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Bullying in schools

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Bullying in schools

The role of teachers and classmates

Beau Oldenburg

Bullying in schools

The role of teachers and classmates

PhD thesis

to obtain the degree of PhD at the
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To all teachers and students who leave home with
leaden steps every morning.

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Chapter 1

Introduction

The girls pretended to be my friends so that I would tell them all my secrets. They pushed me into a corner, surrounded me, said nasty things, called me names, and threatened me. They pushed me into a puddle of mud and hurt me. I became more anxious, silent, and insecure. They told me to kill myself and said that if I would not do it, they would do it for me. I still suffer from the bullying. All those memories and thoughts... It has been 5 years ago but it still feels like it was yesterday. The bullying really changed me.

-Anonymous victim on the Internet

1.1 What is school bullying?

School bullying is a serious problem that many children at some point in their lives face—either by being victimized, by witnessing it, or by bullying others. Bullying is often defined as the systematic and intentional abuse of others (Olweus, 1993). Power imbalance is an important element of bullying: bullies are physically or socially stronger than their victims, making it particularly difficult for the victims to defend themselves. Common forms of bullying are physical bullying (e.g., hitting or kicking), verbal bullying (e.g., insulting or name-calling), relational bullying (e.g., gossiping or excluding), material bullying (e.g., damaging or stealing belongings), and cyber bullying (e.g., posting mean messages on social media), but bullying can manifest itself in many more ways. About 15% to 25% of the elementary school and secondary school students are bullied (Klicpera & Gasteiger Klicpera, 1996; Kumpulainen et al., 1998; Kumpulainen & Rasanen, 2000; Nansel et al., 2001; Rigby & Slee, 1991).

Bullying is especially prominent during middle childhood and early adolescence (ages 6 to 14) (Olweus, 1993). A commonly heard misconception about bullying is that it is typical childhood behavior without serious ramifications. On the contrary: several studies demonstrated that bullying can have far-reaching negative consequences for the current and later well-being of those who are bullied, those who witness the bullying, and even for those who bully (Isaacs, Hodges & Salmivalli, 2008; Nansel et al., 2001; Nishina & Juvonen, 2005; Scholte et al., 2007). What makes school bullying particularly distressing is that victims have to interact with their bullies on a daily (involuntary) basis and have little chance of avoiding them.

1.2 Teachers and classmates: Three insights

In the past decades much progress has been made in understanding the underlying mechanisms of school bullying. It is now understood that bullying is not merely a negative interaction between bullies and victims, but that it is a complex phenomenon in which teachers and classmates, other important actors within the classroom context, are involved as well. In the remainder of this chapter I first discuss three important insights of the past two decades concerning how teachers and classmates can affect the bullying in their classroom. Next, I discuss which knowledge is still lacking and describe how the four empirical studies that are presented in this dissertation aim to fill this gap. Finally, I provide a detailed overview of the empirical studies.

1.2.1 Insight 1: Teachers are important actors within the classroom context

Teachers are important actors within the classroom context as they spend many hours per day with their students and are responsible for and in control of the events taking place during school hours. Accordingly, in most anti-bullying interventions teachers are the ones who are supposed to signal and solve cases of bullying. Recent studies suggest that teachers' role in tackling bullying goes beyond simply implementing interventions (e.g., Hektner & Swenson, 2011; Veenstra et al., 2014). These studies argue that although teachers are the ones who are supposed to solve bullying, they may simultaneously be part of the problem because they can (unintentionally) reinforce bullying among their students. Teachers function as role models for their students and their perceptions and behavior may affect the bullying process (Poulou & Norwich, 2002). Teachers who have permissive attitudes towards bullying—or even give negative verbal and nonverbal reactions to victims—might promote negative interactions (Boulton, 1997; Graubard, 1973). By contrast, teachers who take a firm stance against bullying and propagate anti-bullying norms may create a classroom climate in which bullying is not tolerated.

1.2.2 Insight 2: Classmates are the bully's audience

In order to stop bullying, it is important to understand why students bully. Several explanations for why students bully have been put forward. For instance, it has been argued that students bully because they are insecure or that they have problems regulating their emotions. Today most scholars agree that the main reason why students bully is that they aspire to social status in the peer group (Olthof et al., 2011; Salmivalli et al., 1996; Veenstra, Lindenberg, Munniksma, & Dijkstra, 2010; Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009). By harassing others—often classmates who are unlikely to be defended—bullies aim to show their strength to the rest of the group. It is thus no coincidence that bullying nearly always occurs in the presence of witnessing peers (Atlas & Pepler, 1998; Craig, Pepler, & Atlas, 2000).

In their pioneering work Salmivalli and colleagues (1996) argued that those witnessing peers determine to a large extent whether bullying is a successful strategy for gaining social status. By supporting or ignoring the bullying, witnessing peers (indirectly) signal to the bully that the bullying is entertaining, or that it at least is acceptable behavior. Conversely, when students disapprove bullying and defend the victim, for instance by telling the bully to stop bullying, bullying is no longer an effective means to climb the social ladder and bullies are likely to alter their behavior.

According to Salmivalli and colleagues, bullying is a group phenomenon in which almost all classmates are in some way involved, even if they do not actively attack the victim. Salmivalli and colleagues distinguished five participant roles (apart from victims) that students may take during bullying episodes: bullies, assistants (students who do not

initiate the bullying but join in later), reinforcers (students who support the bully by laughing or cheering), outsiders (students who actively shy away from the bullying), and defenders (students who help and support victims). Participant roles are typically determined by aggregating the proportion of classmates who nominated a certain student for a specific role.

1.2.3 Insight 3: Bullying is a relational phenomenon

Recently, Dutch researchers (Huitsing et al., 2012; Huitsing & Veenstra, 2012; Van Der Ploeg, 2016) carried the idea of the participant role approach a step further. These researchers agreed that bullying is a group phenomenon, but they let go of the notion of the relatively static participant roles. Instead, they argued that students' behavior depends on relationships within the classroom. For instance, students may bully some classmates while they defend others. Moreover, students' behavior may not only depend on their direct (dyadic) relationship with others, but on the presence or absence of other relationships in the classroom as well. As an illustration, the choice to defend a victimized classmate may depend on whether the potential defender dislikes the bully. Software for analyzing social networks nowadays enables researchers to investigate this type of complex relationships more accurately.

1.3 Four empirical studies

Notwithstanding the progress made in understanding the roles that teachers and classmates play in the bullying process, little is known about teachers' and classmates' perceptions of bullying and behavior towards bullying. With 'perceptions' I mean the individual set of beliefs and attitudes that teachers and students have about bullying. I argue that it is important to better understand how teachers and classmates perceive bullying because their perceptions are likely to affect their behavior (e.g., whether they will intervene in bullying episodes in their classroom and with how much effort, persistence, and intensity they will do so) and the perceptions and behavior of others (Poulou & Norwich, 2002). Below I elaborate on the specific topics that were addressed in the empirical chapters of this dissertation.

1.3.1 Chapter 2

Teachers are the ones who are supposed to signal and solve cases of bullying and, in addition, they are role models who may reinforce or discourage bullying among their students. Despite this important role of teachers in stopping bullying it is unclear to what

extent teachers' perceptions and behavior are related to the prevalence of bullying. In a few studies teachers' attitudes to and perceptions of bullying were examined, but in none of these studies an explicit link with the prevalence of victimization in their classrooms was made. One study (Veenstra et al., 2014) found higher levels of bullying in classrooms of teachers who according to their students were not efficacious and had to exert a great deal of effort to reduce bullying. In this study teachers' characteristics were reported by students and not by the teachers themselves.

Using data of 139 Dutch elementary school teachers and 3,385 of their students in chapter 2 I investigated whether teachers' characteristics—and in particular teachers' perceptions of bullying—were associated with the number of victims in their classroom. The focus was on teachers' perceptions on the causes of bullying, their self-perceived ability to handle bullying among their students, their personal bullying and victimization history, and their teaching experience.

1.3.2 Chapter 3

Several studies suggest that tackling bullying is a difficult task (Merrell, Gueldner, Ross, & Isava, 2008; Smith, Schneider, Smith, & Ananiadou, 2004). I argue that at least three conditions have to be met before teachers can successfully intervene in bullying situations in their classrooms: First, teachers need to know what bullying is; second, they need to gather information about the bullying among their students; and third, they need to recognize which students are being victimized. In chapter 3, I present a pilot study in which teachers' definitions of bullying, the strategies they used to find out about bullying, and the extent to which teachers perceived students who were self-reported victims as victims were investigated. Data from 22 Dutch elementary school teachers were combined with survey data from 373 students of these teachers.

1.3.3 Chapter 4

Salmivalli and colleagues (1996) argued that all students are in some way involved in and responsible for the bullying in their classroom. Students' behavior during bullying episodes may make a large difference for the victim. When most students reject the bullying, it is not an effective means to climb the social ladder and bullies are likely to alter their behavior. However, before students can intervene in bullying, they must recognize it as such.

Even though several studies assume that most students are aware which classmates are victimized (e.g., O'Connell, Pepler, & Craig, 1999; Salmivalli et al., 1996), this assumption has never been tested explicitly in an empirical study. Several studies did investigate the correspondence between peer and self-reported victimization (e.g., Bouman et al., 2012; Cornell & Brockenbrough, 2004; Graham & Juvonen, 1998; Ladd &

Kochenderfer-Ladd, 2002), but in most of these studies the self-reports of victims were compared to aggregated peer reports (i.e., the reports of all classmates were aggregated to proportion scores). Previous studies thus neglected that some students may be more likely to recognize victimized classmates than others.

In chapter 4, data from 2,413 Dutch secondary school students were used to investigate whether the classmates of self-reported victims perceived them as victimized. Taking the relational nature of bullying (and bullying related behavior) into account, the correspondence between peer and self-reported victimization was not investigated by comparing self-reports to aggregated peer reports, but to peer reports given by individual students. This dyadic approach allowed investigation of whether students with certain characteristics were more likely to agree on the self-reported victimization of their classmates and whether there was more agreement in certain relationships.

1.3.4 Chapter 5

One of the most important participant roles described by Salmivalli and colleagues (1996) is the role of defender. When students defend their victimized classmates this may alter the bully's behavior and provide a buffer against the negative consequences of bullying. Several studies sought to investigate what distinguishes defenders from their classmates. The vast majority of these studies focused on individual characteristics associated with being a defender (e.g., Nickerson, Mele, & Princiotta, 2008; Pozzoli, Gini & Vieno, 2012). Although these studies have provided valuable insight into defending behavior, nearly all of them ignored the fact that defending is intrinsically relational. Rather than always *being* a defender (i.e., having a fixed role), students' behavior is likely to be *flexible*; students may defend certain classmates but remain passive when other classmates are victimized.

In order to properly take this relational nature of defending into account, in chapter 5 I investigated defending relationships in Dutch elementary schools using social network analysis. In social network analysis the focus is not on individual-level outcomes but on the presence or absence of relationships between individuals within a certain social group. I investigated to what extent defending relationships co-occurred with two common types of positive and negative relationships among elementary school students: friendship and dislike. It was expected that defending was likely to occur between friends and between friends of friends. In addition, it was expected that defending was unlikely to co-occur with dyadic dislike relationships. Finally, it was expected that defending relationships were likely to occur between students who were disliked by the same classmates and between students who disliked the same classmates. Bivariate Exponential Random Graph Models (ERGMs) were used to investigate the defending, friendship and dislike networks in seven elementary school classrooms.

