1996; Olweus, 1991). Peer victimization can take the form of direct verbal or physical aggression (van der Wal, de Wit, & Hirasing, 2003), indirect aggression, such as rumor spreading or gossiping (Björkqvist, 1994), or relational aggression such as social exclusion (Crick & Bigbee, 1998). Peer victimization can also include victimization through electronic means such as the internet and mobile phones (Slonje & Smith, 2008). In the present thesis, the term peer victimization is used as a collective term for bullying and peer aggression. Although much effort has been made to
understand the complexity of peer victimization, there are still some conceptual ambiguities (Greif & Furlong, 2006). Much of the concerns involve distinguishing bullying from acts of peer aggression.

Table 1. Behavioral and relational features covered by the definitions of bullying and peer aggression

<table>
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<tr>
<th>Umbrella term: Peer victimization</th>
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<tr>
<td>Bullying</td>
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Aggression

Aggression has been defined as any behavior directed toward an individual with the intent to cause harm; some researchers include intentionality (e.g., Anderson & Bushman, 2002; Berkowitz, 1993), while others do not, arguing that the intention behind a behavior is difficult, perhaps impossible, to measure in children. For instance, Eron (1987) defines aggression as “an act that injures or irritates another person” (p. 435). The debate regarding including intent in the definition of aggression also regards the inclusion of accidental behaviors causing harm. Anderson & Bushman (2002) maintain that accidental harm should not be viewed as aggressive because it is not purposely aggressive. For the purpose of the present thesis, aggression is defined as all behaviors intended to hurt or harm others either physically or psychologically (Berkowitz, 1993).

Human aggression can be viewed as a multidimensional construct including different forms and functions (Ostrov, Murray-Close, Godleski, & Hart, 2013). In addition to the different forms of aggression briefly described in the section on peer victimization above, aggression can also be reactive (e.g., a defensive response to a perceived threat), or proactive (e.g., unprovoked, aversive behavior intended to harm, dominate, or coerce another person) (Brown, Atkins, Osborne, & Milnamow, 1996). An
Affect closely related to aggression is violence, which is described as extreme aggression with the intent to harm (e.g., kill). All violence is aggression, but many instances of aggression are not violent. For example, a child pushing another child off a tricycle is an act of aggression but is not an act of violence (Anderson & Bushman, 2002, p. 29).

Bullying

Although aggression research dates back many decades, bullying as a research subject is fairly new, beginning in the late 1970s (Griffin & Gross, 2004). In some of the early definitions of bullying, there was no distinction made between bullying and aggression. For example, Randall (1991) defines bullying as: “Aggressive behavior arising out of a deliberate intent to cause physical or psychological distress to others.” Even today the terms aggression and bullying are often used interchangeably (Leff & Waasdorp, 2013). Rigby (2002) observes that some researchers may prefer to use the term aggression when talking about bullying because “it is more familiar to researchers and less tainted, one may think, by everyday use” (p. 30). In contrast to peer aggression, bullying is more narrowly defined. The definition of bullying has been, and still is, widely debated and to date there is no generally accepted definition. The word bullying may also have different meanings and may be interpreted differently between countries, cultures and children of different ages (Smith et al., 2002). The varying definitions used in bullying research also make it hard to compare findings from studies conducted in different countries and cultures (Griffin & Gross, 2004). In addition to the definition proposed by Randall (1991), another early definition of bullying stated that “bullying is a willful, conscious desire to hurt another and put him/her under stress” (Tattum & Tattum, 1992, p. 147). This definition was criticized, in particular among behaviorally oriented scientists, since the definition implied that someone can be a bully without actively doing anything. Having a conscious desire to hurt someone would be enough to make someone a bully which would imply that bullying is a state of mind or an attitude rather than a behavior (Besag, 1989; Rigby, 2006a). Although this view of the bully as a bad person may be morally appealing, such a view would make it hard to distinguish bullies from non-bullies. Also, wanting to hurt someone does not mean that
you actually will put your thoughts into action (Rigby, 2006a). From a behavioral psychological view, the definition of bullying focuses on the victim and on actions rather than attitudes. For example, Dan Olweus (1993) stated: “A student is being bullied or victimized when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more students”. He also added that “the student who is exposed to negative actions has difficulty defending him- or herself”. In the revised version of the Olweus Bully/Victim Questionnaire (OBVQ) (Olweus, 1996) the definition was somewhat expanded:

_We say a student is being bullied when another student, or several students_

- Say mean and hurtful things or make fun of him or her or call him or her mean and hurtful names
- Completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose
- Hit, kick, push, shove around, or lock him or her inside a room
- Tell lies or spread false rumors about him or her or send mean notes and try to make other students dislike him or her
- And do other things like that

When we talk about bullying, these things happen repeatedly, and it is difficult for the student being bullied to defend himself or herself. We also call it bullying when a student is teased repeatedly in a mean and hurtful way. But we don’t call it bullying when the teasing is done in a friendly and playful way. Also, it is not bullying when two students of about the same strength or power argue or fight (See Olweus, 2001).

In the 1993 definition, there is no assumption of intention to harm, which was added in the 1996 definition. Olweus’ definition of bullying is the most widely used formulation of what constitutes bullying and includes three criteria for bullying behaviors: intent, repetition and a power imbalance between the perpetrator(s) and the victim. Many researchers also agree that bullying takes place in the presence of peers and that the victim does not provoke the bullying behavior (Griffin & Gross, 2004). Following the rapid developments of information and communication technology (ICT) and widespread use in society, including increased internet access and use, the forms and platforms for bullying have changed. Cyberbullying, i.e. bullying using electronic forms of communication, as a research topic is new and the word cyberbullying did not even exist a
decade ago. To date, there is no generally accepted definition of cyberbullying which may be due to a lack of conceptual clarity (Dooley, Pyżalski, & Cross, 2009; Notar, Padgett, & Roden, 2013; Tokunaga, 2010; Vandebosch & Van Cleemput, 2008). However, most researchers define cyberbullying as traditional bullying using an electronic medium. Specific criteria for cyberbullying have been proposed, such as anonymity and publicity (Menesini & Nocentini, 2009; Slonje & Smith, 2008; Tokunaga, 2010). While it is claimed that the easy access to ICT has led to an increase in bullying incidents (e.g., Fisher, 2013), others argue that cyberbullying is rather a new expression of long-established negative social relations (Livingstone et al., 2011). This assumption is based on research showing that victims of cyberbullying often also are victims of traditional bullying and that they report similar associations with mental health (e.g., Barboza, 2015; Beckman, 2013; Gradinger, Strohmeier, & Spiel, 2009).

Critique of the current definition of bullying

Even though Olweus’ definition of bullying is the most widely used formulation today of what constitutes bullying, it is not without flaws. The objections involve the use of the three criteria of a) intent, b) repetition, and c) power imbalance as ways of separating bullying from other forms of peer victimization.

Intent

According to the definition, bullying includes intentional and negative actions. This is, however, also included in the definition of peer aggression. Hence, the purpose and motivation behind hurtful behavior cannot be used to differentiate between the two concepts. Intentionality is particularly hard to measure in children's behavior, which has been acknowledged in both peer aggression research (Eron, 1987) and bullying research (Greif & Furlong, 2006). Some researchers argue that it is possible that children can be “unintentional bullies”, i.e., they may not be aware that their behavior is hurtful. In such a
case, there is no intention of harm but there is someone being hurt who perceives the behavior as bullying (Rigby, 2006b).

Repetition

The definition further states that bullying happens repeatedly, but does not indicate what is meant by repetition. A study by Solberg and Olweus (2003) showed that victims of repeated bullying report significantly more psychosocial maladjustment and depression compared to students reporting occasional incidents of bullying and hence argue that “2-3 times per month” is a reasonable cut point for bullying. Further, Olweus (1993) justifies the repetition criterion because it excludes, what he calls, occasional violent and “non-serious” events. However, some researchers claim that occasional incidents of bullying and aggression can lead to equally traumatic consequences as repeated events due to fear of renewed attacks and argue that even occasional incidents could be regarded as bullying (Arora, 1996). By discrediting occasional incidents of bullying there is a risk that children that are traumatized from single experiences of intense bullying will not be given attention (Rigby, 2006b). Other problems in assessing peer victimization are the use of different cut points and time frames for the bullying behavior. The reference period, to which the respondents are asked to relate their assessment, can sometimes be set to the whole school year, one school term, or the past 2 or 3 months. Such a wide range of time frames calls the reliability and comparability of data into doubt (Solberg & Olweus, 2003), but also gives different meanings to “occasional” bullying. While occasional incidents in the time frame “a school year” would be less likely to be interpreted as bullying, occasional incidents in the time frame “2-3 months” could in reality imply repetition.

Power imbalance

Another problem with the definition of bullying is the difficulty to clearly describe what is meant by “power imbalance”. A study by Green, Felix, Sharkey, Furlong, and Kras (2013) showed that a single item measure of bullying might not detect the subtle forms of power
imbalance that separates it from other forms of peer victimization. While physical strength, superiority in numbers, a higher position in the hierarchical order or being verbally skilled may be more obvious sources of power, having unexpected qualities of assertiveness or support from others may be examples of power of a less obvious kind. In addition, power imbalance may be situationally bound and can change over time (Rigby, 2006a). Further, the features of power imbalance are not always in alignment. Finkelhor, Turner & Hamby (2012) illustrates this by asking if a stronger but less popular girl repeatedly intimidates a weaker but more popular boy, is the power dimension popularity, gender or physical strength? (p. 2). The indication that power imbalance implies a difficulty to defend oneself (Olweus, 1996), means that any situation where the “victim” is able to defend herself or himself is not bullying. However, even if you are able to defend yourself you might not always choose to do so for various reasons.

The rationale behind the criteria seems to be separating harmful behavior from less harmful behavior, provided that all three criteria are present (e.g., Olweus & Breivik, 2014), i.e., all three subcomponents are necessary, but each is insufficient to judge bullying behaviors on its own (Greif & Furlong, 2006). Despite this, not all studies claiming to measure bullying include all three criteria in their definition; many bullying measures ask respondents to indicate the frequency of aggressive actions, and if endorsed as occurring on more than one occasion (i.e., repetition), will infer that this represents bullying behavior (Leff & Waasdorp, 2013). It has also been argued that the criteria used to distinguish different forms of peer victimization need more empirical foundation (Finkelhor et al., 2012). Organizing a research field around a concept whose definition is so difficult to specify is a huge drawback (Finkelhor et al., 2012).

Children’s definitions of bullying

The general understanding and definition of bullying are products of an adult perspective while children’s own definitions and perceptions have largely been neglected. When students are asked to define bullying, they rarely include the traditional criteria for bullying (Frisén, Holmqvist, & Oscarsson, 2008), which suggests that their understanding of what it means to be bullied may differ from adults’ understanding (Beran, 2006). Regarding
gender differences, girls tend to omit the traditional criteria and mention the effect on the target more often compared to boys (Frisén et al., 2008; Naylor, Cowie, Cossin, de Bettencourt, & Lemme, 2006; Thornberg & Knutsen, 2011). In addition, younger children tend to report physical aggression as bullying more often, while older children more often report verbal aggression and social exclusion as examples of bullying (Madsen, 1996; Smith et al., 2002; Swain, 1998). Madsen (1996) found that among pupils aged 6-16 years, 40% reported that bullying must have a negative effect on the victim. In their study among 10-13 year-old children, Guerin and Hennessy (2002) found that more than half reported that a physical advantage did not matter in bullying and Varjas et al. (2008) suggested that bullying is a means to gain power, not a prerequisite for bullying. Further, a study by Boulton et al. (2002) showed that about 80% of the students agreed that behaviors such as hitting and pushing, threatening people, or forcing someone to do something were considered bullying, whereas only half of the students regarded behaviors such as calling someone names, stealing people’s belongings and telling nasty stories about other people, as bullying. This could affect the chance of a bystander’s intervention as research has shown that tendencies to intervene in bullying situations have shown to be dependent on what types of behavior are considered bullying and what types of behavior are expected by the peer group (Boulton et al., 2002; Pozzoli & Gini, 2010).