1.4 Overview of the empirical chapters

Table 1.1 shows how the four empirical chapters are organized.

Table 1.1 Overview of the four empirical chapters		
	Perceptions of bullying	**Behavior towards bullying**
Teachers	Chapters 2 & 3	Chapter 3
Classmates	Chapter 4	Chapter 5

In short, chapter 2 investigated how teachers' characteristics—in particular their perceptions of bullying—were related to the number of self-reported victims in their classrooms. Chapter 3 investigated whether teachers were prepared to tackle bullying by examining their perceptions of what bullying is and which students were victimized, and what strategies they used to find out about bullying. Chapter 4 investigated whether the classmates of self-reported victims perceived them as victimized. Finally, chapter 5 investigated the extent to which defending relationships co-occurred with friendship and dislike relationships. Table 1.2 shows the details of the four empirical studies.

Table 1.2 Details of the four empirical chapters

Chapter	Research question	Sample	Mean age	Method	Dependent variable
Chapter 2	Are teacher characteristics associated with the number of victims in the classroom?	3,385 Dutch elementary school students and 139 teachers in 146 classrooms	9.8	Poisson regression	Classroom victimization rate
Chapter 3	Are teachers prepared to tackle bullying?	373 Dutch elementary school students and 22 teachers in 18 classrooms	10.7	Mixed-methods	Data of individual teachers and students
Chapter 4	Do classmates of self-reported victims perceive these students as victimized?	2,413 Dutch secondary school students in 115 classrooms	13.3	Three-level logistic regression	Reporter-receiver agreement
Chapter 5	To what extent do defending relationships co-occur with friendship and dislike relationships?	161 Dutch elementary school students in 7 classrooms	9.4	Exponential Random Graph Models (ERGMs)	Defending, friendship, and dislike relationships

Chapter 2

Teacher characteristics and peer victimization in elementary schools: A classroom-level perspective

Abstract

The purpose of this study was to investigate whether there was an association between teacher characteristics and peer victimization in elementary schools. We used data of 3,385 elementary school students (M age=9.8) and 139 of their teachers (M age=43.9) and employed Poisson regression analyses to explain the classroom victimization rate. Results showed a higher victimization rate in the classrooms of teachers who attributed bullying to external factors—factors outside of their control. In addition, the results suggest that both teachers' perceived ability to handle bullying among students and teachers' own bullying history were positively associated with the classroom victimization rate. We also took into account classroom composition characteristics and found lower victimization rates in multi-grade classrooms and in classrooms with older students. The results support the notion of an association between teacher characteristics and peer victimization. Findings are discussed with regards to current literature and suggestions for future research are made.

2.1 Introduction

Classrooms differ from each other in the prevalence of bullying; several studies showed that a considerable amount of the variance in bullying can be attributed to differences between classrooms (Kärnä, Voeten, Poskiparta & Salmivalli, 2010; Khoury-Kassabri, 2011; Salmivalli, 2010). In the present study we examined whether and how teacher characteristics were associated with classroom differences in peer victimization. Teachers are important actors within the classroom context as they spend many hours per day with their students and are responsible for and in control of the events taking place during school hours. Research suggests that teachers also play an important role in preventing and reducing bullying (Kochenderfer-Ladd & Pelletier, 2008; Yoneyama & Naito, 2003), but up till now it has remained unclear how teachers' characteristics relate to the prevalence of peer victimization in their classrooms. In a few studies teachers' attitudes to and perceptions of bullying were examined, but to our knowledge in none of these studies an explicit link with the victimization rates in their classrooms was made. In the present study, we took an explorative stance and examined the relationship between teacher characteristics and the classroom victimization rate in a sample of elementary schools in the Netherlands. More specifically, we focused on teachers' beliefs on the causes of bullying, their self-perceived ability to handle bullying among students, their personal bullying and victimization history, and their teaching experience.

Next to scientific relevance, our study may have practical implications for teachers and anti-bullying interventions. Insights from this study may improve anti-bullying interventions by explicitly taking into account teacher characteristics. Moreover, this study's results may prove useful to teachers themselves in underlining their role in addressing bullying in the classroom.

2.1.1 Teacher characteristics and peer victimization

Teachers' beliefs, perceptions, attitudes, and thoughts affect how they interact with their students (Poulou & Norwich, 2002). We argue that teachers' beliefs on the causes of bullying are likely to affect how they feel about the occurrence of bullying in their classrooms and whether or not they will intervene in bullying episodes among their students. In order to understand why students behave in problematic ways, teachers tend to make inferences on the causes of this behavior (Miller, 1995). In general, teachers may take two broad viewpoints with respect to students' problematic behavior: they either attribute it to factors within teachers' control (i.e., internal causes) or to factors outside teachers' control (i.e., external causes) (Van Hattum, 1997; Weiner, 1980).

Weiner's attribution theory (1980) postulates that individuals' perceptions on the causes of problematic situations determine whether or not they eventually will intervene. We believe that Weiner's theory can be used to shed more light on whether teachers will

intervene in bullying episodes in their classrooms and with how much effort, persistence, and intensity they will do so. We argue that teachers who attribute bullying mostly to external causes—and who thus believe that bullying is caused by factors that cannot easily be influenced by them—will be unlikely to successfully intervene in bullying episodes in their classrooms. Teachers who attribute bullying to external causes are likely to believe that their intervention will not make a large difference, that they do not have much influence on bullying, and that handling bullying is not their responsibility (Van Hattum, 1997). By contrast, teachers who ascribe bullying to internal factors are more likely to perceive the problem as remediable, feel a higher responsibility, and will be more committed to stop the bullying. Consequently, we expected a lower victimization rate in classrooms of teachers who attributed bullying to internal causes than in classrooms of teachers who attributed bullying to external causes.

Next to teachers' causal beliefs, their self-perceived ability to handle bullying among students is likely to affect the prevalence of bullying in their classrooms. Bandura (1982, 1997) argued that individuals' sense of personal efficacy is an important determinant for their thoughts, behavior, and emotions. In line with this, Poulou and Norwich (2002, p. 117) argued that it is essential to take teachers' estimations about their abilities to reach certain outcomes into account when studying their behavior. The extent to which teachers believe they are able to handle bullying among students is likely to affect whether and how teachers will intervene in bullying episodes in their classrooms. In order to effectively prevent and reduce bullying, teachers do not only need to believe that they can affect the bullying, but they also need to feel confident about their ability to do so (Boulton, 1997). Put differently, teachers should believe that their actions can contribute to a better situation in their classrooms and they also need to feel that they are able to take these actions (Stanovich & Jordan, 1998).

Teachers who perceive that they are unable to handle bullying might fail to effectively counteract bullying for two reasons. The first reason is that it indeed could be that they are not skilled and/or experienced enough and that they consequently are not able to intervene effectively. In these cases, teachers' self-perceived abilities accurately reflect their actual abilities. A second reason for why teachers who perceive that they are unable to handle bullying among their students can fail to effectively stop bullying is that their negative self-beliefs keep them from intervening at all. Teachers who believe that they are unable to handle bullying, regardless of whether these beliefs are accurate or not, are less likely to actually intervene (Yoon, 2004). Therefore, we expected a higher victimization rate in classrooms of teachers who perceived that they were unable to handle bullying than in classrooms of teachers who perceived that they were able to handle bullying.

In addition, we argue that teachers who perceive that they are able to handle bullying among their students are more likely to intervene in bullying situations when they attribute bullying to internal causes than when they attribute bullying to external causes. Accordingly, we hypothesized that the negative relationship between internal causal attribution and the classroom victimization rate was stronger for teachers who perceived

that they were able to handle bullying.

A third teacher characteristic that is possibly associated with bullying, but has received scant attention in previous studies, are the teachers' personal history of bullying and victimization. Teachers who have a history of bullying others may have learned that bullying is an effective strategy to become popular (Sijtsema et al., 2009; Veenstra et al., 2007). These teachers have learned to achieve social success via antisocial ways and may continue these status-acquiring strategies in adulthood. Teachers who have a history of bullying others might have permissive attitudes towards bullying and perceive it as something that is part of growing up rather than as harmful behavior. Previous research suggests that when teachers consider bullying as typical childhood behavior without serious ramifications they are less likely to intervene in bullying episodes in their classrooms (Mishna et al., 2005; Sairanen & Pfeffer, 2011). In addition, teachers function as role models for their students (Poulou & Norwich, 2002). Teachers who have permissive attitudes towards bullying—or even give negative verbal and nonverbal reactions to victims—might model negative interactions and set a poor example for their students. Therefore, we expected a higher victimization rate in classrooms of teachers who had a personal history of bullying than in classrooms of teachers who never bullied others.

By contrast, teachers who have a history of being victimized are more likely to perceive bullying as harmful behavior and feel sympathy towards victims. These teachers might be more determined to prevent their students from having similar negative experiences than teachers who were never victimized (Kokko & Pörhölä, 2009). Mishna and colleagues (2005) conducted interviews among 13 teachers who were victimized by their peers as a child and concluded that these teachers felt that this experience made them more sensitive and motivated to recognize and reduce bullying.

Teachers who have a history of victimization might not only be more committed to counteract bullying, they might also be better able to identify it. Bullies often behave strategically and only harass others when teachers are absent, for example after school, or when it is particularly difficult to keep an eye on all students, such as at playgrounds during breaks (Craig & Pepler, 1997). This makes it difficult for teachers to witness bullying. We expect that teachers who have a personal history of being victimized are—because of their own experience as a victim—more aware of the hidden nature of bullying and consequently are more inclined to sense bullying among their students. Therefore, we expected a lower victimization rate in classrooms of teachers who had a history of being victimized than in classrooms of teachers who had never been victimized.

Finally, teachers' work experience might affect the prevalence of bullying in their classrooms (Borg & Falzon, 1990). Van Hattum (1997) argued that teachers who recently started their careers still need to develop a teaching routine and have less experience in handling bullying than teachers who have more teaching experience. She argued that experienced teachers are more likely to have encountered several bullying situations and through the years have learned to effectively react to bullying episodes in their classrooms. However, other scholars have argued the opposite; they argued that there is more bullying

in classrooms of more experienced teachers than in classrooms of less experienced teachers because experienced teachers in general have a stronger tendency to accept students' misbehavior than junior teachers (Borg & Falzon, 1990; Ramasut & Papatheodorou, 1994; Sairanen & Pfeffer, 2011). It seems plausible that more experienced teachers became used to students' problematic behavior, that they perceive it as normal, and therefore feel less inclined to stop this behavior than teachers who just started their careers. In line with this, Boulton (1997) found that teachers who have more teaching experience have less positive attitudes towards victims. Based on these previous studies, the direction of a possible relationship between teachers' work experience and the victimization rate in their classrooms is hard to anticipate. For this reason, no directed hypothesis was formulated.

2.2 Method

2.2.1 Sample and procedure

In the current study, we used the first wave (pre-test) data collected amongst students and teachers who were part of the evaluation of the Dutch version of the KiVa anti-bullying program. The KiVa program is developed in Finland (e.g., Kärnä et al., 2011) and aims to prevent and reduce bullying in elementary schools. KiVa is currently being implemented and tested in several countries, including the Netherlands.

The school year in the Netherlands ranges from the end of August to the beginning of July. In the fall of 2011 all 6,966 regular Dutch elementary schools (Statistics Netherlands, 2012) received an invitation to participate in the KiVa program. The 99 schools that were willing to volunteer were randomly assigned to either the control condition (33 schools, no intervention) or to one of the two intervention conditions (i.e., 34 schools KiVa intervention and 32 schools KiVa + intervention).

Students of both control and intervention schools filled in web-based questionnaires in their schools' computer labs during regular school hours prior to the implementation of the KiVa intervention in May 2012. Before the actual data collection, the questionnaire was tested in a pilot study in order to make sure that the students would understand all of the questions. Classroom teachers distributed individual passwords to their students, which could be used to access the questionnaire. Students read all questions by themselves; difficult topics were explained in instructional videos. In these videos a professional actress explained the questions in such a way that all students would understand them (e.g., by talking slowly and articulating words clearly). Classroom teachers were present to answer questions and to assist students when necessary. Teachers were supplied with detailed instructions before the data collection started and were encouraged to help students in such a way that it would not affect their answers (e.g., by asking them questions such as "Which words are unclear to you?"). The order of questions and scales was randomized to assure that this would not influence the results.

Schools sent permission forms to students' parents before data were collected. Parents who wished to keep their children from participating were requested to return the form to the school. Students who did not receive parental permission, or did not want to participate, or who were unable to fill in the questionnaire did not participate (1.5%). The main reason for this high response rate was due to the data being collected online and teachers' involvement in monitoring their students' participation. Moreover, students who were not present during the scheduled day of data collection could participate at any other point in time that suited the school within a month.

The target groups for data collection were students in grades 2-5 of Dutch elementary schools (age: 7-10). However, a substantial part of the classrooms in our data contained more than one grade. In order to collect data of complete classrooms, students in grades 1 and 6 of these classrooms filled in the questionnaire as well. In total 9,403 students (grades 1-6) in 462 classrooms of 99 schools participated in the first wave of data collection. About 0.3% of the participating students were in grade 1, 23.9% in grade 2, 25.3% in grade 3, 24.8% in grade 4, 24.7% in grade 5, and 0.9% in grade 6.

The student data were matched with data collected among the students' teachers. Teachers of intervention schools were invited to a training session. During the first day of the training session they filled out a short paper/pencil questionnaire. 201 questionnaires were filled out in total, 169 of which were filled out by teachers. The remaining 32 questionnaires belonged to school personnel that did not teach (e.g., school counselors) and were not used in the analyses. The response rate of the teachers was 91.4%: of the 185 teachers who attended the training 169 filled out a questionnaire. The questions were answered prior to the intervention and before the actual training session started in order to assure that the new knowledge would not affect the answers. Data of 159 teachers could be successfully matched with student data. The remaining ten teachers taught in grades where no data were collected in the school year between 2011 and 2012.

In the combined sample, 20 classrooms had two teachers. This means that 40 teachers shared a classroom. We handled this cross-nesting by randomly deleting one teacher per pair. To ensure that this selection did not lead to biased results, two datasets were constructed from one half of each paired teacher. Both datasets were analyzed, but no substantive differences in the results were found. In one classroom there were three teachers. This classroom was not included in the analyses.

The final dataset contained data from two sources (3,385 students and 139 teachers) and consisted of 146 observations (i.e., classrooms). The mean classroom size was 23.2 students (*SD*=5.8, range 9-42) and about 33.6% of the classrooms were containing students of more than one grade. As to be expected, most teachers (120 out of 139) were female and native Dutch (only 4 had a non-Dutch ethnic background). Teachers varied strongly in age, ranging from 25 to 63 years. The mean age was 43.9 (*SD*=11.9).

Schools from all of the Dutch provinces were represented in our sample, from rural to suburban and urban areas. There were, however, relatively more schools from the northern provinces, of which 48.4% were located in either Groningen or Friesland. This

over-representation of Northern schools is most likely due to the fact that the Dutch version of the KiVa anti-bullying program is implemented and tested by the University of Groningen, the largest city in the North of the Netherlands. About 45.7% of the schools in our sample had a Christian background, 54.3% offered non-religious education. In the Netherlands 62% of the schools have a Christian denomination (Statistics Netherlands, 2012). The mean number of students per school in our sample was 215.2 (*SD*=172.9), which is close to the mean number of students in Dutch elementary schools of 218 (Statistics Netherlands, 2012).

In the sample with both teachers and students the percentage of students who were bullied at least twice a month was 31.8%. This is slightly higher than the 28% of bullied students (ages 8-12) found by Zeijl et al. (2005, p.42). However, a recent study (Verlinden et al., 2014) among elementary school students in grades 1-2 suggested a slightly higher prevalence of victimization (38.7% was bullied verbally, 39.1% physically and 38.5% was bullied in a relational way). When interpreting the results, it should be kept in mind that it is plausible that schools with a higher prevalence of bullying were more interested in participating in the study than schools with a lower prevalence.

2.2.2 Measurements

2.2.2.1 Response variable
The global victimization item of the Revised Olweus Bully/Victim questionnaire (Olweus, 1996) was used to measure how often students were victimized. Before the participating students answered questions, they watched an instructional video in which was explained what bullying is (see Appendix A for a transcript). In the video, the systematic and intentional nature of bullying was emphasized (Olweus, 1993). Moreover, it was explained—in line with Olweus' (1993) definition of bullying—that for children who are bullied it is difficult to defend themselves. In the video students were told that bullying is something that occurs between two children and not between, for example, a teacher and a student. Directly after watching the instructional video students read and answered the following question: "Now that you know what bullying is, how often have you been bullied since Christmas?" (0=it did not happen; 1=once or twice; 2=two or three times a month; 3=about once a week; 4=several times per week).

In line with earlier studies, students were defined as victims when they indicated that they were being victimized at least twice a month by their peers (Solberg & Olweus, 2003). Based on this cut-off, a count variable that reflected the number of victims per classroom was constructed. In larger classrooms there is a higher chance to observe victims and the number of students per classroom was used as an offset to account for these opportunity differences, transforming our response variable into the classroom victimization rate. In the analyses section we elaborate on how the classroom victimization rate was modeled.

The participating students filled out the questionnaire in May 2012, which implies

that they evaluated how often they were bullied in the period from December 2011 to May 2012. In the original Revised Olweus bully/victim questionnaire (1996) the evaluated period is two months. We expected, especially for younger students, that it would be easier to evaluate a period in which an important event (i.e., Christmas) happened than to evaluate a rather abstract period of 2 months. Although the evaluated period was doubled in our study, it seems unlikely that this adjustment has influenced its comparability to other studies, because the answer categories did not change. The length of the evaluation period should not have an impact on the answers from students who were victimized at least two or three times a month (two or higher). It is possible that students who answered that they were never victimized (0) in a 2 month period, would indicate that they were victimized once or twice (1) when a larger time frame was used. However, according to the definition of bullying, students in neither of these categories (0 and 1) are considered victims (Solberg & Olweus, 2003).

2.2.2.2 Explanatory variables

Van Hattum's internal and external causal attribution items (1997) were used to assess teachers' beliefs about the causes of bullying. Items were slightly modified so that they would fit the present context better (see Appendix B for an overview of the items). An exploratory factor analysis (PCA) showed two main dimensions explaining 41% of the variance. Items were assigned to the two scales based on factor loadings larger than 0.4 (after Varimax rotation with Kaiser normalization), which can be interpreted as internal and external causal attribution. These scales can be considered approximations of the scales proposed by Van Hattum, who distinguished several subscales aided by a larger sample size. Three items could not be assigned to either of the dimensions (not presented in Appendix 1).

The internal causal attribution scale consists of 13 items such as "Bullying is caused by teachers who are not able to recognize problems at an early stage". Teachers could answer with strongly disagree (1), disagree (2), neutral (3), agree (4), or strongly agree (5). The 13 items formed a reliable scale (α=0.90) and a mean score was calculated when at least eight items were completed. The external causal attribution scale consists of ten items such as "Bullying occurs because the victim is too silent and socially withdrawn". The external attribution items formed a reliable scale as well (α=0.84) and a mean score was calculated following the same procedure as the internal causal attribution scale. For the regression analyses, scores on both scales were centered around their means. Four teachers responded to less than eight of the internal and external causal attribution questions and were deleted from further analyses.

Teachers' self-perceived ability to handle bullying among students was assessed by asking teachers to what extent they believed that they could influence bullying in their classrooms and schools (Van Hattum, 1997). Teachers indicated, for example, how easy or difficult they thought it would be for them to influence the behavior of bullies. Answers were given on a 5-point scale, ranging from very difficult (1) to very easy (5). The seven

items formed a reliable scale (α=0.77). See Appendix C for an overview of the items. Similarly to the internal and external causal attribution scales, this scale was centered around its mean. Two teachers did not answer to any of the questions on self-perceived ability to handle bullying and these teachers—who also did not answer the questions about causal attribution—were deleted from the analyses.

Furthermore, teachers were asked whether they bullied others or were victimized during elementary school, during secondary school, and after secondary school. They could answer "no", "a bit" or "yes". Two variables reflecting teachers' personal bullying and victimization history were constructed, one indicating whether teachers ever bullied others and one indicating whether teachers were ever victimized (0=no; 1=yes). The "a bit" category was recoded as "yes". Lastly, teachers' years of work experience was included as an explanatory variable in the analyses. This variable was centered around its mean.

2.2.2.3 Control variables

In the analyses we controlled for teachers' gender (male=1). We also controlled for whether classrooms were multi-grade classrooms or not. In Dutch elementary schools it is not uncommon that two or three grades are combined in one classroom. This can be either because the school has too few students for separate classrooms per grade or because of didactical principles (e.g., the older students will help the younger students). We constructed a binary variable that indicated whether a classroom consisted of two or more grades. In addition, we controlled for the mean age in the classroom because students' self-reported victimization has been shown to decline with age (Salmivalli, 2002). This variable was centered around 10, the rounded mean age.

Previous research in the Netherlands suggested that there is more bullying in classrooms with a greater ethnic diversity (Tolsma et al., 2013) and therefore we included the proportion of non-Dutch students per classroom as a control variable in the analyses. Students were considered non-Dutch when they had at least one parent who was born abroad. Lastly, we controlled for the proportion of boys per classroom, because boys have been shown to bully more frequently than girls (Veenstra et al., 2005). The constructed variable indicated the majority proportion of boys in each classroom (i.e., the deviation from 50%).

2.2.3 Analyses

Poisson regression models were used because of the discrete non-negative character of the response variable (see, e.g., Cameron & Trivedi, 2013). In larger classrooms there is a higher likelihood to observe victims than in smaller classrooms. Classroom size was used as an offset to account for these opportunity differences (see, e.g., Long & Freese, 2006). Put differently, we modeled the classroom victim rate, where the (exponents of) regression coefficients multiply the rate. The Poisson package of Stata 12 was used to estimate the

models.

We tested two models: one model with all main effects simultaneously and one model in which an interaction term between internal causal attribution and self-perceived ability to handle bullying was added. In addition to testing the hypothesized effects, we investigated the robustness of the results by exploring other interaction effects and identifying influential and outlying observations. Ordinary Least Squares (OLS) regression models on the logarithm of the classroom victimization rate (i.e., the normal linear analogon of the Poisson outcome variable) were estimated in order to obtain a goodness of fit measure and to compare the results of both regression models qualitatively. As expected, Poisson regression analyses produced smaller standard errors and were therefore considered to give more precise estimates.