Despite the acknowledgement that children may have a different understanding of bullying compared to those researching the problem and although every child has the right to be listened to in matters that concern them (General Assembly, 1989), children’s understanding of bullying have had little or no impact on the definition. Rather, suggestions for solving the discrepancies include adjusting children’s definitions to coincide better with researcher’s definitions (Frisén et al., 2008; Hopkins, Taylor, Bowen, & Wood, 2013; Maunder, Harrop, & Tattersall, 2010). However, many adults are unaware of the seriousness and the consequences of bullying in their schools and often underestimate the number of students being bullied (Bradshaw, Sawyer, & O’Brennan, 2007; Kochenderfer-Ladd & Pelletier, 2008). It has been discussed that the discrepancy between student and adult understandings of bullying can be an indicator of poor school climate with regard to awareness of problematic peer behavior and willingness to intervene (Espelage, Low, & Jimerson, 2014). The differing understandings of bullying between children and adults could also indicate problems within the anti-bullying
education process (Hopkins et al., 2013). Given that accurate prevalence rates are critical for planning treatment and prevention (Vaillancourt et al., 2008), it is of great importance to have measurement instruments including definitions that correctly reflect peer-relations among today’s youth and that capture the entire phenomenon of bullying. Current methodological uncertainties regarding the definition of bullying and the lack of understanding of what it means to be bullied need to be further addressed.

Measurement methods in peer victimization research

Using different informants

Different measurement methods such as teacher reports, peer nominations and self-reports use different informants for assessing peer victimization. Teacher reports typically ask teachers to observe and rate children on a victimization scale. The usefulness is that such instruments add an outsider’s perspective on behaviors in school. However, not all teachers are attentive to or aware of certain behavior, e.g., relational bullying in the form of rumors or covert teasing or bullying over the internet (Griffin & Gross, 2004). In addition, since the children and adult view of bullying may differ, teacher reports may be underreporting prevalence rates of bullying in school (Smith & Sharp, 1994). Peer nominations often work in a similar way as the teacher reports, asking students to nominate their classmates in different categories. For example, the students receive a list with the names of all the children in the class and are asked to make a mark next to any student’s name that they think fit the described behavior (Perry, Kusel, & Perry, 1988). Still, the most commonly used instruments in bullying research are self-reports including questions on how often respondents have been exposed to bullying (Bond, Carlin, Thomas, Rubin, & Patton, 2001; Crick & Bigbee, 1998; Stevens, De Bourdeaudhuij, & Van Oost, 2000) or attitudes concerning bullying (Rabiner, Keane, & MacKinnonLewis, 1993). The most widely used self-report questionnaire is the Olweus Bully/Victim Questionnaire, OBVQ, (Olweus, 1996). OBVQ includes both a definitional method to measure bullying asking respondents to indicate how often they have been bullied as well as questions concerning specific types of peer aggression behavior. The correspondence
between self-reports and peer nominations has shown to be low. Results from a study by Scholte, Burk and Overbeck (2013) suggest that self-reported victimization is related to emotional problems, while peer reported victimization is more indicative of social problems. Further, a study by Pakaslahti and Keltikangas-Järvinen (2000) showed that the correlation between peer nominations and teacher-reports are higher than the agreement between teacher-reports and self-reports. Lowest correlation was shown for peer nominations and self-reports. Different measurement techniques involve respondents that may differ in their understanding of what it means to be bullied, which could explain the low correlation between these measures.

**Measurement concerns**

In bullying research, assessment has been called the “Achilles’ heel” of prevention efforts (Cornell, Sheras, & Cole, 2006) and there are concerns whether currently used measures actually assess the intended subset of peer victimization (Greif & Furlong, 2006). Self-reported peer victimization is usually measured by using either a single global question together with a definition of bullying, or questions of specific peer aggression behavior. The use of a definition is a way to operationalize the concept of bullying while peer aggression is usually operationalized by including behavior descriptors in sentence form, asking about exposure to different types of aggression (W. Reynolds, 2003). Prevalence rates of peer victimization are often higher when assessed with measures of specific aggressive behaviors compared to measures using a single question about bullying together with a definition (Sawyer, Bradshaw, & O’Brennan, 2008; Stockdale, Hangaduambo, Duys, Larson, & Sarvela, 2002). The use of a definition and emotionally laden labels, like “bullying”, may lead to the underreporting of victimization due to stigma and shame involved in admitting to being a victim (Bosworth, Espelage, & Simon, 1999; Greif & Furlong, 2006; Kert, Codd, Tryon, & Shiyko, 2010). Acknowledging yourself as a victim of bullying could mean recognizing unwanted qualities of a typical victim, such as anxiety, insecurity, low self-esteem, few friends (Smith et al., 1999), and poor social skills (Fox & Boulton, 2005). In that sense, it may be easier to admit being subjected to different types of peer aggression behavior without having to label yourself as a victim of
bullying. Assessing peer victimization by asking about exposure to specific aggressive behavior may avoid the stigma associated with laden labels, but may not discriminate between bullying and brawl or quarrel among peers as the formal criteria for bullying usually are not stated explicitly (Furlong, Sharkey, Felix, Tanigawa, & Green, 2010).

Hunter, Boyle and Warden (2007) found that adolescents who are targets of aggressive behaviors reported a more severe depressive symptomology when they also reported intent and power imbalance (e.g. the criteria for bullying) compared to when intent and power imbalance were not reported. However, their study did not use a definition of bullying, nor the word bullying and thus avoided methodological ambiguities associated with such a measure, e.g., possible underreporting due to stigma or shame. Some researchers argue that a clear definition of bullying is needed to minimize room for subjective interpretations (Solberg & Olweus, 2003), while others argue that children would rather be likely to use their own understanding of what it means to be bullied (Smith et al., 2002). While the association between peer victimization and psychosomatic health problems has been reported in previous literature (e.g., Beckman et al., 2012; Gini & Pozzoli, 2009; Gådin Gillander & Hammarström, 2003), little is known about whether this association varies between different measures of peer victimization. Considering the long-standing concerns about how to accurately measure and estimate prevalence rates of peer victimization (see Felix et al., 2011), it is high time to analyze the concordance and discordance and whether the association with psychosomatic health problems differs between different peer victimization measures.

Study context

The Swedish school system and the role of the principal

The Swedish school system has multiple structures, namely the national level including the curriculum and other steering documents with objectives for all schools, the municipality level and the internal structures at each individual school (Ahlström, 2009). In recent years, there have been major changes in terms of the roles and responsibilities of the school leaders. In the 1990s, an extensive decentralization of responsibility for school operations was made from the state to the municipal level. Although school
leaders and teachers have been given greater responsibility for managing and improving
school there is a strong state and local control of the school in terms of curriculum and
quality assessments (Ludvigsson, 2009). Since 2010, all newly hired principals are obliged
to undergo a comprehensive head teacher training program (SFS 2009:1521). The
purpose with the program is to improve schools’ goal fulfillment by providing school
leaders with required skills and abilities. Public education in Sweden is regulated by the
Education Act (2010:800), which clearly states that schools should work actively with the
social and civic objectives as well as with the academic objectives (Ahlström, 2009). These
tasks indicate that a school cannot be perceived as fully successful if it fails to achieve
either academically or socially (Ahlström & Höög, 2009; Höög, 2011). The Education Act
further emphasizes that the principal is responsible for student achievement and school
effectiveness as well as for teachers' professional development. The Swedish school
debate since the beginning of 2000 has increasingly focused on result and goal fulfillment
and an important part of efforts to improve today’s schools in a broad sense is to
strengthen the efforts to improve school leadership (Höög & Johansson, 2011).

The schools role in preventing and reducing bullying

During the 1980s, Swedish schools became responsible for the anti-bullying work and
efforts to develop methods to prevent and combat bullying was prioritized. The different
methods represented different views of bullying and have had great influence on the
conceptions and discussions of bullying in Swedish schools. The earlier assumption that
the victim was deviant or different that prevailed in the 1970s slowly subsided and more
attention was directed towards bullying as a manifestation of problems in the democratic
and social climate in school (SNAE, 2009b). Today, schools role in bullying prevention is
emphasized in the curriculum and legal documents. In 2006, the Equality Act came into
force and as of 2009 harassment and victimization are addressed in the Education Act
Chapter 14a (SFS 2010:800) and discrimination in the Discrimination Act (SFS 2008:567).
Both the Education Act and the Discrimination Act state that the school shall take active
steps to prevent and combat abusive behavior and harassment. Furthermore, they indicate
that schools have the obligation to investigate and take action if it comes to their
knowledge that a child or a student claims to have been subjected to abusive treatment or harassment. According to the Education Act, the school shall also ensure that an annual plan against degrading treatment is established. Similarly, the Discrimination Act states that an equality treatment plan should be revised annually (Skolinspektionen, 2010).

Instead of using the term “bullying”, the Education Act and the Discrimination Act use the terms “discrimination” [Diskriminering] and “degrading treatment” [Kränkande behandling]. According to 14a Chapter 3 § in the Education Act, degrading treatment is defined as a “conduct that without being discrimination according to the Discrimination Act violates a child's or student's dignity. This could include harassment based on overweight, hair color, someone being studious or similar offensive treatment”. Degrading treatment may also exist without the offender specifying any unique characteristics of the victim. Pushing, pulling someone’s hair or psychological harassment such as ostracism also constitute degrading treatment in the legal sense (SFS 2010:800). The terminology used in the Education Act has been introduced in the school curriculum and the word bullying is used less seldom (SNAE, 2009a). Skolinspektionen (2010) writes that the definition of bullying, regarding the criteria of repetition, is too narrow to capture children’s vulnerability.
Summarized problem formulation

Ensuring a safe and secure school experience with optimal conditions for good academic performance free of peer victimization is important for children’s health and is a relevant public health issue as childhood health status can be seen as a determinant of future health. There are, however, long-standing concerns on how to accurately define and measure peer victimization. Conceptual, operational and measurement difficulties in peer victimization research affect both prevalence rates and the full understanding of the negative consequences of bullying behavior. At the same time new forms of peer victimization over the internet, reflecting the changing social conditions among youth may have altered adolescents’ and children’s views of what behaviors constitute bullying which may challenge previous definitions. Little attention has been paid to children’s understandings when it comes to defining bullying. Given that prevalence rates are critical in planning treatment and prevention it is of great importance to have measurement instruments including definitions that correctly reflect peer relations among today’s youth and that capture the entire phenomenon of bullying. The Swedish Education Act clearly states that schools should work actively with social, civic, as well as academic objectives and the principal is responsible for the preventive and anti-bullying work in school. What constitutes successful leadership, however, is debated and evaluation of instruments measuring principal leadership has received limited attention. A lack of evaluated instruments assessing successful leadership could be one explanation for the inconsistent research findings regarding leadership and student outcomes. To be able to compare schools and determine the impact of leaders’ work in the individual school, valid instruments assessing school leadership are needed.

AIMS AND OBJECTIVES

The overall aim of this thesis is to examine methods for assessing peer victimization and pedagogical leadership in school. The following research questions are asked: 1) To what degree does a measure of bullying overlap with measures of peer aggression with respect to the number of students identified as victims and association with self-reported
psychosomatic problems? 2) What are Swedish adolescents’ definition and understanding of bullying? 3) Can the PESOC-PLP scale be used as a valid measure to assess the pedagogical leadership of the principal?