We compared the obtained results with a multilevel Poisson regression model with classrooms nested in schools in order to account for possible between school variance. The results, however, showed no substantive differences between schools. Likewise, we estimated a multilevel Poisson regression model with classrooms nested in teachers. This model did not produce different parameter estimates either.

2.3 Results

2.3.1 Descriptive statistics and correlations

About 39.8% of the students in our sample were not victimized in the period Christmas 2011-May 2012, 28.4% were victimized once or twice, 9.3% were victimized two or three times a month, 7.5% were victimized once a week, and 15% were victimized several times a week. According to the definitions of Solberg and Olweus (2003) 31.8% of the students in our sample can be considered victims, because they were victimized at least twice a month. In Figure 2.1 the distribution of the number of victims per classroom is displayed. As Figure 2.1 shows, in almost all classrooms at least one student was victimized and in only two classrooms there were no victimized students at all. The median was 6.5 victims per classroom. Three classrooms contained 16 victimized students.

Figure 2.1 Distribution of number of victims per classroom
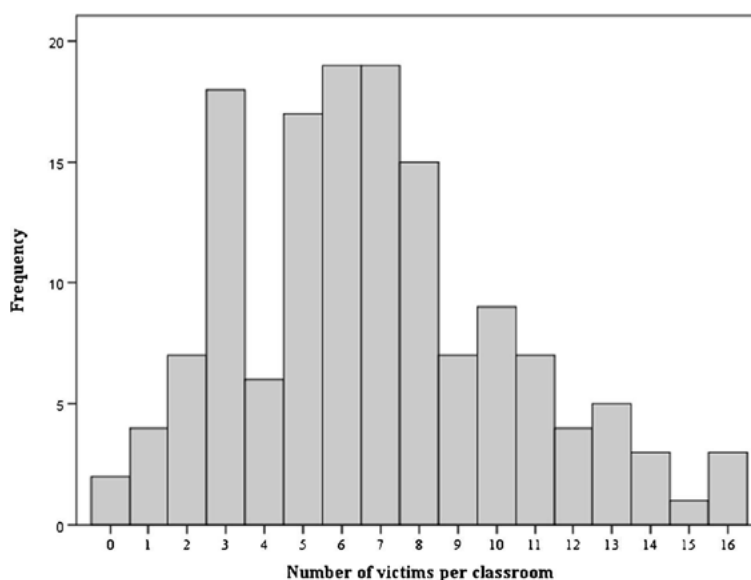
Table 2.1 summarizes the range, means, standard deviations, and correlations of all continuous study variables. Teachers turned out to have widely ranging ideas about whether, and to what extent, internal and external factors cause bullying. They attributed bullying slightly more to external causes than to internal causes. From Table 2.1 we conclude that teachers in general had neutral perceptions towards their ability to handle bullying. Their mean score on the 5-point scale was 3.05 (*SD*=0.46). About 25% of the teachers in the sample had a personal history of bullying, 38% indicated that they had been victimized, and 14% reported that they had a history of both bullying and victimization (not shown in Table 2.1). The teachers in the sample were experienced. The mean number of years of experience was 16.8 years (*SD*=11.2).

Table 2.1 shows, as expected, a higher prevalence of peer victimization in classrooms with more students. The other correlations between the number of victims and the continuous explanatory variables were rather weak, which also holds true for the association between these variables and the (log of the) classroom victimization rate (not shown here).

Table 2.1 Descriptive statistics and correlations of the continuous study variables (*N*=146)

	Range	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Number of victims in classroom	0-16	6.82	3.53	-	0.01	0.06	0.01	-0.04	-0.27***	0.15	-0.05	0.41***
2. Internal causal attribution teacher [a]	1.15-4.08	2.76	0.69		-	0.18*	-0.20*	-0.07	0.04	-0.13	0.09	-0.03
3. External causal attribution teacher [a]	1.20-4.20	2.91	0.58			-	0.05	0.14	-0.08	-0.10	0.00	-0.17*
4. Teachers' self-perceived ability to handle bullying [b]	2.00-4.43	3.05	0.46				-	0.06	-0.05	0.11	0.02	-0.11
5. Teaching experience in years	2.75-39.00	16.77	11.21					-	0.00	-0.16	-0.06	0.06
6. Mean age in classroom in years	7.62-11.91	9.83	1.12						-	-0.10	-0.12	0.05
7. Proportion non-Dutch in classroom	0-1	0.23	0.24							-	-0.04	-0.05
8. Proportion boys in classroom	0-1	0.50	0.10								-	0.04
9. Number of students in classroom	9-42	23.18	5.83									-

Notes. [a] $N=142$; [b] $N=144$; *$p<0.05$; ***$p<0.001$

2.3.2 Poisson regression analyses

In Model 1 in Table 2.2, the parameter estimates of the Poisson regression analysis of the model containing parameters for all variables (centered where applicable) are displayed. Four classrooms had missing values on at least one of the explanatory variables (see Table 2.1) and were deleted listwise. The parameter estimates in Table 2.2 are based on analyses in which three classrooms that were outliers in the Poisson regression analysis were removed. Two of these outliers were the afore mentioned classrooms with no victimized students at all. The other outlying classroom had an extremely high prevalence of peer victimization: 15 out of 21 students were victimized. The model in which all classrooms (including the three outliers) were included resulted in lower estimates of the effects of external causal attribution and self-perceived ability to handle bullying among students.

The intercept of Model 1 in Table 2.2 represents the mean log of the classroom victimization rate (for all other variables equal to zero, i.e., female teachers with mean scale scores and no personal history of bullying or victimization in classrooms with no non-Dutch students, half of whom were boys, with the mean classroom age equal to 10). The intercept can be interpreted as a base classroom victimization rate equal to exp(-1.25)=0.29. Table 2.2 shows no significant relationship between teachers' internal causal attribution and the classroom victimization rate, but supports a relationship between external causal attribution and the classroom victimization rate ($exp(b)$=1.17, p=0.009). As expected, the victimization rate is higher when teachers attributed bullying to external causes—causes outside of their control. We expected less peer victimization when teachers perceived that they were able to handle bullying among students, but found a marginally significant relationship in the opposite direction instead ($exp(b)$=1.14, p=0.08). We also tested whether there was more peer victimization in classrooms of teachers who had a personal history of bullying peers. This relationship turned out to be marginally significant in the expected direction ($exp(b)$=1.15, p=0.08). By contrast, no significant relationship between teachers' victimization history and the victimization in their classrooms was found. Furthermore, we tested whether teachers' work experience affected the classroom victimization rate, but the negative effect was too small to be significant.

In the analyses we controlled for teachers' gender, but found no significant difference in the victimization in classrooms of male and female teachers. In addition, we controlled for classroom composition characteristics. Less peer victimization was found in multi-grade classrooms than in classrooms with one grade only ($exp(b)$=0.72, p<0.001). In line with previous research, we found less peer victimization among older students ($exp(b)$=0.89, p<0.001). Furthermore, the model suggested a higher victimization rate in classrooms with a higher proportion of non-Dutch students ($exp(b)$=1.28, p=0.07). With the normal equivalent of the Poisson model we calculated the explained variance of Model 1 and concluded that the model explained 30% of the total variance in the log of the classroom victimization rate, of which 10% could be attributed to teacher characteristics.

In Model 2 we added an interaction term to the model in order to test whether the

relationship between internal causal attribution and the classroom victimization rate was stronger when teachers' self-perceived ability to handle bullying increased. Both the interaction term and the main effects were not significant and adding the interaction did not improve the model. Even though the non-significance of the interaction indicates that there is a non-trivial probability that there is no true relation between these variables in the population, adding it to the model possibly shed a bit more light on why the main effects of both internal causal attribution and self-perceived ability to handle bullying were in different directions than anticipated. A tentative interpretation of the interaction would be that the positive relation between internal causal attribution and the victimization rate vanishes or even becomes negative when self-perceived ability to handle bullying is (very) high.

2.3.3 Additional analyses

Based on the Mahalanobis distance, and Cook's distance in a matching normal regression model (see, Gnanadesikan & Kettenring, 1972), three outlying classrooms were identified in addition to the three afore mentioned classrooms that were excluded. These classrooms either consisted of only Dutch students or no Dutch students at all. Because excluding these outliers only led to a reduced effect of teachers' personal bullying history, and a slightly higher effect of proportion of non-Dutch students, these classrooms were not excluded from the main analyses as presented in Table 2.2.

When we further investigated the effect of the proportion of non-Dutch students we discovered that its positive association with peer victimization was due to the relatively large number of classrooms with a considerable, although smaller than 0.50, proportion of non-Dutch students. Although the victimization rate was higher in the 16 classrooms with more than 0.50 non-Dutch students, this association was not found to be positive but slightly negative. In view of the small number of classrooms in which more than half of the students had a non-Dutch background and the overall weak association, it was impossible to incorporate this effect in the final model. However, the positive parameter in Table 2.2 can be better understood through this additional analysis.

Visual inspection suggested a curvilinear relationship between the victimization rate and the mean classroom age and for this reason a quadratic effect of the mean classroom age was added to the model. Although the regression parameter of this quadratic effect was significant, further analysis of the non-linear effect revealed that this effect was driven by a few lower grade classrooms with low victimization rates, including one particularly strong influential classroom. Therefore, the effect was not included in the final model.

Furthermore, we checked whether the investigated variables had a differential effect on peer victimization in classrooms of teachers with a history of bullying or victimization. Teachers who bullied others are likely to have permissive attitudes towards bullying whereas teachers who were bullied are likely to be determined to stop bullying. It may be

that the relationships between the investigated variables and the victimization rate are affected by the teachers' personal bullying and victimization history. The quadratic effect of the mean age in the classroom showed a small significant interaction with teachers' victimization history, but for the same reason as for its main effect, the interaction was not included in the model. No other significant differential effects were found.

Finally, we investigated whether exclusion of students who were victimized by children who were not in the same school as them produced different parameter estimates. When teachers do not know the bullies, it possibly becomes more difficult for them to effectively intervene. By excluding victims who were bullied outside of school, the mean number of victims per classroom decreased by one. No substantive differences in the results were found; some effects were slightly weaker due to the decreased victimization rate.

Table 2.2 Estimated Poisson regression coefficients for classroom victimization rate (N=139)

Parameters	Model 1			Model 2		
	Coefficient	SE	z value	Coefficient	SE	z value
Intercept	-1.250	0.058	-21.6	-1.242	0.058	-21.5
Internal causal attribution teacher [a]	0.038	0.050	0.76	0.041	0.050	0.81
External causal attribution teacher [a]	0.159**	0.061	2.62	0.164**	0.061	2.68
Teachers' self-perceived ability to handle bullying [a]	0.132+	0.076	1.73	0.122	0.077	1.58
Teacher bully (Bully=1)	0.137+	0.078	1.77	0.139+	0.077	1.79
Teacher victim (Victimized=1)	0.009	0.071	0.13	0.004	0.071	0.06
Teaching experience in years [a]	-0.005	0.003	-1.49	-0.005	0.003	-1.45
Gender teacher (Male=1)	0.015	0.099	0.16	0.022	0.099	0.23
Multi-grade classroom (Multi-grade classroom=1)	-0.322***	0.077	-4.19	-0.328***	0.077	-4.24
Mean age in classroom in years [b]	-0.113***	0.031	-3.68	-0.114***	0.031	-3.68
Proportion non-Dutch in classroom	0.249+	0.134	1.85	0.222	0.139	1.60
Proportion boys in classroom [c]	-0.222	0.334	-0.67	-0.186	0.338	-0.55
Internal causal attribution*self-perceived ability to handle bullying				-0.079	0.111	-0.71

Notes. Number of students is used as offset; +p<0.10; **p<0.01; ***p<0.001; decrease in deviance in Model 1 compared to empty model 56.2 (df=11), p<.001, Model 2 compared to empty model 56.9 (df=12), p<.001; [a] variable centered around the mean over classrooms, [b] variable centered around age 10, [c] percentage in deviation to 0.50

2.4 Discussion

Using both teacher and student data, we explored to what extent teachers' characteristics were related to the peer victimization in their classrooms. Previous research showed that classrooms differ in the prevalence of peer victimization (Kärnä et al., 2010; Khoury-Kassabri, 2011; Salmivalli, 2010) and we examined whether these differences might be attributable to teacher characteristics. On the basis of our results, we concluded that classrooms indeed differed in the prevalence of victimization and that these differences are associated with teacher characteristics.

As expected, we found a higher victimization rate in classrooms of teachers who believed that bullying could be attributed to external factors—factors outside of their control. We argued that teachers who ascribe bullying strongly to external causes feel little personal responsibility to stop the bullying and believe that they do not have much influence over it. Consequently these teachers are likely to be less motivated and committed to counteract bullying than teachers who attribute bullying less strongly to external causes (Van Hattum, 1997; Weiner, 1980). However, a tentative alternate explanation is that in classrooms with a high prevalence of peer victimization, teachers tended to ascribe bullying more often to external factors than in classrooms with a low prevalence of peer victimization. Research has shown that individuals have a self-serving bias in the causal attribution process; they tend to accept responsibility for positive outcomes, but reject responsibility for negative outcomes (Bradley, 1978). Teachers who fail to handle the bullying in their classrooms might deal with this failure by telling themselves that the problem is caused by external causes. With the current data it is not possible to disentangle the causal direction of this relationship and this would therefore be an important topic for future research.

The results suggest that there is more peer victimization in classrooms of teachers who perceived that they were able to handle bullying among students. We, however, anticipated a relationship in the opposite direction. We assumed that teachers who felt confident about their abilities to counteract bullying could indeed be more skilled and, in addition, would be more likely to actually intervene in bullying incidents (Van Hattum, 1997). Our findings potentially suggest that when teachers strongly believe they are able to handle the bullying in their classrooms they tend to overestimate their own capacities and underestimate the complicated nature of bullying. Teachers who indicated that they found it very easy to affect the behavior of their students might not have a clear understanding what bullying is (Boulton, 1997). This would be in accordance with previous studies in which it was shown that teachers tended to believe that they intervened in nearly all incidents of bullying, while students' reports showed that teachers only intervened in a small proportion of the bullying incidents in their classrooms (Atlas & Pepler, 1998; Craig et al., 2000; Craig & Pepler, 1997). An alternative explanation is that students may feel free to report more victimization in classrooms led by teachers who feel capable of handling the bullying.

We argued that the negative relationship between internal causal attribution and peer victimization was stronger for teachers who perceived that they were able to handle bullying, but did not find support for this hypothesis. Nevertheless, by including this interaction in the model we potentially shed a bit more light on why the effects of internal

causal attribution and self-perceived ability to handle bullying were in different directions than anticipated. Our results could imply that when teachers score high on both internal causal attribution and self-perceived ability to handle bullying there was less peer victimization in their classrooms. Again, caution is needed when interpreting these results and we believe the interrelatedness of internal causal attribution and self-perceived ability to handle bullying is an important topic for future research.

Our results also suggest that when teachers had a personal history of bullying others, there was more victimization in their classrooms. A possible explanation for this positive relationship is that teachers who bullied others around them have more permissive attitudes towards bullying and do not perceive it as harmful behavior (Mishna et al., 2005; Sairanen & Pfeffer, 2011). Furthermore, teachers who have a history of bullying might model negative interactions among their students. We think that this relationship deserves further investigation in future research.

We anticipated less peer victimization in classrooms of teachers who had a history of being victimized, but did not find support for this relationship. A possible explanation for why no relationship was found could be that some teachers still suffer negative consequences from being victimized in the past which prevented them from intervening successfully in bullying episodes in their classrooms. Victimization constitutes a substantial threat to individuals' social-emotional development (Isaacs et al., 2008; Scholte et al., 2007) and it could be that although teachers who have a history of victimization are highly motivated to stop the bullying in their classrooms, they lack the skills that are needed to effectively do so. We attempted to test this explanation by investigating whether self-perceived ability to handle bullying moderated the relationship between teachers' history of victimization and the peer victimization in their classrooms, but we did not find support for such a relationship.

No association between peer victimization and teachers' experience and gender was found. The results seem to imply that the teachers' attitudes or beliefs, rather than fixed characteristics, were related to the victimization in their classrooms. Based on these findings, we agree with Hektner and Swenson (2011) who argued that teachers should not only be seen as implementers of anti-bullying interventions, but as targets of intervention as well. In order to tackle bullying effectively, teachers need to have a clear understanding of what bullying is and what the causes of bullying are. In accordance with Baumann and Del Rio (2005) we argue that teachers should be aware of their responsibility to intervene and should receive guidance on how and when they can effectively intervene. Above all, it is important that teachers understand that when they do not intervene or intervene inadequately they could make the situation worse (Kochenderfer-Ladd & Pelletier, 2008; Kokko & Pörhölä, 2009).

In this study we took into account classroom composition characteristics as well. We found less peer victimization in multi-grade classrooms. One possible explanation for the relationship between multi-grade classrooms and victimization is that the mix of younger and older students leads to a classroom environment with different interaction patterns, due to the differences in age, in which students did not need to compete with each other. Once this relationship is better understood, it may help to design or refine anti-bullying interventions.

When drawing conclusions on how teacher characteristics relate to peer victimization, it should be kept in mind that teachers are probably not randomly distributed over classrooms. It seems plausible that the school management prefers to assign difficult classrooms to better teachers. By contrast, teachers who are less skilled or experienced might be placed in classrooms with less problematic behavior. Thus, in the present paper some effects may have been underestimated. As the sample is essentially self-selected, other sources of bias cannot be excluded. It is, for example, possible that schools that participated in our study were more motivated to stop bullying or were having a higher prevalence of bullying than non-participating schools.

The use of cross-sectional data implies that no conclusions on causal directions of relations can be drawn. Some teacher characteristics could be a function of victimization, rather than the other way around. This concern seems particularly relevant for the relationships with external causal attribution and teachers' perceived ability to handle bullying. For teachers' personal history of bullying, reversed causality seems less plausible.

Despite its limitations, the present study provided more insight into how teacher characteristics relate to peer victimization. This knowledge is valuable because classrooms are one of the most salient social contexts in childhood and adolescence (Bronfenbrenner, 1977). Students spend a considerable amount of time in classrooms and, as is confirmed in the data, classrooms where no students are victimized are rare. Although the found relationships are modest and previous research showed that peer victimization can to a large extent be explained by relational, individual, and other contextual characteristics (Dijkstra, Lindenberg & Veenstra, 2008; Espelage & Swearer, 2004; Pozzoli, Ginig & Vieno, 2012), the findings do point out the need to consider teacher characteristics in anti-bullying interventions as well.

2.5 Appendix chapter 2

2.5.1 Appendix A transcription of instructional video

"The next questions are about bullying. Bullying is when one or more children bother another child over and over again. So bullying means that you are again and again being mean to someone. For the child that is bullied, it is hard to defend him or herself. Bullying can be done in several ways. For example, by hitting someone, or by kicking or pinching, taking away someone's stuff or breaking it, calling names, or saying mean things, gossiping, excluding someone from games or other things you do together. Bullying can also be done via a computer or mobile phone, via MSN, sms or via social media such as Hyves. Bullying is not the same as a fight between children who have the same strength. Bullying is also not teasing. Bullying is when you are over and over again being mean to someone else."

2.5.2 Appendix B internal and external causal attribution items

When students are bullied at school this is often due to:

1. *The teacher is not able to recognize problems at an early stage
2. **The victim just makes a wrong comment
3. *The teacher does not ask enough help of colleagues to solve the problem together
4. **The victim provokes the bullying
5. *The teacher does not notice that there are socio-emotional problems
6. *The teacher does not like the victim and is showing this indirectly
7. *The teacher prefers to focus on the cognitive development of students
8. *The teacher does not have enough time to prevent and reduce bullying
9. *The teacher often has more important matters that need his or her attention
10. *The teacher does not want to spend time to try and tackle bullying
11. **Parents did not teach victims to defend themselves
12. *The teacher does not have enough skills to handle socio-emotional problems
13. **The victim does not react adequately to the behavior of his/her peers
14. *There is no structural way of handling bullying within the school
15. **Parents never taught the bully how to take others' feelings into account
16. *The school does not keep in touch with parents enough
17. **The bully has a difficult family background
18. **The victim is too silent and socially withdrawn
19. **The combination of students in the group did not work out well
20. **The victim cannot handle the comment of a classmate and then the situation escalates
21. *The teacher does not take a firm stance against bullying
22. **The victim happens to be at the wrong place at the wrong time
23. *The team of teachers attaches too little attention to the pedagogical climate within the school

* Internal causal attribution scale items
** External causal attribution scale items

2.5.3 Appendix C teachers' self-perceived ability to handle bullying

Please indicate to what extent the following things are easy or difficult to influence for you:

1. The behavior of children in general
2. The behavior of the bully
3. The behavior of the victim
4. Bullying within the classroom
5. Bullying within the school
6. How students interact with each other in the classroom
7. How students interact with each other at school

Chapter 3

Are elementary school teachers prepared to tackle bullying? A pilot study

Abstract

The aim of this pilot study was to investigate to what extent elementary school teachers were prepared to tackle bullying. Interview data from 22 Dutch elementary school teachers (*M* age=43.3, 18 classrooms in eight schools) were combined with survey data from 373 students of these teachers (*M* age=10.7, grades 3-6, ages 8 to 12 years old, 52.2% boys). The teachers in this study gave incomplete definitions of bullying, had limited strategies to find out about bullying, and did not recognize the self-reported victims in their classroom, suggesting that even though teachers are supposed to have a central role in tackling bullying, they may not be fully prepared for this task. Implications for future research are discussed.

3.1 Introduction

Tackling bullying is a difficult task (Merrell, Gueldner, Ross, & Isava, 2008; Smith, Schneider, Smith, & Ananiadou, 2004) and it is unclear whether teachers are fully prepared for this task. The aim of this pilot study was to investigate to what extent elementary school teachers were prepared to tackle bullying, possibly paving the way for future research on this topic. We argue that at least three conditions have to be met before teachers can successfully intervene in bullying situations in their classroom: First, teachers need to know what bullying is; second, they need to gather information about the bullying among their students; and third, they need to recognize that certain students are being victimized.