MATERIAL AND METHODS

The ”Preventive School” project

During 2005-2007, the national Public Health Institute in Sweden (FHI) was commissioned by the Government to spread knowledge about effective alcohol and drug prevention programs in schools. The “Preventive School” project (PS) is a wide initiative in all municipalities and comprehensive schools in Sweden where Skåne and Värmland were chosen as pilot counties. In the Värmland region Karlstad, Arvika and Sunne were selected as pilot municipalities. The project included the implementation of different programs and methods to promote mental health among children and youth (Karlstad municipality, 2007). The PS project is the empirical basis of the studies in the current thesis.

During a period of three years (2009-2012), the municipality of Karlstad [Barn- och Ungdomsförvaltningen, BUF] and Karlstad University [Centre for Research on Child and Adolescent Mental Health, CFBUPH] conducted a collaborative project, funded by the national Public Health Institute in Sweden. The overall aim was to promote a positive school environment, good mental health and increased academic achievement among youth. Within the project, extensive data collection has been conducted involving students (school years 4-5 and 7-9), teachers, principals, school nurses, school social workers and school managers. As a part of the project, CFBUPH has also identified and described the extensive training initiatives that have been conducted among teachers in Karlstad municipality since 2006. The specific training initiatives, with the aim to create greater leadership in the classroom, improving social relations and reaching a higher level of working atmosphere in the classroom, include programs such as Social Emotional Learning [SET], Komet, Classroom Management [Ledarskap i klassrummet], Örebro Prevention Program, Motivational Interviewing [Motiverande samtal], Repulse, among
others. Within the project, models for feedback of results to students and teachers have been developed in close collaboration with selected schools involved in the project. Continuous feedback has also been given to principals and school managers.

Table 2. Method summary of studies I-IV

<table>
<thead>
<tr>
<th>Study</th>
<th>Aim</th>
<th>Study design</th>
<th>Study population</th>
<th>Analysis</th>
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<tbody>
<tr>
<td>I</td>
<td>Examine the concordance and discordance between a measure of bullying and measures of peer aggression</td>
<td>Cross-sectional. Web-based questionnaire. Researchers on site organizing the data collection</td>
<td>1,760 students, School years 7-9 (ages 13-15) from 8 different schools</td>
<td>Contingency tables, measures of association ($\Phi^2$)</td>
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<tr>
<td>II</td>
<td>Analyze to what extent the strength of the association between peer victimization and psychosomatic problems among adolescents depends on which of two measures is used, a measure of bullying and a measure of peer aggression</td>
<td>Cross-sectional. Web-based questionnaire. Researchers on site organizing the data collection</td>
<td>2,568 students, School years 7-9 (ages 13-15) from 8 different schools</td>
<td>Contingency tables, linear regression analysis, ANOVA</td>
</tr>
<tr>
<td>III</td>
<td>Explore adolescents’ definitions of bullying</td>
<td>1) Cross-sectional. Web-based questionnaire + 2) Semi-structured focus group discussions</td>
<td>1) 128 students; 2) 21 students; School years 7 and 9 (ages 13 and 15) from two different schools</td>
<td>1) Descriptive  2) Qualitative content analysis</td>
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<tr>
<td>IV</td>
<td>Analyze the psychometric properties of the PESOC-PLP scale, using Rasch analysis</td>
<td>Cross-sectional. Web-based questionnaire distributed by e-mail</td>
<td>344 elementary school teachers, from 30 different schools</td>
<td>Rasch analysis: lack of invariance, targeting, item fit and threshold ordering, differential item functioning (DIF)</td>
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</tbody>
</table>

Study I

Data collection

The municipality of Karlstad implemented and introduced the study to all high-school principals and school managers in the city. In a second step, information about the study was sent out by CFBUPH to all principals and school personnel via email and shortly
thereafter all principals were contacted to schedule the data collection. Information and consent letters to all students and their caregivers were delivered to the schools a couple of weeks before the anticipated data collection and caregivers for students in school years 7 and 8 were asked to contact the teacher if they did not want their child to participate in the study. Due to the students’ higher age in school year 9 (15 years), caregiver consent was not needed. A total of 52 students and/or their caregivers declined participation in the study. Members of the research team (three doctoral students) collected the data during regular class-hours, with one doctoral student present at each data collection. Students were given oral information about the aim of the study, that their participation was voluntary, that all answers were anonymous and that they could terminate their participation at any point. Thereafter, the students received the link to the questionnaire and a unique password randomly generated by the survey tool esMaker (Entergate, 2009). The questionnaire took approximately 30 minutes to complete. Information regarding class size (number of girls/boys), participation and absence were collected at each data collection by the researcher on site. Any questions the students had regarding the questions in the survey as well as any distractions or disturbances during the completion of the questionnaires were documented. Researchers revisited every school to collect data from students that were sick or absent during regular data collection.

**Study design and participants**

A cross-sectional study design was used in order to collect self-reported data regarding bullying and peer aggression. The study population included students from eight out of nine high schools in the ages 13-15 (school years 7-9) in Karlstad. All nine high schools in the city were invited to participate, of which one school declined to participate in the study. Data collection was carried out in December 2009. Total response rate was 82.3% (n=1,760); school year 7 (89%), school year 8 (81%) and school year 9 (82%). The total response rates were similar for boys (81%) and girls (82%).
Instruments

The questionnaire included 109 questions regarding health, bullying, school, alcohol- and drug habits and physical activity. For the purpose of the study questions on bullying and peer aggression were used.

The Olweus Bully/Victim Questionnaire (OBVQ)

Questions regarding bullying and aggressive behavior were measured using OBVQ (Olweus, 1996). The self-report measure of bullying was filled out anonymously and a definition used in the Swedish version of the questionnaire Health Behavior in School-aged Children (HBSC) was included (Marklund, 1997):

We say a student is being bullied when another student, or a group of students, says or does nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she does not like. But it is not bullying when two students of about the same strength quarrel or fight. It is also not bullying when the teasing is done in a friendly or playful way.

Following the definition was a question regarding bullying victimization: “How often have you been bullied in school in the last couple of months?” with the response categories “I haven’t been bullied in the last couple of months”, “Occasionally”, “2-3 times/month”, “About once a week” and “Several times/week”. The time frame “the last couple of months” is thought to constitute a natural (and not too long) memory unit for the students. Also, most questions have a clear spatial reference, asking about events and activities having occurred “at school” (Solberg & Olweus, 2003). The question on bullying was followed by questions regarding exposure to specific aggressive behaviors. The questions concerning peer aggression followed after the statement “Has another student/s in school done anything of the following to you in the last couple of months?” The behaviors included: “I have been scoffed at, ridiculed, and called nasty names in an unpleasant and hurtful way”, “Other students have not let me be a part, have on purpose excluded me from others or totally ignored me (pretended like I did not exist)”, “I have been hit, kicked, pushed or locked in”, “Other students have been spreading lies or false rumors about me or have tried to get others to dislike me”, and “I have been threatened or forced to do things that I did not want to do”. The response categories were “It hasn’t
happened to me in the last couple of months”, “Occasionally”, “2-3 times/month”, “About once a week” and “Several times/week”. OBVQ includes three additional questions regarding aggressive behaviors. The question “I have been bullied with unpleasant words, comments or gestures with sexual meaning” was removed from the analyses since it contained the word bullying. Two questions were excluded due to space limits, i.e. “I have been robbed of money or other things, or have had things destroyed”, and “I have been bullied with unpleasant words or comments about my skin color or immigrant background”.

Data analysis

Classification of victims

Students that reported either traditional bullying or cyberbullying were identified as bullying victims. Further, as the definition requires repetition, any indication of bullying victimization (even those reporting being bullied occasionally/once or twice) was considered bullying. Victims of peer aggression were identified if they reported exposure to any of the peer aggression behaviors. In addition, a variable including adolescents reporting exposure to one or more behaviors was constructed to present an overall assessment of peer aggression. In the descriptive analyses, victims were classified as occasional peer aggression victims (including students reporting being bullied occasionally and frequent peer aggression victims (including students reporting being bullied 2-3 times/month, about once a week, or several times/week). In the statistical analyses, two different cut points for peer aggression were used and analyzed separately; occasional or more (including students reporting being bullied occasionally, 2-3 times/month, about once a week, or several times/week) and 2-3 times/month or more (including students reporting being bullied 2-3 times/month, about once a week, or several times/week).
Concordance and discordance between a measure of bullying and a measure of peer aggression were analyzed using contingency tables and measures of association. Phi squared coefficients (Φ²) are used to examine the association between two binary variables, i.e., bullying and peer aggression. The phi squared coefficient is a symmetric index that does not depend on which variable is considered dependent and gives the proportion of variance in one variable explained by the variance in the other variable (H. T. Reynolds, 1984). Lastly, the degree to which peer victimization was captured by a measure of bullying and measures of peer aggression (95% CI), i.e., the unique contribution of each measure as well as the overlap were examined.

**Study II**

**Data collection**
In study II, the data collection was identical to study I (see page 38).

**Study design and participants**
A cross-sectional study design was used in order to collect self-reported data regarding bullying, peer aggression and psychosomatic problems. Data collection was carried out in October 2010 and included students from all eight high schools in the ages 13-15 (school years 7-9) in Karlstad (n=2568). After the data collection in 2009, one high school in the city was closed down. The study population included school year 9 students in 2009 (n=586) and school year 7-9 students in 2010 (n=1982). Self-reported data regarding bullying, peer aggression and psychosomatic problems were collected. The total response rate in 2010 was 90.3%; school year 7 (93%), school year 8 (90%) and school year 9 (90%). The total response rate was somewhat lower for boys (88%) compared to girls (92%).
**Instruments**

The questionnaire included questions regarding health, bullying, school, physical activity, alcohol-, and drug habits. For the purpose of the study, questions on bullying, peer aggression and psychosomatic problems were used. OBVQ was used to assess bullying and peer aggression and is described in the section regarding study I.

*The Psychosomatic Problems Scale (PSP-scale)*

The PSP-scale was developed in Sweden in 1987 and 1988 and includes eight items intended to capture psychosomatic problems among children and adolescents. The construction of the items in the PSP scale was partly influenced by existing questionnaires for self-rated health among adults in general populations (Hagquist, 2008). The items included in the scale are: “had difficulty in concentrating”, “had difficulty in sleeping”, “suffered from headaches”, “suffered from stomach aches”, “felt tense”, “had little appetite”, “felt sad” and “felt giddy”. Five response categories are given; “never”, “seldom”, “sometimes”, “often”, and “always” and the time frame concerns the past six months. A low value on the PSP scale indicates less or no psychosomatic problems and a high value indicates more psychosomatic problems. The scale has shown good psychometric qualities such as invariance and high reliability. Psychometric analyses based on the Rasch Model (Rasch, 1960/1980) justify the summation of raw scores. The Rasch model offers a method for nonlinear transformation of ordinal raw scores to interval measures that allows the responses (raw scores) from different items representing different severity to be summated (Hagquist, Bruce, & Gustavsson, 2009).
Data analysis

Classification of victims

Bullying victims were identified as reporting either traditional bullying or cyberbullying. Further, as the definition requires repetition, any indication of bullying victimization (even occasionally/once or twice) was considered bullying. Occasional peer aggression includes adolescents responding “occasional” to at least one type of peer aggression behavior; frequent peer aggression includes adolescents responding “2-3 times/month”, “Once a week” or “many times a week” to at least one type of peer aggression behavior. In the analyses, mutually exclusive groups of victims were created and coded as bullying only, occasional peer aggression only, frequent peer aggression only, bullying and occasional peer aggression and bullying and frequent peer aggression.