3.1.1 Teachers' definitions of bullying

Bauman and Del Rio (2005) argued that the education and training of teachers should begin with a clear definition of bullying to prepare them for their job. School bullying is commonly defined as systematic and intentional behavior directed towards students who find it difficult to defend themselves (Olweus, 1993). Furthermore, scholars agree that bullying can manifest itself in different forms. These core elements (i.e. systematic, intentional, power difference, and different forms) distinguish bullying from other negative social interactions such as teasing or fighting.

   Nearly all previous studies investigating elementary school teachers' definitions of bullying focused on the different forms in which bullying can manifest itself. These studies found that teachers are less likely to perceive indirect forms of bullying (e.g., relational bullying such as gossiping) than direct forms (e.g., physical bullying such as hitting or kicking) as bullying (Asimopoulos et al., 2014; Boulton, 1997). The Bauman and Del Rio (2005) study comes closest to investigating to what extent elementary school teachers' definitions of bullying include the four core elements. These researchers investigated 83 trainee teachers and concluded that the majority of these trainee teachers did not have a clear understanding of the definition of bullying.

3.1.2 Teachers' strategies to find out about bullying

To our knowledge, no studies explicitly investigated how teachers find out about bullying among their students. It is plausible that teachers obtain this information either by directly observing bullying behavior or by receiving information from others (e.g., students, parents, or colleagues). Studies on school bullying suggest that it is difficult for teachers to directly observe bullying because it tends to occur when teachers are not present or when it is difficult to keep an eye on all students (Craig, Pepler, & Atlas, 2000; Fekkes, Pijpers, & Verloove-Vanhorick, 2005). Moreover, obtaining information from the students that were involved in bullying may also be challenging. Victims of bullying are often reluctant to inform their teachers because they feel ashamed, are afraid of potential reprisals from the bullies, or fear their reports might be dismissed as non-credible (Novick & Isaacs, 2010;

Whitney & Smith, 1993). Likewise, students who witnessed bullying may not inform their teachers because they fear reprisals from the bullies or other classmates if they do so.

3.1.3 Teachers' perceptions of the prevalence of bullying

Even if teachers know what bullying is and have information about what is going on in their classroom, they may still interpret it as playing or other innocent childhood behavior (Mishna & Alaggia, 2005). Previous studies investigated teachers' perceptions on the prevalence of bullying by comparing teachers' and students' reports on the general prevalence of victimization in the classroom. These studies found that these reports differed substantially from each other. For instance, Craig, Henderson, and Murphy (2000) found that whereas teachers believed that they were sufficiently aware of the bullying in their classroom their students thought teachers were only aware of a fraction of all the incidents of bullying.

We argue that studies investigating teachers' perceptions on the prevalence of bullying should not only focus on the general prevalence of victimization but also on the victimization of individual students. It is important to know whether teachers perceive students who were victimized as victims, because when teachers do not perceive these students as being victimized, it is unlikely that they will intervene and help them.

3.2 Method

3.2.1 Data collection

Interview data of Dutch elementary school teachers were combined with survey data of students of these teachers. The data were part of a larger ongoing project aiming to evaluate the effectiveness of the Dutch version of the KiVa anti-bullying program (for a detailed overview of the KiVa program see Kärnä et al., 2011). In the fall of 2011, Dutch elementary schools received an invitation to participate in the KiVa program. In the following school year (starting in August 2012) 66 schools implemented the program.

3.2.1.1 Structured face-to-face interviews with teachers
Dutch elementary school classrooms usually consist of a constant group of 20 to 30 students and one or two classroom teachers who teach (almost) all subjects. In November 2013, teachers of 15 KiVa schools in the three Northern provinces of the Netherlands (i.e., Groningen, Drenthe, and Friesland) were approached for face-to-face interviews. Northern schools were approached because of their proximity to the university. A trained research assistant conducted interviews with 24 teachers (8 schools) of the 34 invited teachers. Consistent with previous research (e.g., Boulton, 1997), teachers' heavy workloads was mentioned as the main reason for not participating.

Before the teachers were interviewed, the interview procedure was tested in a pilot interview. Based on this pilot interview the formulation of some questions was adjusted.

Teachers were assured that their answers would be treated confidentially. All teachers agreed to having their interviews recorded. The length of the interviews ranged from 22 to 50 minutes (*M* length=32, *SD*=6.8). Two of the twenty-four interviews were excluded from the study due to a technical problem that made the audio recordings not usable.

3.2.1.2 Student survey data

All student data reported in this study were collected in KiVa schools in October 2013. The students filled in web-based questionnaires in their schools' computer labs during regular school hours. The questionnaire was tested in order to make sure that the students would understand the questions. Schools sent a letter with information about the study's aims and procedures to students' parents before the data were collected. Parents who did not want their children to participate were requested to return a form to the research team. Students who wished to do so could opt out at any point in time.

3.2.2 Participants

The combined dataset contained data of 22 Dutch elementary school teachers (*M* age=43.3, 18 classrooms in 8 schools) and data of 373 students of these teachers (*M* age=10.7, grades 3-6, 52.2% boys). Two students did not fill in the questionnaire.

Consistent with the fact that most elementary school teachers in the Netherlands are women, the majority of the teachers were female (17 teachers). Age ranged from 24 to 62 years (*M*=43.3, *SD*=14), teaching experience ranged from 2 to 42 years (*M*=18.5, *SD*=12.6). Most Dutch teachers work part-time. In line with this, teachers in the sample worked a mean number of 3 days (*SD*=0.90) per week, implying that there was a teaching partner in nearly every classroom. Only one teacher indicated she worked full-time and had no teaching partner. The data contained four pairs of teachers (i.e., eight individual teachers) who taught in the same classroom.

The students were more or less spread evenly over the different grades: 29.2% of the students were in grade 3 (ages 8-9), 19.3% were in grade 4 (ages 9-10), 23.9% were in grade 5 (ages 10-11), and 27.6% were in grade 6 (ages 11-12). The median classroom size was 20.5 students (range 12-27). About 44% of the classrooms contained students of more than one grade. In Dutch elementary schools it is relatively common that two or three grades are combined in one multi-grade classroom.

3.2.3 Measurements

3.2.3.1 Definitions of bullying

Teachers were asked to give their definition of bullying ("How would you define bullying?"). Subsequently, teachers were asked to mention the different forms in which bullying could manifest itself ("Which different forms of bullying can be distinguished?"). It is important to note that the teachers in this study had been participating in the KiVa program for at

least a year. Throughout this program the core elements of bullying were regularly emphasized (see Kärnä et al., 2011).

3.2.3.2 Strategies to find out about bullying

Teachers. Teachers were asked what they do to find out how their students are feeling. Although this question was not focused on bullying in specific, probably due to the context of the interview and the questions that had been asked earlier on, all teachers answered this question focusing on strategies to find out about bullying among their students. When necessary, the research assistant asked for clarification during the interview. Teachers who had indicated they had a teaching partner were asked whether and in which manner they discussed their students' well-being and behavior with their teaching partner.

Students. In the questionnaire, students who according to their self-reports were being victimized were asked whether they had told someone about their victimization. Students who answered that they had told someone, were then asked whom they had told about their victimization.

3.2.3.3 Perceptions of the prevalence of bullying

Teachers. Teachers were provided with a list of names of the students in their classroom and were asked to mark victimized students.

Students. Teachers' victim nominations were compared with their students' self-reported victimization. The global victimization item of the Revised Olweus Bully/Victim questionnaire (Olweus, 1996) was used to measure students' self-reported victimization. Before students reported on their victimization, they watched an instructional video in which a professional actress explained what bullying is. In this video, the core elements of bullying (i.e., systematic, power difference, intentional, and different forms) were emphasized (Olweus, 1993). Directly after watching the instructional video, students answered the following question: "Now that you know what bullying is, how often have you been bullied since the summer holidays?" (never - once or twice - two or three times a month - about once a week - several times per week). About 56.1% of the students indicated that they never had been victimized, 24.8% indicated that it had happened once or twice, 6.2% indicated that they had been victimized two or three times a month, 5.9% once a week, and 7% several times a week. Consistent with earlier studies, students were defined as victims when they indicated they had been victimized at least twice a month by their classmates (Solberg & Olweus, 2003). Based on this definition 19.1% of the students (71 students) in the sample were victimized. Two students did not report on their victimization and had missing values.

3.3 Results

3.3.1 Teachers' definitions of bullying

Even though the teachers in our study had been participating in the KiVa program for at

least one year, and throughout the program the core elements of bullying were regularly emphasized (see Karna et al., 2011), none of the teachers provided a complete definition of bullying. The element 'systematic' was mentioned by nearly all teachers (86.4%), but the elements 'power difference' and 'intention to harm' were mentioned only a few times (both 13.6%). Less than half of the teachers (45.4%) mentioned that bullying can manifest itself in a variety of forms. Both physical and verbal bullying were mentioned by a majority of the teachers (both 73%). Teachers in the pilot study were thus aware that bullying can not only manifest itself by, for instance kicking or hitting, but also by name-calling. In line with previous studies (Asimopoulos et al., 2014; Boulton, 1997), relational bullying was mentioned less frequently (50%) than physical and verbal bullying.

3.3.2. Teachers' strategies to find out about bullying

About one-quarter of the teachers mentioned observing their students as a strategy to find out how their students are feeling. About three-quarters of the teachers in this study indicated they talked to their students (in private or in groups) to find out about their well-being. About 65% of the victimized students indicated they had told someone about their victimization. Of the students who had told someone about their victimization, almost all had told their friends or family members (97.9%). Only a few students (3.4%) indicated they had told their teacher about the victimization.

Most teachers with a teaching partner (86%) met in person to discuss their students' well-being and behavior. The other teachers indicated they never met in person because they worked on different days of the week and thus were not able to meet. Three (14%) teachers described that they discussed their students daily or at least in a structural way. The other teachers discussed their students' well-being and behavior when problems occurred.

3.3.3 Teachers' perceptions of the prevalence of bullying

Table 3.1 displays the four possible scenarios when comparing students' self-reports and teachers' reports. Not surprisingly, the most common scenario was that both the teacher and student reported that the student had not been victimized. In 16.9% of the cases students reported that they had been victimized whereas their teacher did not nominate them (i.e., false negative). Moreover, in 5.3% of the cases students reported that they had not been victimized but the teacher nominated the student as a victim (i.e., false positive). Finally, in 4.2% of the cases both the teacher and the student reported that the student had been victimized.

	Student: less than twice a month (Not victimized)	Student: twice a month or more (Victimized)
Teacher: not victimized	73.6%	16.9%
Teacher: victimized	5.3%	4.2%

Table 3.1 Possible scenarios when comparing teachers' reports and students' reports (*N* students=371, *N* teachers=22)

Table 3.2 displays the number of given victim nominations per teacher. In most classrooms large discrepancies between the reports of teachers and students were found. As illustrated in Table 3.2, teacher 10 was the only one who nominated the victimized student in his classroom, and did not give victim nominations to students who according to their self-reports had not been victimized. Teacher 13 also had no false negative nominations, but this teacher gave victim nominations to two students who according to their self-reports had not been victimized. Of the 71 students who according to their self-reports were being victimized, only 18 were nominated as victims by their teachers. In other words, the teachers in this study nominated only one fourth of the self-reported victims in their classroom as being victimized. In total, twelve teachers gave victim nominations to students who according to their self-reports had not been victimized. As Table 3.2 shows, half of the teachers also nominated students who according to their self-reports were not victimized as victims.

Moreover, several teachers expressed doubt concerning whether their students were actually victimized and some teachers remarked that certain students felt victimized, but that these students were not actually being victimized.

"*Especially this one student... When another child just says something or pushes her a bit she reacts immediately... Exaggerates... Because she perceives it like that. They do not have a sense of proportion about this matter [bullying] yet.*"(Teacher 5)

"*Children often perceive it as bullying when someone is just teasing them. [In my classroom] nobody [is victimized] in a structural way.*" (Teacher 17)

"*I think there is almost no bullying in this school, but they [the students] perceive it differently...*"(Teacher 22)

As indicated in Table 3.2, our sample contained four pairs of teachers who taught in the same classroom. The teachers who shared a classroom spent approximately an equal amount of time with their students (e.g., one teacher worked two days per week and the other teacher worked three days per week). In general, the victim nominations of teaching partners showed little overlap. For example, teacher 2 did not nominate any student as a victim whereas teacher 6 nominated four students as victims.

Table 3.2 Victim nominations per teacher (*N* teachers=22)

Teacher nr.	Shared classroom with teacher nr.	Years teaching experience	Nr. of students	Nr. self-reported victims in the classroom	Nr. of given victim nominations	Nr. victim nominations to self-reported victims	Nr. not nominated self-reported victims (false negatives)	Nr. victim nominations to students who were not self-reported victims (false positives)
13		5	18	0	2	0	0	2
10		6	15	1	1	1	0	0
14		15	18	1	3	1	0	2
11		20	13	1	0	0	1	0
9		30	25	1	3	0	1	3
17		42	25	2	0	0	2	0
22		15	27	2	2	0	2	2
1		10	14	3	1	1	2	0
21		35	21	4	5	2	2	3
12		25	18	4	1	1	3	0
6	2	2	19	4	4	1	3	3
2	6	7	19	4	0	0	4	0
8	7	32	12	5	3	1	4	2
7	8	7	12	5	0	0	5	0
20		29	25	5	0	0	5	0
23		9	25	6	1	1	5	0
24	5	3	27	7	1	1	6	0
5	24	30	27	7	3	1	6	2
3	4	16	19	8	3	2	6	1
4	3	10	19	8	3	2	6	1
19		7	27	8	4	2	6	2
18	1	37	25	9	3	2	7	1

3.4 Discussion

The aim of this pilot study was to investigate to what extent elementary school teachers were prepared to tackle bullying. The results suggest that even though teachers are supposed to have a central role in tackling bullying, they may not be fully prepared for this task. It is disconcerting to find that even teachers who were participating in an anti-bullying program, and thus were likely to be better trained and informed than teachers in schools without such a program, gave incomplete definitions of bullying, had limited strategies to find out about bullying, and did not recognize the self-reported victims in their classroom. However, due to the explorative character of this study, these findings must be interpreted tentatively. We hope that future studies will attempt replication of our findings using a larger representative sample. In the following sections we provide detailed suggestions for future research.

3.4.1 Teachers' definitions of bullying

Although all teachers in our study were participating in the KiVa anti-bullying program and throughout the program ample attention was given to the definition of bullying, none of the teachers could provide a complete definition of bullying. We believe it is important that future studies follow-up on this finding and investigate whether teachers indeed do not have a clear understanding of what bullying is. In addition, we suggest that future studies investigate whether certain teachers (e.g., teachers with more teaching experience or who have a personal history of victimization) know better what bullying is than others. Finally, future studies could investigate whether and how teachers' incorrect or incomplete definitions of bullying can be changed. Bullying is most likely a topic with which most, if not all, teachers have at least some professional and personal experience (Huitsing, 2014). It is plausible that based on these experiences teachers have constructed beliefs on bullying that are not easily changed—not even by participating in an anti-bullying program. Perhaps teachers are more likely to consider new information about bullying when they are made aware that in the past years numerous studies have investigated school bullying, leading to a better understanding of this phenomenon with the consequence that certain earlier ideas on bullying became outdated (e.g., that bullying makes the victim stronger).

3.4.2 Teachers' strategies to find out about bullying

Perhaps because it is difficult to directly observe bullying (Craig et al., 2000; Fekkes et al., 2005) only a few teachers mentioned this as a strategy to find out how their students are feeling. Talking to students was more often mentioned as a strategy, but consistent with the study of Whitney and Smith (1993) most victimized students indicated that they did not inform their teacher about their victimization. Future studies can explore two solutions for this paradox. First, future studies could investigate ways to take away students' reluctance to inform their teacher about their victimization. Second, future studies may examine

alternative strategies to find out about bullying. For instance, given that the victimized students in the pilot study were likely to talk to their friends and family members about the victimization, teachers would perhaps be more successful in finding out about bullying when they talk more often to victims' friends (within the school context) and victims' family members. Moreover, teachers who teach in the same classroom may be better informed when they discuss their students' behavior and well-being structurally. The need for teaching partners to discuss their students regularly is underlined by the finding that teachers who taught in the same classroom did not perceive the same students as victimized.

3.4.3 Teachers' perceptions of the prevalence of bullying

We argue that when teachers do not perceive specific students as victimized, it is unlikely that they will intervene and help them. This pilot study suggests that teachers did not recognize their students' self-reported victimization. We suggest that future studies consider the following possible explanations for why teachers may not give victim nominations to self-reported victims. First, teachers might be unaware of the victimization in their classroom. Second, students may over-report their victimization, for instance because they misperceive certain behavior as bullying (Graham & Juvonen, 1998). Third, teachers may prefer to ignore the bullying or assure themselves (and the interviewer) that it is not really bullying. Teachers who are frequently confronted with bullying may feel they are not doing their job well and handle this perceived failure by denying that their students are being victimized (Bradley, 1978). In addition, future studies may investigate why teachers in the pilot study also gave victim nominations to students who according to their self-reports had not been victimized.

It is interesting that after the interviews some teachers were curious about the agreement between their perceptions of the victims in their classroom and the reports of the students. This indicates that the teachers were not fully sure about their own answers. Perhaps this curiosity could serve as a starting point for discussing the situation in the classroom with teachers. A coach could discuss teacher's victim nominations with the teacher and compare these with students' reports.

Focusing on the victimization of individual students rather than on the general prevalence of victimization in the classroom allows future studies to investigate both teacher and student characteristics that are possibly associated with the ability to recognize victimized students. For instance, the recognition of victimized students may depend on the form and frequency of the victimization. Moreover future studies could investigate whether teachers who provided more complete definitions of bullying and used more effective strategies to find out about bullying were more likely to recognize victimized students. Finally, we suggest that follow-up studies should not only investigate whether teachers recognize victimized students but also whether they know who are the bullies of these students.

3.4.4 Conclusion

Teachers in this pilot study gave incomplete definitions of bullying, had limited strategies to find out about bullying, and did not recognize the self-reported victims in their classroom, suggesting that they may not be fully prepared to tackle bullying. Given the potential damage of bullying, we argue that it is important that this study is followed-up on and we provided some starting points for future research.

Chapter 4

Peer and self-reported victimization: Do non-victimized students give victimization nominations to classmates who are self-reported victims?

Abstract

Using data from 2,413 Dutch secondary school students (*M* age=13.27, *SD* age=0.51, 49.0% boys), this study investigated to what extent students who according to their self-reports had not been victimized (referred to as *reporters*) gave victim nominations to classmates who according to their self-reports had been victimized (referred to as *receivers*). Using a dyadic approach, characteristics of the reporter-receiver dyad (i.e., gender similarity) and of the reporter (i.e., reporters' behavior during bullying episodes) that were possibly associated with reporter-receiver agreement were investigated. Descriptive analyses suggested that numerous students who were self-reported victims were not perceived as victimized by their non-victimized classmates. Three-level logistic regression models (reporter-receiver dyads nested in reporters within classrooms) demonstrated greater reporter-receiver agreement in same-gender dyads, especially when the reporter and the receiver were boys. Furthermore, reporters who behaved as outsiders during bullying episodes (i.e., reporters who actively shied away from the bullying) were less likely to agree on the receiver's self-reported victimization, and in contrast, reporters who behaved as defenders (i.e., reporters who helped and supported victims) were more likely to agree on the victimization. Moreover, the results demonstrated that reporters gave fewer victim nominations to receivers who reported they had been victimized sometimes than to receivers who reported they had been victimized often/very often. Finally, this study suggested that reporter-receiver agreement may not only depend on characteristics of the reporter-receiver dyad and of the reporter, but on classroom characteristics as well (e.g., the number of students in the classroom).

4.1 Introduction

Over the years, researchers have used different methods, instruments, and informants to identify victims of school bullying (Bouman et al., 2012; Graham & Juvonen, 1998; Ladd & Kochenderfer-Ladd, 2002). Students' self-reports are the most commonly used and accepted measurement of victimization (Cook, Williams, Guerra, & Kim, 2009). Advocates of self-reports argue that students themselves provide the most complete and valid reports because they directly experienced their own victimization (Ladd & Kochenderfer-Ladd, 2002). However, students' self-reports may be biased, leading to either over-reporting victimization (i.e., students reporting that they are victimized whereas they are not) or under-reporting victimization (i.e., students denying their victimization) (Graham & Juvonen, 1998).

Recently, peer reports (i.e., students reporting on each other's victimization) have gained popularity as a means of identifying victimized students as well (Cook et al., 2009). Studies using peer reports typically aggregate these reports in such a way that they reflect the proportion of classmates who nominated a certain student as a victim. An advantage of this procedure is that multiple observers are used to identify victims (Bouman et al., 2012; Ladd & Kochenderfer-Ladd, 2002). A disadvantage of using peer reports to measure victimization is that perhaps not all students are equally competent in reporting the victimization of their classmates. For example, it could be that not all students are aware of their classmates' victimization. Even though several studies suggest that most students know that their classmates are victimized and are able to provide accurate information on what happened (e.g., O'Connell, Pepler, & Craig, 1999; Salmivalli et al., 1996), this assumption has never been tested explicitly in an empirical study.

In the recent past, many studies have focused on the correspondence between peer and self-reported victimization. These studies generally found that the correlations between the two measurements were moderate at best (e.g., Bouman et al., 2012; Cornell & Brockenbrough, 2004; Graham & Juvonen, 1998; Ladd & Kochenderfer-Ladd, 2002). Ladd and Kochenderfer-Ladd (2002), for example, found that correlations between peer and self-reported victimization varied from .14 to .42 depending on the age of the respondents.

Using a dyadic approach, the present study further investigated the discrepancies between peer and self-reported victimization. More precisely, this study examined to what extent students who had not been victimized according to their self-reports (referred to as *reporters*) gave victim nominations to classmates who had been victimized according to their self-reports (referred to as *receivers*). In other words, this study examined whether non-victimized reporters agreed with the receivers' self-reported victimization. This implies that in the present study all non-victimized reporters within a certain classroom reported on every classmate (or receiver) who had been victimized according to his or her self-report. It is important to note that even though the term 'reporter-receiver agreement' was used, the reporters did not know whether the receivers had reported to be victimized or not.