Statistical methods

The proportion of victimized adolescents reporting psychosomatic problems was identified using contingency tables. An OLS regression was conducted, using the psychosomatic problems scale (PSP) as the dependent variable and the mutually exclusive victimization groups as independent variables using dummy coding. Possible confounding variables included gender and grade level and were controlled for using dummy coding. Analysis of variance (ANOVA) was conducted to test for differences in mean values on the PSP scale for victims of bullying, peer aggression and both.

Study III

Data collection

The two largest high schools in Karlstad were contacted for participation in the study. The decision to include these particular schools was based on the wide composition of
students at both schools. A meeting with the principals of the two schools, one collaborative partner from the municipality and the researcher in charge (i.e. the author of this thesis) was arranged and information about the study was given after which the principals agreed to include their schools in the study.

*Questionnaire study*

The principals were told to select three classes with equal distributions of boys and girls (school year 7 students from school A and school year 9 students from school B) from which the students were asked to participate in a web-based questionnaire. The students as well as their caregivers were given written information about the study. Students were informed that their participation in the study was voluntary, that their answers were anonymous and that they could terminate their participation at any point. The caregivers for the students in school year 7 were asked to sign a written consent to their child’s participation in the study. Due to the students’ higher age in school year 9 (15 years), caregiver consent was not needed. As it turned out to be difficult to get the consent forms signed by all caregivers of the students in school year 7, the researcher responsible for the data collection received phone lists for the students and contacted the caregivers to make sure that they had gotten information about the study and reminded them to sign the consent forms (either consenting to or declining participation). In cases where the parents were divorced, both were contacted. The data was collected with a web-based questionnaire in a classroom setting and the researcher in charge was on site when the students completed the questionnaire. The students received a password and the link to the website for the questionnaire which took approximately 10-20 minutes to complete. Every school was revisited to collect data from students that were sick or absent during regular data collection.
Letters were distributed to all caregivers and students informing them about the study and asking them to contact their class teacher if they wanted to participate in a focus group interview about bullying. They were told that the interviews would not be about personal experiences of being bullied. Each teacher was told to form two focus groups (6-8 students in each group), one with boys and one with girls. If the number of girls and boys who expressed interest in participation exceeded 6-8 students respectively, they were told to draw lots to decide who would participate. The students as well as their caregivers were given written information about the study. The caregivers of the students in school year 7 were asked to sign a written consent to their child’s participation in the study. For students in school year 9, caregiver consent was not required. The focus group interviews took place at the students’ schools and lasted about an hour. The moderator, i.e. the current author, conducted the interviews assisted by a research colleague. All students were orally informed about the aim of the study and asked to sign a consent form beforehand stating that they were aware that their participation in the study was voluntary, that they could choose to refrain from talking about any specific topic during the interview, that they could terminate their participation at any point and that they agreed to the recording of the interview. It was emphasized that there are no right or wrong answers. To make the students feel comfortable sharing information in the group, they were told not to discuss the shared information with other classmates. The moderator asked the questions and followed up with questions such as “can you develop what you just said”, “what do you mean” and “can you give any examples”. Before each focus group interview ended the students were asked if they had anything to add or if they thought that something important had been left out of the discussion.

**Study design and participants**

Data regarding adolescents’ perception of bullying were collected with both questionnaires and focus group interviews in the spring of 2012. The study population included students aged 13 and 15 years (school years 7 and 9) from two large schools in
Karlstad. The questionnaire included a total of 128 students with a total participation rate of 82% (61% girls). Four focus group interviews were conducted including a total of 21 students (8 girls and 13 boys), with separate groups for girls and boys. Each group consisted of members of the same school year. The number of students in each focus group was 6, 4, 7 and 4 respectively.

Instrument and interview guide

The web-based questionnaire included questions regarding gender, age and 24 behavior descriptions of varying conditions based on questions of bullying behaviors used in Olweus Bully/Victim Questionnaire (Olweus, 1996). The students were asked to answer whether they considered the different situations to be bullying or not. The students were also given the opportunity to comment on their responses in an open-ended format. For the focus group interviews, an interview guide was developed. The main question of interest in the focus group interviews was “What do you think bullying is?”

Analysis methods

First, different types of behavior that the adolescents considered to be bullying (questionnaire data) were reported and differences were analyzed among girls and boys as well as among school year 7 and school year 9 students using Chi square test. In total, 48 significance tests were performed. Therefore, the Bonferroni adjustment (Bland & Altman, 1995) was applied in order to adjust for the influence of multiple significance tests. This implies that the significance level for significant differences between girls and boys as well as between school year 7 and school year 9 students was set to $0.05/48 = 0.0010$. The risk with Bonferroni adjustment is the increased possibility of making Type II errors\(^5\) (e.g., Perneger, 1998). Second, analysis of the data from the focus group interviews was conducted using qualitative content analysis, according to the principles described by Graneheim and Lundman (2004). Each focus group interview was audiotaped and transcribed verbatim. The transcription of each focus group interview was

\(^5\) The probability of accepting the null hypothesis when the alternative is true
read through several times to get a sense of the material. Meaning-carrying units which responded to the aim of the study were extracted and condensed into codes. In order to identify similarities and differences the codes were compared and then sorted into sub-categories. As the analysis proceeded, sub-categories were subsequently clarified and adjusted and one main category emerged. The initial coding of the transcripts was performed by the first author, and the coded data were examined by the second and third author for emergent sub-categories. The interpretations were compared and discussed until consensus was reached. Comparisons were made with the context in each step of the analysis, to verify the empirical base of the data. The pupils answered in Swedish and the quotations cited were translated into English after the analysis.

**Study IV**

**Data collection**

An e-mail with information about the study was sent out to all teachers and special education teachers in Karlstad. The list of e-mail addresses was provided by the municipality and anyone listed who was no longer working as a teacher was excluded from the study population and encouraged to contact the researcher to be removed from the list. The questionnaire was sent out by e-mail in which every respondent received the link to the questionnaire and a unique password randomly generated by the survey tool esMaker (Entergate, 2009). Each password could only be used once. Each school’s principal was contacted to make sure that the teachers had received the questionnaire. Through the survey tool esMaker, a total of four reminders were sent out to respondents whose questionnaires had not been registered.

**Study design and participants**

A cross-sectional study design was employed to collect self-report data regarding the social and pedagogical climate in school. Data collection was carried out in March 2011 and the study population included all teachers and special education teachers in Karlstad.
Total response rate was 56.7% (n=344); teachers 55% (n=319) and special education teachers 96% (n=27).

**Instruments**

The web-based questionnaire included background questions and the instrument PESOC, i.e., questions concerning the social and pedagogical climate in school.

**Pedagogical and Social climate in school (PESOC)**

The original full-extended version of PESOC consists of 95 questions intended to tap information about 13 domains of the social and pedagogical climate in school (Grosin, 2004). For the purpose of this study, the domain ‘The pedagogical leadership of the principal’ (PLP) was used. Teachers were asked to rate their principal’s leadership skills on 17 different questions. The number of response categories on the PESOC items is four, with a cumulative response format: “strongly disagree”, “disagree”, “agree”, and “strongly agree”. The original instrument consists of 19 questions regarding PLP. After consulting with principals at two local secondary schools and with the approval of the author of the instrument (Lennart Grosin), two questions that did not correctly reflect the routines and organization of the schools were removed. In addition, small changes in wording were also made regarding two of the original questions.

**Data analysis**

**The Rasch Model**

The psychometric properties of the PESOC-PLP scale were examined using Rasch analysis (Rasch, 1960/1980). A fundamental feature of the Rasch model is the property of invariance, which means that it is possible to test if the items in an instrument work in the same way along the latent trait as well as across different sample groups (Andrich, 1988). Lack of invariance across sample groups like gender is called Differential Item
Functioning (DIF) and can be detected by ANOVA of standardized residuals (Hagquist & Andrich, 2004). The model requires a probabilistic Guttman pattern in the structuring of responses, meaning that for the same person ability, the probability to endorse an easy item has to be higher than the probability to endorse a more difficult item (Andrich, 1985; Hagquist et al., 2009). The correspondence between the data and the Rasch model can be examined with formal statistics, e.g., chi-square statistics based on comparisons between observed and expected values. Also graphical representations are valuable tools for examining the operating characteristics of the items. Item characteristics curves (ICC) are graphs that show the expected value curve which predict the item scores as a function of the item- and person-locations on the latent trait (Hagquist, 2001). Further, good targeting is essential for good measurement. Mistargeting implies lower reliability and may cause problems to differentiate people along the latent scale (Hagquist et al., 2009). The Rasch model is also sensitive to the categorization of items which means that possible problems with the intended successive order of the response categories can be detected, i.e., reversed item threshold locations (Andrich, 2005; Hagquist & Andrich, 2004). Further, signs of multidimensionality may imply violation of the principles of local independency (Marais & Andrich, 2008; Tennant & Conaghan, 2007). Given that the data fit the Rasch model, summation of the responses (raw scores) of the different items is justified. The unidimensional Rasch model offers a method for nonlinear transformation of ordinal raw scores to interval measures (Andrich, 1988).

In the current study, different aspects of the PESOC-PLP scale were examined. All analyses were performed using the item analysis program RUMM2030 (Andrich, Sheridan, & Luo, 2010). The Rasch model was used to judge whether the PESOC-PLP scale meets the requirements of unidimensionality, invariance and proper item categorization. First, the threshold ordering of all 17 items was examined to detect possible problems with the intended successive order of the response categories. Second, targeting, i.e., the distribution of persons relative to the item thresholds on their common latent trait, was examined. Third, the fit of items to the Rasch model was examined with graphical illustrations as well as formal test statistics, e.g., chi-square statistics based on comparisons between observed and expected values. Fourth, unidimensionality was examined by principal component analysis of the item residuals and independent t-tests of differences between person locations values from different subsets of items. Fifth, new
analyses of two subsets of items were performed and included: item fit analysis, DIF analysis (ANOVA), and targeting. Sixth, the possible impact of the nested data on measurement was examined by analysis of response dependence between persons using the Rasch model.

**Ethical considerations**

Ethical considerations were taken into account and ethical issues were discussed in the research team throughout the project. All study participation was voluntary and based on informal consent. Written information about the aim of the study and assurance of respondents’ anonymity, confidentiality and the right to withdraw at any point was given. In Study III, caregivers were contacted to make sure that they had received information about the study, but were not requested to consent to their child’s participation. Since the data collections did not include sensitive personal data, the project was not regulated by the Swedish act concerning Ethical Review of Research Involving Humans. The project was hence not reviewed by the regional committee of ethics. However, the local Ethical Review group at Karlstad University reviewed the project and presented no objections (Study I+II, Dnr. 2009/623, Study III, Dnr. 2012/193, Study IV, Dnr. 2010/707).
RESULTS

Prevalence rates of peer victimization

The prevalence rates of peer victimization were similar for the two data collection points (2009 and 2010); 10% of the students reported being traditionally bullied, 8% reported being cyberbullied, while 14% reported victimization by either type of bullying at least occasionally. A somewhat higher proportion of girls, compared to boys, reported being traditionally bullied (10% vs. 9%) as well as cyberbullied (10% vs. 5%). The prevalence rates for the different types of peer aggression behavior were generally higher compared to the prevalence rates for bullying. When combining all five types of peer aggression behavior into a composite measure, a total of 29% of the adolescents reported being an occasional victim of at least one type of peer aggression behavior (33% for girls and 24% for boys), while 13% reported frequent victimization by at least one type of peer aggression behavior (15% for girls and 12% for boys). Hence, the prevalence rates for the different types of peer aggression behavior were higher for girls, compared to boys, with the exception of being hit or kicked (Figure 1).

Figure 1. Prevalence rates of bullying and peer aggression. Cut point “occasionally or more often” (including response categories occasionally, 2-3 times/month, about once a week and several times/week) (N=2568).
Study I

First, the degree to which peer aggression was captured by a measure of bullying was examined. Among students reporting bullying, a total of 33.6% reported being occasionally victimized by at least one type of peer aggression behavior while 51.6% reported frequent peer aggression. Being frequently scoffed at, ridiculed or called nasty names was reported among 34.6% of the bullying victims while 15.6% reported being frequently threatened or forced to do something. Second, the degree to which bullying was captured by a measure of peer aggression was examined. Among students reporting occasional victimization by at least one peer aggression behavior, 16.8% reported being bullied, whereas 49.6% of students who reported frequent peer aggression also reported being bullied. Further, among students reporting frequent threats or coercion, 84.1% also reported bullying victimization, whereas only 50.0% of the adolescents reporting being hit or kicked as often reported bullying victimization.

The concordance between measures, i.e., the proportion of students reporting both bullying and peer aggression, was higher when the cut point for peer aggression was set to “2-3 times/month or more” compared to “occasional”. In addition, among students who did not report bullying, 8.7% reported being victimized by at least one frequent type of peer aggression behavior while 27.5% reported being victimized by at least one occasional type of peer aggression behavior. This indicates that many students report peer aggression without reporting bullying. Third, the concordance between a measure of bullying and measures of peer aggression was further examined using phi squared coefficients, expressing the association between two binary variables. Phi square coefficients showed that 18% of the variance in either measure was accounted for by the other measure. Further, a higher proportion among boys compared to girls who reported peer aggression also reported bullying. This means that even though girls tend to report that they have been exposed to peer aggression more often compared to boys, boys more often rate peer aggression in combination with bullying. In fact, phi square coefficients showed that the variance in measures explained by the other measure was higher for boys (19.4%) compared to girls (16.6%). For all subgroups examined, chi-square tests revealed significant relationships (p < .001) between bullying and all specific types of peer aggression (e.g., bullying and a composite measure of occasional peer aggression, χ²(1, N
= 1734) = 207.77, p < .0001 and bullying and a composite measure of frequent peer aggression, χ²(1, N = 1734) = 312.45, p < .0001. To illustrate the overlap between measures, a Venn diagram was used to show how many victims were captured by a measure of bullying, a measure of repeated peer aggression, and how many were captured by both measures (Figure 2). A total of 302 adolescents were identified as victims of peer victimization; 13.1% bullying victims, 95% CI [9.3%, 16.9%], 43.6% victims of repeated peer aggression, 95% CI [38.0%, 49.2%] and 43.3% victims of both, 95% CI [37.4%, 48.6%]. By comparing individual responses on the two measures, the results from paper I indicate that a measure of bullying and a measure of peer aggression capture somewhat different pupils.

![Venn diagram](image)  
Figure 2. A Venn diagram illustrating peer victimization captured by a measure of bullying and a measure of repeated peer aggression (using cut point 2-3 times/month or more for peer aggression).

**Study II**

The results showed that a measure of bullying captures 52.9% of adolescents with psychosomatic problems and a composite measure of peer aggression captures 31.5% of adolescents with psychosomatic problems at the lower frequency cut point and 52.8% of adolescents with psychosomatic problems at the higher frequency cut point. Higher proportions of psychosomatic problems are captured when the bullying measure and the measure of peer aggression are used in combination. Overall, somewhat lower proportions of psychosomatic problems are captured at the lower frequency cut point for the peer aggression measure. Further, girls reported more psychosomatic problems
compared to boys. Lastly, 14.6% among non-victims report psychosomatic problems (Figure 3).

![Figure 3. Proportion (%) of adolescents reporting psychosomatic problems on or above the 75th percentile among victims of: bullying, peer aggression, both bullying and peer aggression, and neither, distributed by gender (N=2568). Note: PA=Peer Aggression. Occasional peer aggression includes adolescents responding “occasional” to at least one peer aggression behavior; frequent peer aggression includes adolescents responding “2-3 times/month”, “Once a week” or “many times a week” to at least one peer aggression behavior.]

Second, an Ordinary Least Squares regression was conducted to analyze the unique association with psychosomatic problems (values on the PSP scale) among five mutually exclusive groups of victims identified by a bullying measure and a composite measure of peer aggression. Table 3 shows that all regressors representing peer victimization reveal significant effects on psychosomatic health using no peer victimization as the reference category. There are clear differences between some of the estimates of the peer victimization regressors. To test for differences in mean values on the PSP scale between the mutually exclusive groups of victims identified by a bullying measure and a composite measure of peer aggression, an ANOVA was conducted. The ANOVA test with one set of 2 (gender) \( \times \) 6 (victimized groups) showed significant main effects for victimization types (\( F = 75.80, p <0.001 \)) and a main effect for gender (\( F=33.01, p <0.001 \)). No interaction effect (gender \( \times \) victimization type) appeared. Table 4 presents mean-level differences on the PSP-scale for no victims and victims identified by a measure of
bullying, a measure of peer aggression and both measures. The ANOVA showed no difference between the bullying measure and the measure of occasional peer aggression or between bullying and frequent peer aggression regarding the capturing of psychosomatic problems. A measure of bullying and a measure of frequent peer aggression in combination captured significantly higher levels of psychosomatic problems. i.e., higher values on the PSP scale, compared to a bullying measure or a peer aggression measure used in isolation (p<0.001). In the tentative analyses based on the mutually exclusive categories, the number of observations was largely reduced making it hard to draw any confirmative conclusions. The main results from paper II show that no statistically significant differences in the capturing of psychosomatic problems among adolescents were found between a measure of bullying and a measure of peer aggression.

Table 3. Ordinary Least Square regression showing psychosomatic health problems
regressed on bullying and peer aggression: Unstandardized coefficients (B) and confidence intervals (95%) (N=2568)

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>95% C.I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bullying only</td>
<td>1.017</td>
<td>(0.589-1.444)</td>
</tr>
<tr>
<td>Occasional peer aggression only</td>
<td>0.580</td>
<td>(0.458-0.703)</td>
</tr>
<tr>
<td>Frequent peer aggression only</td>
<td>0.991</td>
<td>(0.789-1.192)</td>
</tr>
<tr>
<td>Bullying and occasional peer aggression</td>
<td>0.986</td>
<td>(0.765-1.207)</td>
</tr>
<tr>
<td>Bullying and frequent peer aggression</td>
<td>1.653</td>
<td>(1.453-1.853)</td>
</tr>
<tr>
<td>Non-victimized (no bullying and no peer aggression)</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Adjusted R²=0.215

Note: gender and grade level were included as control variables

*Values on the PSP scale: maximum value = 4.417; minimum value = -4.954
Table 4. Results of ANOVA examining mean values on the PSP-scale between different peer victimization measures

<table>
<thead>
<tr>
<th>Type of measure</th>
<th>No victimization</th>
<th>Bullying</th>
<th>Occasional PA</th>
<th>Frequent PA</th>
<th>Bullying + Occasional PA</th>
<th>Bullying + Frequent PA</th>
<th>F (df)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=1238)</td>
<td>(n=32)</td>
<td>(n=560)</td>
<td>(n=159)</td>
<td>(n=130)</td>
<td>(n=163)</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>-1.63&lt;sub&gt;a&lt;/sub&gt;</td>
<td>-0.71&lt;sub&gt;bcd&lt;/sub&gt;</td>
<td>-1.00&lt;sub&gt;b&lt;/sub&gt;</td>
<td>-0.59&lt;sub&gt;cd&lt;/sub&gt; (1.23)</td>
<td>-0.56&lt;sub&gt;d&lt;/sub&gt;</td>
<td>0.08&lt;sub&gt;e&lt;/sub&gt;</td>
<td></td>
</tr>
<tr>
<td>(SD)</td>
<td>(1.29)</td>
<td>(0.99)</td>
<td>(1.14)</td>
<td>(1.02)</td>
<td>(1.74)</td>
<td></td>
<td>78.93(5)</td>
</tr>
</tbody>
</table>

Note. Means with different subscripts differ significantly at p < .05. Means sharing one of the subscripts do not differ. For example, cd does not differ from c or d, but cd differs from a.
In study III, a questionnaire and four focus group interviews were used to explore perceptions and understandings of bullying among adolescents in Sweden. The results from the questionnaire study showed that among school year 9 students, significantly more girls compared to boys reported the following behaviors to be bullying: ‘repeatedly write mean things on someone’s facebook page or in a chat’ (p≤0.001), ‘sending several mean text messages to the same person’ (p≤0.001), ‘a group of students calling someone mean things’ (p≤0.001) and ‘writing mean things to someone online who does not have many friends (p≤0.001). Similar results were found among school year 7 students. While ‘hitting someone for fun’ was reported as bullying twice as often among boys in school year 7 (15%) compared to girls in school year 7 (7%), the differences were non-significant.

The results revealed that in general, students in school year 9 more often reported the different behaviors as bullying compared to students in school year 7. Students in school year 9 reported behaviors such as social exclusion to be bullying more often compared to students in school year 7, e.g., ‘constantly ignoring someone or not talk to this person’, and ‘during recess decide who can participate (or not participate) in games or other activities’. Comments regarding their responses included circumstances under which the adolescents were more likely to consider a behavior as bullying, namely: the effect on the victim (e.g., “I think it’s bullying when the person being exposed think it’s bullying… If it’s for fun it doesn’t have to be bullying, as long as no one feels bullied”); if both parties are in on it (e.g., “posting an embarrassing photo can be okay, if the person is in on it, or if it’s posted in a Facebook-group where similar photos are posted”); repetition (e.g., “much of it is bullying but it depends if the behavior is repeated”); and intent (“it depends whether you mean it or not”).

One category and three sub-categories emerged from the analysis of the focus group interviews. The category was, “The core of bullying” and the sub-categories included, “Behavior descriptions”; “Self-interpretation”; and “Something hurtful” (Figure 4).
The core of bullying

It emerged that the adolescents used different behavior descriptions to define bullying behaviors. These included teasing, giving nasty comments, oppressions or threats with words, hitting, pushing, talking behind someone’s back, whispering, spreading rumors, giving glances, ignoring or leaving someone out of the peer group. Bullying also included malicious behavior on social media sites such as Facebook and Twitter. Physical aggression was types of bullying behavior described to be more common among boys while girls were described to more often bully with words and behind someone’s back. Jokes that were repeated were automatically considered bullying and in contrast to bullying, occasional arguments or fights were solved right away and all involved had an equal share in the argument and in the chance of “winning”. The adolescents described that it was hard to draw a line for when a behavior should be considered bullying and that it was very much a question of self-interpretation. The adolescents mentioned that the boundary for bullying is when someone stops laughing, which could be different for different people. When someone takes offense and feels bad as a consequence of the incident, it should be considered bullying. It was expressed that not being able to interpret the tone of voice or facial expression made it harder to separate jokes from bullying, especially over the internet. According to the adolescents, bullying is something hurtful that
leads to negative health consequences. Verbal bullying in particular leaves scares that lead to low self-esteem, feelings of not being good enough and sadness. Being different and standing out could mean that no one wants to be with you and that you sometimes have to stand the bullying in order not to be alone. According to the adolescents, the comfort of hiding behind a computer screen often made bullying incidents online more aggressive and brutal compared to bullying in real life. Despite this, the adolescents thought that it was easier to dismiss incidents happening online. In sum, the results from paper III show that the adolescents view a negative effect on the victim as a criterion for defining bullying and not only as a consequence of bullying.

Study IV

*General level of analysis (17 items)*

The psychometric testing in the study concerned the construction and evaluation of the PESOC-PLP scale, focusing on the operating characteristics of the items. The value of the person separation index (PSI) for the 17 items was 0.90242, indicating good separation of persons and high power of the test statistics. Targeting was examined by person-item threshold distribution, showing the locations of the item threshold parameter estimates relative to the distribution of the persons for the items. The person locations are positively skewed with a mean of 1.173, indicating positive perceptions of the principal as a pedagogical leader. At the positive end of the scale, there are no thresholds matching the person locations indicating that there is information missing about these persons. None of the 17 items showed reversed thresholds which means that the response categories work as intended and just with a few exceptions the distances between the threshold estimates were rather similar. The spread of the item location values corresponds to different severity between items with respect to the principal as a pedagogical leader.

Item 14 shows misfit according to the Chi square statistics ($p < 0.001$) and the residual fit values. In Figure 5, the item characteristic curves (ICC) reveal that item 14 shows lower discrimination than expected according to the Rasch Model. This implies
that individuals located at the beginning of the scale tend to score higher than expected, and individuals located in the right end of the continuum tend to score lower than expected on this particular item. Deleting item 14 increased the person separation index value slightly (from 0.902 to 0.904) without affecting targeting, thus indicating that this item is redundant in relation to the other 16 items. The item could be removed given no loss in content validity. Principal component analysis (PCA) of the item residuals indicated multidimensionality. Based on the PCA of residuals, t-tests and analysis of item content, the entire set of items were split into two sub dimensions of PLP (table 5) that were subjected to further analyses.

Figure 5. Item characteristic curves for item 14 “Teaching methods are first of all chosen and judged based on whether they lead to fulfillment of students’ learning”

**Finer level of analysis (two sub dimensions)**

The value of the PSI for sub dimension 1 (6 items) was 0.798 and for sub dimension 2 (10 items) was 0.852. None of the items showed reversed thresholds. One item in sub dimension 2 showed a fit residual above 2.5 (item 10). However, deleting item 10 decreased the PSI value and it was retained. Two separate DIF analyses based on gender and years of employment were included. At the Bonferroni adjusted significance level (0.001) one item in sub dimension 1 (item 5) and one item in sub dimension 2 (item 7) showed DIF with respect to years of employment at current school. Teachers that had
been working 4 years or less at their current school scored higher on item 5 and lower on item 7 compared to teachers that had been working 5 years or more at their current school given the same location on the latent trait. For sub dimension 1, the person-item threshold distribution showed that at the negative as well as at the positive end of the scale, there were no thresholds matching the person locations. This means that there is a lack of information about the persons in these areas (concerning their perception of the principal as a pedagogical leader). The mean value of the person’s location values is 0.214. For sub dimension 2, the person locations were positively skewed with a mean value of 1.814. There are areas where there are no thresholds matching the persons, indicating that there is information missing about these persons. Although the persons were dislocated towards the upper end of the continuum representing better pedagogical leadership, the item thresholds were spread along the latent variable. The thresholds at the lower end of the continuum were matching the persons well.

Table 5. Two subset of items as indicated by principal component analysis

<table>
<thead>
<tr>
<th>Item</th>
<th>Subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The principal initiates regular observations of teachers’ teaching methods and feedback discussions with the teachers</td>
<td>1</td>
</tr>
<tr>
<td>2. The principal takes the ultimate responsibility for teaching quality</td>
<td>1</td>
</tr>
<tr>
<td>3. The principal takes responsibility for ensuring the performance levels of instruction and criteria for assessing students' knowledge</td>
<td>1</td>
</tr>
<tr>
<td>5. The principal place high priority on pedagogical activities over administrative tasks and contacts outside school</td>
<td>1</td>
</tr>
<tr>
<td>9. The principal is often seen in school</td>
<td>1</td>
</tr>
<tr>
<td>17. The principal gives regular feedback on my work in the classroom</td>
<td>1</td>
</tr>
<tr>
<td>4. Assistant principals and other leaders in the school essentially agree with the principal concerning basic educational issues and school goals</td>
<td>2</td>
</tr>
<tr>
<td>6. The principal often show strength in decision-making</td>
<td>2</td>
</tr>
<tr>
<td>7. The principal’s expectations of me as a teacher are high</td>
<td>2</td>
</tr>
<tr>
<td>8. The majority of teachers’ understanding of the school goals and ways of working are in agreement with the principals goals and ways of working</td>
<td>2</td>
</tr>
<tr>
<td>10. Careful preparation is given to the planning of teacher conferences at the school and in-service training for the staff</td>
<td>2</td>
</tr>
<tr>
<td>11. The principal is available for helping to solve conflicts among teachers</td>
<td>2</td>
</tr>
<tr>
<td>12. The principal place high priority on pedagogical activities in contacts with teachers, students and parents</td>
<td>2</td>
</tr>
<tr>
<td>13. The principal is available to discuss issues related to education</td>
<td>2</td>
</tr>
<tr>
<td>15. The principal is actively involved in teachers' professional development</td>
<td>2</td>
</tr>
<tr>
<td>16. The principal is available for discussions on teaching methods</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Subset 1 = “Direct pedagogical leadership”; Subset 2 = “Indirect pedagogical leadership”.  

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DISCUSSION

Discussion of results

The main results of the four studies and their contributions can be summarized in the following way: Study I and II show that while a measure of bullying and measures of peer aggression partly capture different adolescents, both capture adolescents reporting the same level of psychosomatic problems. The present thesis thus shows that the previously established association in research between bullying and mental health problems also applies to peer aggression. This indicates that using only one single measure of bullying is likely not only to underestimate the overall prevalence rates of peer victimization but also the number of children experiencing psychosomatic problems in combination with peer victimization. Study III shows that the adolescents’ understanding and definition of bullying did not only include the traditional criteria of repetition and power imbalance, but also a criterion based on the health consequences of bullying. In other words, a single but hurtful or harmful incident could also be considered bullying irrespective of whether the traditional criteria were fulfilled or not. This adds to the existing literature by showing that adolescents consider the victim’s feelings of hurt and harm to be a defining criterion for bullying and not only a consequence of bullying. The results are important as adults’ and adolescents’ differing perception of bullying can affect the preventive and anti-bullying work in school. Measurement methods assessing effective leadership are important since strong school leaders are vital not only for the anti-bullying work in schools, but also for the creation of a positive school climate and academic success. The results in study IV show that the PESOC-PLP scale holds satisfying psychometric properties, capturing the multidimensionality of the pedagogical leadership construct. Since PESOC has been widely used for school improvement efforts in Sweden but have not previously been exposed to rigorous psychometric testing, the evaluation of the PESOC-PLP scale is a contribution to previous literature. By highlighting methodological shortcomings in research concerning social relations in school, the objective of the thesis is to raise awareness of how to ensure sound assessment of aspects associated with negative experiences among adolescents in school. The results partly support previous studies but also add to the understanding of peer victimization among children and youth,
and of the principal as a pedagogical school leader, as well as how these aspects can be measured.

**Overlap of bullying, peer aggression and psychosomatic problems**

The prevalence rates of bullying among Swedish adolescents are relatively low. In the current thesis 10% of the students reported being traditionally bullied, 8% reported being cyberbullied, while 14% reported victimization by either type of bullying at least occasionally. Further, a total of 29% of the adolescents reported being an occasional victim of at least one type of peer aggression behavior, while 13% reported being frequently victimized by at least one type of peer aggression behavior. Depending on cut points for bullying, similar or somewhat higher prevalence rates have been reported in previous Swedish studies on bullying (Erling & Hwang, 2004; e.g., Frisén et al., 2008; Slonje, Smith, & Frisén, 2012; Thornberg & Knutsen, 2011), while studies examining prevalence rates of peer aggression are scarce. Hence, the results in this thesis show that a measure of peer aggression identified a greater number of adolescents compared to a measure of bullying. Similar findings have been reported in earlier research showing that measurement methods including specific aggressive behaviors result in higher prevalence rates compared to single measures of bullying that include a definition of bullying (Sawyer et al., 2008; Stockdale et al., 2002). However, in addition to previous literature, the current thesis also shows that the two measures capture partly different pupils (Study I). When the concordance in individual responses between a single bullying measure and specific types of peer aggression behavior was analyzed it indicated that a measure of bullying and a measure of peer aggression used in isolation fail to capture many adolescents victimized by peers. These are important findings as they indicate that there are many adolescents exposed to repeated incidents of peer aggression without considering themselves to be victims of bullying or reporting it. This implies that many adolescents victimized by peers will not be captured by the most commonly used tool for assessing peer victimization, i.e., a measure of bullying.

The importance of these findings are further highlighted by the results in Study II showing that regardless of measurement method, victims of peer victimization
reported significantly more psychosomatic problems compared to non-victimized adolescents. There were no statistically significant differences in the mean values of psychosomatic problems between adolescents captured by a bullying measure and a peer aggression measure, implying that a measure of bullying and a measure of peer aggression capture the same proportion of adolescents with psychosomatic problems. While previous research has established an association between measures of bullying and mental ill health (Fekkes, Pijpers, Fredriks, Vogels, & Verloove-Vanhorick, 2006; Gini & Pozzoli, 2009), the current study demonstrate similar association for measures of peer aggression. Considering that nearly four times as many victims of peer victimization were identified by a measure of repeated peer aggression, compared to a measure of bullying, using only one single measure of bullying is therefore likely not just to underestimate the overall prevalence of peer victimization but also the number of children experiencing psychosomatic problems in combination with peer victimization. Considering that psychosomatic problems in adolescents is a matter of growing concern (Hagquist, 2010) and also increases the risk of later problems such as anxiety and depression (SBU, 2010), these results highlight the importance of using methods with the potential to identify all children and adolescents experiencing peer victimization. Contrary to research claims that it is necessary to clearly distinguish bullying from other types of peer victimization (Greif & Furlong, 2006; Hunter et al., 2007), the results from Study I and II imply that prevention efforts based solely on a single bullying measure may not target all children at risk.

So, why does a measure of bullying fail to capture a great number of adolescents that are victimized by peers and at risk of mental health problems? One explanation could be the feelings of shame involved in admitting to being bullied (Bosworth et al., 1999) or that one’s understanding of what it means to be bullied is different from what is stated in the definition (Thornberg & Knutsen, 2011). In comparison to a measure of bullying, it may be easier to admit to being victimized by peers on a measure of peer aggression without having to label oneself as a victim of bullying (Bosworth et al., 1999; Greif & Furlong, 2006). While a measure of peer aggression may include single incidents of harmless “joking around” (Solberg & Olweus, 2003), the higher prevalence rates of peer aggression could also be that it captures other forms of harassment that the current definition of bullying screens out. If clearly defined
and operationalized, a prevalence estimate gives a clear picture of the full extent and distribution of the social and mental health consequences of peer victimization and is a useful measure to evaluate mental health interventions in school (Greif & Furlong, 2006; Solberg & Olweus, 2003). However, if definitions are inconsistent and concepts are poorly operationalized, there is a great risk of incorrect estimates of prevalence rates.

**Children’s and adult’s differing understandings**

Incorrect estimates of prevalence rates could also be a consequence of children’s and adult’s different ways to define bullying (Varjas et al., 2008). An important step to understand bullying behavior among children is to ask them about their perceptions, experiences and explanations (Thornberg, 2015). If children are asked to indicate whether they have been bullied in terms of a predetermined view defined by adults, many incidents that do not fit this definition may not get reported. The results from Study III showed that the adolescents’ understanding and definition of bullying did not only include the traditional criteria of repetition and power imbalance, but also a criterion based on the health consequences of bullying. That is, a single but hurtful or harmful incident could also be considered bullying irrespective of whether the traditional criteria were fulfilled or not. This implies that the traditional criteria included in most definitions of bullying may not fully reflect adolescents understanding and definition of bullying. Assessments of bullying behaviors that ask adolescents to strictly adhere to the traditional definition of bullying might not identify all adolescents experiencing peer victimization and therefore not provide estimates of prevalence rates reflecting adolescents’ own understanding of bullying. Children often judge bullying behaviors as something wrong using moral reasons such as the harm that the actions cause (Thornberg, 2010; Thornberg et al., 2014). The results in the current thesis add to the existing literature by showing that adolescents consider the victim’s experiences of hurt and harm as a criterion for defining bullying and not only as consequences of bullying. This may be of special relevance for the identification and classification of bullying incidents on the internet where devastating consequences have been reported from single incidents and the use of the traditional
criteria of intent, repetition and power imbalance may not be as relevant as for traditional bullying.

Even though earlier studies have shown that children may not share adult’s understanding of bullying (e.g., Varjas et al., 2008), children’s understandings have had little impact on the definition. However, the social context in which today’s adolescents are brought up may have changed the perception of what is considered unacceptable behavior (Abt & Seesholtz, 1994) and this change serves to further stress the need to let children’s voices be heard. Expressing their voice in matters that concerns them is every child’s right, according to the UN Convention on the Rights of the Child (UNCRC) (General Assembly, 1989). The convention, which was signed by Sweden in 1990, clearly states that every child has the right to be taken seriously and that every adult has the obligation to find out what children's opinions are and to take them into account. However, school children’s voices relating to everyday school life is often suppressed and its value minimized (Thornberg & Elvstrand, 2012). Any type of peer victimization reported by children need to be taken seriously and dealt with. Despite school’s legal obligations to take action to prevent and stop degrading treatment of children, a Swedish study showed that 35% of bullied students reported that they had not received help from any adult in school (Frisén et al., 2008). Adults may not consider certain incidents as bullying, which may in part explain their unwillingness to intervene in bullying situations (Bauman & Del Rio, 2006; Varjas et al., 2008). Research has also shown that the perceived seriousness of a behavior is a big predictor of teacher intervention (Yoon, 2004). Hence, adults’ perceived neglect to intervene could indicate that they may not correctly perceive the harm in certain situations.

A focus on the effect on the victim rather than the intent of the bully has been put forward by a few researchers. Griffin & Gross (2004) acknowledge that the definition of bullying is typically focused on the actual behavior or probable intention of the bully rather than on the perception or experience of the victim. They argue that more comprehensive definitions and methodology that include both the behaviors of bullies and the subjective experiences of victims could be more useful. Goldsmid & Howie (2013) argue that the established association between distress and peer victimization may justify considering the negative effect on the victim as a criterion for bullying. However, the authors also acknowledge problems with including a subjective judgment in
measurement methods because of children’s differences in vulnerability. Rigby (2007) illustrates this by stating that what appears to one person as playful teasing can in some circumstances be extremely hurtful. The definition of bullying states that if the “aggressor” knows that the behavior is perceived as distressing and is aware that the victim wants it to stop—and still continues—that it is “bullying”. However, even if we may think that the victim is overly sensitive, the action cannot be ignored (Rigby, 2007). Self-reported victimization needs to be taken seriously since it has shown to associate with emotional problems (Scholte et al., 2013). By including the victim’s experience of hurt and harm as a criterion for defining bullying and not only as consequences of bullying, the results in Study III confirms those of Study I and Study II indicating that a measure of bullying based on the traditional definition of bullying may not capture all children at risk of harm.

**Alternative terms and definitions**

The definition of bullying has been a topic of debate in much of the bullying literature. By restricting bullying to include only intentional, repetitive aggression including some sort of power balance, the definition aims to capture the most harmful incidents. The definition implies that all three criteria need to be present for the behavior to be bullying (Greif & Furlong, 2006). This means that many incidents causing distress in children are not included when peer victimization assessments are restricted to the traditional definition of bullying. Adolescents may experience repeated acts of physical violence without it being considered bullying if the offender is of equal status or strength. Further, adolescents may receive a very threatening message from an anonymous sender, but it would not be defined as bullying unless it was repeated. For this reason, it has been argued that the concept of bullying may be too narrow to use in efforts to combat peer victimization. Finkelhor et al. (2012) suggest that the concepts of peer victimization and peer aggression have much more openness and flexibility compared to the concept of bullying and therefore should be used in addition to bullying. They define peer victimization as peers acting outside of the norms of appropriate conduct causing harm and peer aggression as acts intended or perceived as intended to cause harm. Since most schools in Sweden have
adopted a zero tolerance against bullying it would be surprising to find them accepting any form of peer victimization. Williams and Stelko-Pereira (2013) further suggest that the concept of bullying should be expanded not only to peer victimization but to the wider notion of school violence, adopting the WHO definition (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002):

School violence is the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood or resulting in injury, death, psychological harm, maldevelopment or deprivation (p. 5).

Olweus critique against using definitions that do not include the criteria of intent, power imbalance and repetition is that they include innocent arguments. So, the traditional definition excludes harmless brawl by excluding behaviors that are “done in a friendly or playful way” (Olweus, 1996). However, such a restriction also excludes one-time serious incidents. Excluding behaviors “done in a friendly and playful way” could also be used as an excuse in favor of the bully, i.e. “I was only joking…” As the results in Study III showed, adolescents find it very hard to separate jokes from serious behavior and they also considered repeated jokes to be bullying. Nearly a third of all boys in school year 9 considered hitting someone for fun to be bullying. While it may be easier to assess your own behavior towards someone else as a joke, it may be very hard for the receiver to interpret the intent behind the behavior. Although showing indifference towards the bully can be a strategy for handling a bullying incident, it can also reflect badly on the victim and be interpreted as a lack of assertiveness. This dilemma is not covered by the current definition of bullying.

Bullying as a legal term in the school context

In the work to reduce bullying, the school has a legal obligation to counteract all forms of abusive behavior and harassment and to investigate and take action if it comes to their knowledge that a child or a student claims to have been subjected to abusive treatment or harassment (Skolsinspectonen, 2010). However, adults’ and adolescents’ differing understanding of what it means to be bullied may hinder adult intervention and the anti-
bullying work in school. Single but hurtful or harmful incidents of peer victimization may go unnoticed as such incidents do not fit the traditional view of bullying and may not be considered to be bullying by adults. The results of the current thesis provide empirical support to the Swedish Education Act (2010:800) where the word bullying is considered too narrowly defined to be included as a term on its own. Instead, bullying is included under the term degrading treatment. One of the reasons is that the legislators believe that incidents should not have to be repeated to qualify as a violation of the law. Once is enough. By showing that measurement methods of peer aggression captures the same level of psychosomatic problems as a measure of bullying, the results of the current thesis is an indication that prevention efforts based on a single measure of bullying may not target all children at risk.

Another reason why degrading treatment is used in the Education Act instead of bullying is related to who defines the action. The person who violates does not necessarily have malicious intent, but it is the offended person who determines what is considered degrading treatment. Insults may thus take place without malice. The number of people who define themselves as being exposed to degrading treatment has increased rapidly in the last couple of years. In 2008, the Swedish School Inspectorate received 1,290 reports of abuse while the number had risen to 2,968 in 2012. The most common reason for reporting abuse is that the school has not done enough in situations where students feel that they have been exposed to degrading treatment. Degrading treatment is a broad term that captures any behavior that the victim considers degrading while the purpose of using the term bullying is to single out the most harmful types of degrading treatment. The term degrading treatment is based on the understanding that situational factors, rather than individual factors, are more important when describing different behaviors (See SNAE, 2009b). Accordingly, victimization needs to be embedded within the culture of the school where it is taking place. In order to reduce prevalence rates, the focus needs to be on changing the system rather than the individuals within it (Monks et al., 2009). The most important agents in the system are the principals, as they set the tone for the anti-bullying work in schools (Dake et al., 2004). Receiving feedback on their leadership could make principals more aware of strengths and weaknesses and what they can contribute to creating a more positive school climate with positive social relations.

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6 http://www.skolinspektionen.se/sv/Anmalningar/Att-anmala-till-Skolinspektionen/Statistik/
However, evaluated tools for assessing successful leadership in Swedish schools are lacking.

_**Evaluation of the PESOC-PLP scale**_

The psychometric analyses of the PESOC-PLP scale (Study IV) showed that the pedagogical leadership of the principal (PLP) consisted of two sub dimensions and analysis of item content revealed two types of leadership; direct pedagogical leadership and indirect pedagogical leadership. Direct pedagogical leadership is defined as responsibility of teaching methods and quality, and indirect pedagogical leadership is defined as ability to lead staff and building relationships. It is stated that the items comprising the PESOC-PLP scale are intended to capture both the structure and the culture of a school (Grosin, 2004). In Study IV, the subset “direct leadership” includes leadership variables such as regular observations of teachers’ teaching methods, giving feedback, responsibility for teaching quality and quality instruction, i.e., the principal’s direct actions for school improvement. These are variables that have been identified as important for the structure of the school and academic goal fulfilment (Höög, Johansson, & Olofsson, 2009). It has been suggested that leaders make a difference on student achievement through a clear focus on academic and learning goals (Robinson, 2007; Stronge et al., 2008), which could be accomplished by a direct leadership style. Further, the subset “indirect leadership” includes leadership variables such as agreement among school personnel concerning goals and visions, high availability to resolve conflicts, and collaboration with teachers, i.e., indirect actions for school improvement through teacher influences. These variables rather seem to relate to school culture and could be seen as important for social and democratic goal fulfilment (Höög et al., 2009). Successful principals can contribute to enhancing both academic and social goals by understanding and addressing issues related to the culture and structure of the school (Höög et al., 2005).

The results and content of the two subsets of the PESOC-PSP scale correspond well with the aim to incorporate the structure and culture of the school and with the Swedish Education Act, which embraces both social/democratic and academic goals (SFS, 2010:800). This indicates that the PESOC-PLP scale will most likely measure
both the direct effects of school leadership on student outcomes as well as indirect effects through teacher influence. This is of interest as some of the disparities in current measurement methods of school leadership involve the distinction between direct and indirect effects on student outcomes and the fact that relatively few studies consider the connection between direct instructional leadership and student outcomes (Seashore Louis et al., 2010). The demonstrated sound psychometric properties of the PESOC-PLP scale make it a valuable contribution to the research on the development of pedagogical leadership. In Sweden and other countries prioritizing comprehensive head teacher training programs the PESOC-PLP scale may be used as a tool for evaluating these programs.

Methodological discussion – strengths and weaknesses

Choice of methodology

Both qualitative and quantitative methods were chosen in order to address the research questions in the different studies appropriately. Study I and II are based on questionnaire data, collected from adolescents, designed to compare two measures of peer victimization in terms of prevalence rates and associations with psychosomatic problems. In Study III, both questionnaire data and data from focus group interviews were chosen to explore adolescents’ understandings and perceptions of bullying. Study IV is based on questionnaire data collected from teachers to explore teacher assessments of the principal’s role as a pedagogical leader by analyzing the psychometric properties of a pre-existing instrument. The result of each study has generated new questions for the subsequent studies.

Response rate

The response rates for the student questionnaires were considered good. The data collection in 2009 reached a response rate of 82% and involved 1760 students. In 2010,
the response rate was 90% and involved 2004 students. Further, the fact that eight out of
nine of the compulsory schools (school years 7-9) in the municipality participated in 2009
and all of the compulsory schools participated in 2010 is an indication of good
generalizability of the results to the study population. The response rate for the teacher
questionnaire was 57%. Even though this response rate would be considered low,
response rates around 50% is not uncommon for this type of research (Baruch &
Holtom, 2008). Despite numerous reminders it was hard to get the teachers to take time
to answer the questionnaire. Low response rates can undermine the external validity and
generalizability of the collected data because of nonresponse bias (Rogelberg & Stanton,
2007). Nonresponse could reflect the school climate and indirectly the leadership in
school. Based on information given by teachers, the major reason for not participating,
however, was lack of time. With a higher response rate a wider spectrum of attitudes
might have been captured.

Small number of victims

The prevalence rates of bullying and peer aggression is relatively low in Sweden when
compared internationally, as was also found in this thesis. Hence, the analyses are based
on a relatively small number of observations. Given larger samples, the analyses could
have been conducted at a finer level. For example, in Study II, the associations between
different measures of peer victimization and psychosomatic problems could have been
conducted using mutually exclusive groups of victims, bullies, traditional bullying, and
cyberbullying. Such tentative analyses were performed, but since they suffered from very
few observations in each unique category, it was hard to draw any definite conclusions.

Direction of causality

This thesis uses a cross-sectional design, which means that it is not possible to draw any
conclusions regarding the direction of causality. This is foremost an issue discussed in
Study II. For example, no conclusion can be drawn on whether peer victimization leads to psychosomatic problems. It is also possible that students with psychosomatic problems are more likely to report peer victimization (Fekkes et al., 2006). Youth with psychosomatic problems may also suffer from other adversities such as childhood abuse or chronic illness that have been shown to associate with peer victimization (Fekkes et al., 2006; Jernbro, Svensson, Tindberg, & Janson, 2012).

**Instruments and questions**

The questions in the student questionnaire regarding bullying and peer aggression are taken from Olweus Bully Victim Questionnaire (OBVQ) (Olweus, 1996). OBVQ is the most commonly used instrument to measure bullying among children and it has been validated in previous research (Kyriakides, Kaloyirou, & Lindsay, 2006). To measure cyberbullying, a question originally developed by Smith, Mahdavi, Carvalho, & Tippett (2006) and translated into Swedish by Slonje and Smith (2008) was used. When constructing the student questionnaire, the research team decided that the definition of bullying used in OBVQ took up too much space. Instead, the definition of bullying used in the Swedish version of Health Behavior in School Aged Children (HBSC) was used (Marklund, 1997). The definitions used in OBVQ and HBSC both include the criteria of intention, repetition and power imbalance. Unfortunately, by using an older version of the definition, the aspect of social exclusion was not included. Had this aspect been included in the definition, it is possible that more adolescents would have been identified as victims by a measure of bullying. Further, the peer aggression items did not include behaviors that are specific to internet aggression. Even though a wide range of questions on different behaviors were included, it is possible that internet aggression and other types of peer aggression have been underreported. However, most of the questions on peer aggression were worded in a way that could be applicable to traditional forms of bullying as well as bullying online.
Categorization of victims and psychosomatic problems

Bullying

In Study I and II adolescents were categorized as victims of bullying if they reported either traditional bullying or cyberbullying. Even though some might argue that these are two different phenomena, the two forms of bullying are highly related. Many children who are victimized online are also victims of traditional bullying (Wang, Iannotti, Luk, & Nansel, 2010). The decision to include both types of bullying is further justified by research showing that negative incidents online are also linked to real-world antisocial behaviors (Sticca, Ruggieri, Alsaker, & Perren, 2013; Teräsahjo & Salmivalli, 2003). Rather than being two separate phenomena it has been suggested that traditional bullying and cyberbullying are rather two sides of the same coin (Beckman et al., 2012; Wang et al., 2010). The commonly used cut point for bullying “2-3 times/month or more” were not applied in the studies. Instead, all respondents indicating bullying victimization (even occasionally) were classified as victims since repetition by definition is an integral part of bullying. If the stricter cut point for bullying had been used, the prevalence rates for bullying had been lower. The analyses in Study II were replicated using the stricter cut point for bullying but did not have any effect on the results.

Psychosomatic problems

In study II, the linear PSP variable was analyzed both as a continuous and categorical variable. The reason for using a categorical variable was that it allowed for a comparison to be made among the adolescents who reported relatively severe psychosomatic problems. Similar categorization of psychosomatic problems has been used in previous studies (Carlerby, Viitasara, Knutsson, & Gadin, 2012; Gadin & Hammarström, 2005; Hagquist, 2010). In addition, the linear variable was used in an ANOVA and OLS regression analysis to include the full range of scores on the PSP scale. In the ANOVA, differences in mean values on the PSP scale were tested for victims identified by a measure of bullying, a measure of peer aggression and both measures. In the OLS
regression analysis, the PSP scale was included as the dependent variable and mutually exclusive groups of victims were included as independent variables using dummy coding. By treating the PSP variable as a continuous variable, more information from the data could be utilized. The level of psychosomatic problems can, however, be seen as relative, meaning that there are no clinical cut points of what is considered a mild or severe problem. Whereas the use of percentiles leaves out more information, only adolescents with relatively more severe problems were compared.

Self-reports

Self-reports were used as the data collection method in all the studies included in the thesis. While self-report is a common and accepted method for measuring bullying, individual perceptions of what it means to be bullied may vary (Nansel et al., 2001). In an effort to reduce subjective interpretations, a definition of bullying was provided together with the question on bullying. Despite the inclusion of a definition, the respondents may have interpreted bullying differently. Research has shown that when answering questions on bullying, children may use their own understanding of what bullying means instead of relying on given definitions (Smith et al., 2002). Definition discrepancies are acknowledged methodological ambiguities in peer victimization research and these were addressed in Study I, II and III. Bullying may be considered a sensitive subject involving shame and stigmatization. Social desirability means that respondents will answer questions so as to present themselves in a favorable light and is a recognized problem in research using self-report measures (Podsakoff & Organ, 1986). Hence, there is a risk that the prevalence rates of bullying in the thesis are underreported.

Focus groups

The group setting offered by a focus group stimulates discussions and allows children to respond to each other’s statements and share their views, thus creating a unique group
dynamic (Wyatt, Krauskopf, & Davidson, 2008). In qualitative research the findings are evaluated in terms of trustworthiness (credibility, dependability, and transferability) (Graneheim & Lundman, 2004). The decision to use separate groups for boys and girls in study III is that girls tend to hold back in groups allowing boys to take the lead in responding to questions (Shucksmith & Henry, 1998). Choosing girls and boys from different schools and grade levels also enhanced the credibility of the data as it offered a richer variation and understanding of the phenomena of bullying. Further, the credibility was enhanced by involving three researchers in the analysis process to reach consensus and by including quotations from the transcribed text, showing similarities within and differences between categories (Graneheim & Lundman, 2004). Further, dependability refers to the stability of data over time. The focus group interviews were conducted over a two-week period which enhanced the consistency and dependability of the results. Even though the moderator and research-colleague after each focus group discussed what the adolescents had brought up, more time in between the focus group interviews could perhaps have offered a better insight into adolescents’ perception of bullying allowing for more follow-up questions to be developed. This study identifies adolescents’ perceptions of bullying but did not ask the participants about their personal experiences with bullying. Hence, we do not know whether the participants had been bullied or had bullied others, which could have affected their perceptions of bullying.

**CONCLUSIONS AND IMPLICATIONS**

Even though bullying is a relatively rare phenomenon in Sweden, it is nonetheless an important public health issue considering previous research results that indicate long lasting effects on health and the negative effects associated with peer victimization experienced also by students not directly involved. School has an obligation to meet the needs of children and adolescents and to ensure that every child develops to their full potential and that their integrity and human rights are respected. Ensuring a safe and secure school experience is a relevant public health issue as well as an implementation of the UN Convention on the Rights of the Child. To be able to work effectively to reduce peer victimization in schools and to ensure a positive school experience for all children, a
basic premise is to make sure that we have measurement methods that accurately portray the challenges facing today’s children and that will identify all children at risk of harm. The main contribution of this thesis is that it provides a deeper understanding of the problems associated with current measurement methods in peer victimization and school leadership as well as insights into how to deal with some of the problems.

The questions shape the answers [“Som man mäter får man svar”].

This proverbial expression has guided my thesis work from start to finish. The measurement methods chosen to research a problem have a great impact on the results yielded and it is of uttermost importance to be aware of the questions asked and why. This thesis shows that bullying interventions using a single measure of bullying, i.e. the most commonly used measure to assess peer victimization in school will not identify all children at risk of harm. Measurement methods that exclude other forms of peer victimization than bullying have serious implications for the number of adolescents who are identified as victims and may underestimate the full impact of peer victimization on children. Rather than using a single measure of bullying that is based on the traditional definition, which requires that the criteria of intention, repetition and power imbalance are all met, other factors such as the hurt and harm experienced by children should also be considered in the bullying definition. Peer victimization can also be seen as a continuum taking into account the severity and circumstances of the different hurtful and harmful behaviors. Peer victimization, then, is better measured as a continuous variable rather than a dichotomous variable with only a “yes” or “no” answer.

This thesis also highlights the important role of adults in the anti-bullying work in schools. Teachers and other school personnel need to be more in tune with children’s view of bullying to be able to intervene and deal with bullying incidents in the most effective way. Children’s reluctance to tell adults about being bullied suggests lack of trust and could be a sign of a poor school climate. In the work to prevent peer victimization and mental health among school children, the school principal has an important role in ensuring a positive school climate and children’s wellbeing. The evaluation of the PESOC-PLP scale is a step towards achieving valid assessments of effective and pedagogical school leadership. Society’s view of bullying has changed. From
seeing bullying as a matter of disorderly behavior, where the behavior of the bully was the
target of change, bullying is now treated as a breach of law (under the Education Act and
the Discrimination Act) and seen as an indication of a negative school climate and a
matter for school leaders to address. By strengthening the understanding of measurement
methods of peer victimization and school leadership the results from the thesis may
indirectly contribute to a safe and positive school experience for children and adolescents.

FUTURE STUDIES

The results of the current thesis suggest that more research is needed on how to best
identify all the children that are exposed to hurtful and harmful types of peer
victimization. The result of Study II needs to be further investigated. To refine the
analyses of the association between different measures of peer victimization and
psychosomatic problems, analyses based on unique categories (1) excluding bullies from
the victim group and (2) distinguishing between traditional bullying and cyberbullying
should be made using larger samples. To determine whether incorporating the effect on
the victim in the definition of bullying would lead to a better estimate of the number
children at risk due to peer victimization, the results of Study III should be further
examined using larger quantitative studies. In a Swedish context, to conclude that
pedagogical leadership should be measured based on the two sub dimensions of the
PSEOC-PLP scale or if the entire set of items also may be used needs to be further
examined based on larger data sets. Future studies could use the PESOC-PLP scale to
analyze the correlation between different school factors, such as peer victimization,
mental health and school climate. This could help extend the knowledge of the
importance of good school leadership for students’ well-being.
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Measuring peer victimization and school leadership

The negative consequences of peer victimization on children and adolescents such as worsening academic achievement and mental ill health are major public health concerns which have been subjected to extensive research. However, there are long-standing concerns how to define, measure, and estimate prevalence rates of peer victimization and successful school leadership. The aim of this thesis is to study methods for assessing peer victimization and pedagogical leadership in school. The results show that excluding other forms of peer victimization than bullying have serious implications for the identification of victims and may underestimate the full impact of peer victimization on children. Further, the validation of the Pedagogical and Social Climate (PESOC-PLP) scale is a step towards ensuring valid assessments of pedagogical school leadership. By strengthening the understanding of measurement methods of peer victimization and school leadership the results from the thesis may indirectly contribute to a safe and positive school experience for children and adolescents.