In the absence of consensus on an objective measurement of victimization, the aim of this study was not to draw conclusions about 'who is right' when peer and self-reports were discrepant, but to investigate to what extent victim nominations given by individual reporters were in concordance with the receivers' self-reported victimization. We argue that

it is important to further investigate concordance between peer and self-reports because the discrepancies found in previous studies may imply that a substantial share of students who report being victimized are not perceived as victimized by their peers. When students do not perceive their classmates as victimized, they are also unlikely to help and support them. The present study focused on the perception of non-victimized students, because these students may be in a position to intervene and stop their classmates' victimization (Salmivalli, 2010). Even though research demonstrates that victims can defend each other as well (Huitsing & Veenstra, 2012), it is plausible that non-victimized students can provide a different type of help than that of victimized students.

Unlike previous studies on this topic, in the present study the correspondence between peer and self-reported victimization was not investigated by comparing self-reports to aggregated peer reports, but to peer reports given by individual reporters. This dyadic approach enabled investigation of characteristics of the reporter-receiver dyad (i.e., gender similarity) and of the reporter (i.e., reporters' behavior during bullying episodes) that were possibly associated with reporter-receiver agreement.

4.1.1 Giving victim nominations: Characteristics of the reporter-receiver dyad and of the reporter

4.1.1.1 Reporter-receiver dyad
Students prefer to associate and bond with others who are similar (Aboud & Mendelson, 1996; Rubin, Bukowski, & Parker, 2006). Sharing common features enhances communication and makes forming relationships easier. Even when reporters and receivers do not consider themselves as friends, it is plausible that they interact and share information with each other more often when they are similar than when they are dissimilar. Especially, similarity in gender might affect reporter-receiver agreement, because several studies have indicated that gender segregation is strong during childhood and early adolescence and that social interaction predominantly takes place in same-gender peer groups (Baerveldt, Van De Bunt, & Vermande, 2014; Rubin et al., 2006; Veenstra, Lindenberg, Munniksma, & Dijkstra, 2010). Therefore, it is likely that students in same-gender dyads will have more information about social interaction patterns within their own peer groups than about social interactions involving peers of the opposite gender. Accordingly, it can be expected that reporters were more likely to give victim nominations to receivers who were self-reported victims when the reporter and the receiver were of the same gender than when they were not of the same gender.

4.1.1.2 Reporters
At the reporter-level, it can be expected that reporter-receiver agreement was associated with how reporters generally behaved during bullying episodes. Scholars agree that bullying is a group phenomenon in which almost all classmates are in some way involved (Goossens, Olthof, & Dekker, 2006; Huitsing & Veenstra, 2012; O'Connell et al., 1999; Salmivalli et al., 1996). Salmivalli and colleagues (1996) described five roles (apart from victims) that students may take during bullying episodes: bullies, assistants (students who do not initiate

the bullying but join after someone else has initiated it), reinforcers (students who support the bully by laughing or cheering), outsiders (students who actively shy away from the bullying), and defenders (students who help and support victims). One of the most puzzling types of behavior during bullying episodes is that of outsiders. Outsiders avoid involvement in bullying in their classroom. Even though several studies (e.g., Olthof et al., 2011; Salmivalli et al., 1996) seem to suggest that outsiders are aware of the victimization in their classroom, this has to our knowledge never been tested in an empirical study. Even when outsiders are aware of the victimization of their classmates, there are several explanations for why they do not intervene when their classmates are bullied. First, fear might play a role in the desire to stay uninvolved. Intervening is risky behavior, and students may be afraid of becoming victimized as well if they intervene. Second, students may fear that teachers or other adults could misinterpret their intervention and think they are participating in the bullying. Third, outsiders may want to help the victim but lack the required social skills to do so. Finally, perhaps outsiders are indifferent toward their classmates' victimization (Menesini & Camodeca, 2008). However, Olthof (2012) found that outsiders anticipated feelings of guilt when they imagined that they had bullied someone. Regardless of outsiders' motives, of the five roles described by Salmivalli et al. (1996), outsiders are the least likely to have complete information on the bullying in their classroom.

In contrast, students who bully others or support bullies (i.e., bullies, assistants, and reinforcers) are in a good position to observe the bullying and have information about what happened. Despite this, we contend that these students may be likely to underreport the receivers' victimization because they have strong incentives to deny knowledge of the bullying. The idea of being at least partially responsible for a classmate's suffering potentially causes students to experience mental stress and discomfort (i.e., cognitive dissonance). A simple method for eliminating these negative feelings is by denying that certain classmates are actually bullied (Perren, Gutzwiller-Helfenfinger, Malti, & Hymel, 2012; Teräsahjo & Salmivalli, 2003). Consistent with this, students who bully others or support the bullies commonly state that it was just a joke, that the victim deserved it, or that the victim even asked for it. Teräsahjo and Salmivalli (2003) claimed that bullies are likely to see bullying as a game in which other students are participants rather than victims. By denying that certain behavior is bullying, students can transform the unacceptable harassment of their peers into something that is morally justifiable or even funny (Perren et al., 2012; Sijtsema, Rambaran, Caravita, & Gini, 2014).

Unlike outsiders, bullies, assistants, and reinforcers, students who defend victims try to improve the victim's situation (e.g., by comforting him or her afterward) (Salmivalli et al., 1996). Students who behave as defenders are actively involved in the bullying process and are likely to be in a good position to observe who is victimized, without having the incentive to deny knowledge of the bullying. In addition, scholars have found that defenders generally have high empathy levels (Nickerson, Mele, & Princiotta, 2008). Thus, it is plausible that defenders are better at noticing that someone is victimized, even when they were not present during the actual bullying episode.

4.1.2 Aims and hypotheses of the present study

The main aim of this study was to investigate to what extent non-victimized students gave victim nominations to classmates who were self-reported victims. Using a dyadic approach allowed us to investigate characteristics of the reporter-receiver dyad and of the reporter that were possibly associated with reporter-receiver agreement. Based on the reviewed literature, more reporter-receiver agreement was expected in same gender dyads. Furthermore, less reporter-receiver agreement was expected when the reporter tended to behave as an outsider and actively shied away from the bullying. In addition, it was hypothesized that bullies[1] and reinforcers were likely to underreport the receivers' victimization because these students had strong incentives to deny knowledge of the bullying. Finally, more reporter-receiver agreement was expected when reporters behaved as defenders. Defenders are actively involved in the bullying process; however, unlike bullies and reinforcers, they are not likely to experience cognitive dissonance when nominating victimized classmates.

4.2 Method

4.2.1 Participants and procedure

Data from 2,413 Dutch secondary school students (49.0% boys, *M* age=13.27, *SD* age=0.51) in 115 classrooms across 28 schools were used to test the hypotheses. School years in the Netherlands last from the end of August to the beginning of July. The data for the present study were collected during the spring of 2007, implying that the students in the sample had been in the same group of classmates for 7 months. In the Netherlands children usually enter secondary school when they are approximately 12 years old. Approximately 2.7% of the students were between 11 and 12.5 years old, 67.8% were between 12.5 and 13.5 years old, and 29.4% were between 13.5 and 15.5 years old. In the first year of Dutch secondary school, classrooms remain stable during the day, and the classroom composition (20-30 students per classroom) does not vary per subject. Students attend multiple classes with different teachers during the week, but always with the same group of classmates.

After obtaining approval from the schools and teachers, the parents of the students in participating schools were sent a letter with information about the study's aims and procedures. Parents who did not want their children to participate returned a preprinted form to the research team. This passive consent procedure was endorsed by an Ethical Board. Students were asked for their consent before they completed the questionnaire. Participating students could opt out at any point. Of the 2,720 students in the participating schools, 11.3% did not receive parental permission, did not want to participate, or were absent during data collection.

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[1] No distinction was made between students who behaved as ringleader bullies (i.e., students who initiated the bullying) and assistants (i.e., students who joined the bullying after someone else initiated it), because recent studies (e.g., Reijntjes et al., 2013a; Reijntjes, et al., 2013b) suggest that the association between behaving as a ringleader bully and assistant is strong.

Participating students completed web-based questionnaires in their schools' computer labs during regular school hours. The students were instructed to answer the questions with regard to what happened in their classroom within the past few weeks. Trained research assistants were present to give instructions, answer questions, and assist students whenever necessary. Students were reassured that their answers would remain confidential and were instructed not to talk about their answers to others.

4.2.2 Measures

4.2.2.1 Dependent variable
The dependent variable was a binary variable y_{ij} reflecting whether (1) or not (0) reporter i gave a victim nomination to receiver j (who was a self-reported victim). In other words, the dependent variable reflected whether reporter i agreed with j's self-reported victimization or not. The exact procedure of how reporter i's victim nomination about receiver j was compared to j's self-reported victimization is explained in the following three sections.

Self-reported victimization. Students were divided into non-victimized reporters and victimized receivers based on their self-reported victimization. Self-reported victimization was measured using an adaptation of the global victimization question of the revised Olweus bullying questionnaire (Olweus, 1996). Before students indicated how often they had been victimized, they read a description in which bullying and victimization were explained. In this description, the three core elements of bullying were emphasized: structural, intent to harm, and a power difference between bully and victim, which makes it difficult for victims to defend themselves (Olweus, 1993). Moreover, the description stressed that bullying is not the same as teasing. All students indicated how often they had been victimized within the classroom context over the past few weeks (1=(almost) never, 2=rarely, 3=sometimes, 4=often, or 5=very often). Students were instructed to think about "interactions that for instance happened today and in the past weeks, but not about interactions that happened a year ago". Approximately 60.8% of the students in the sample reported that they had (almost) never been victimized in the past few weeks, 18.1% reported that they had rarely been victimized, 15.2% sometimes, 4.9% often, and 1.0% very often.

A subsample was then created in which students who reported that they had been victimized (almost) never or rarely were classified as non-victimized reporters and students who reported that they had been victimized sometimes, often, or very often were classified as victimized receivers. The rationale for dividing students this way is that bullying is a structural phenomenon (Solberg & Olweus, 2003). Students who rarely have negative experiences with others, were not regarded as victimized as these interactions were not structural. The victimization of the group of students who according to their self-reports were victimized sometimes was more ambiguous. These students were classified as victimized and a binary variable reflecting that they were victimized sometimes was added to the model in order to assess possible differences between these students and the students who were victimized often/very often.

Table 4.1 displays the sample sizes of the complete sample (i.e., the sample with dyads between all students) and the subsample (i.e., the sample with only dyads between

non-victimized reporters and victimized receivers). As Table 4.1 illustrates, the subsample contained data from 111 classrooms, rather than from all 115 classrooms of the complete sample. One classroom was excluded from the analyses because none of the 19 students reported that they had been victimized sometimes, often, or very often. In addition, three other classrooms were deleted due to reasons described in the descriptive statistics section.

Peer-reported victimization. Reporter i's victim nomination concerning receiver j was measured using the bullying role nomination procedure (described in Olthof et al., 2011), which is an adaptation of the procedure introduced by Salmivalli et al. (1996). Before reporters nominated classmates whom they thought had been victimized, they read a description of bullying and victimization. This description started with a definition that included the three core elements of bullying (i.e., structural, intent to harm, and a power difference between bully and victim). Finally, it was explained that bullying may take several forms: physical bullying ("hitting others, kicking, pinching or pushing them"), property attacks ("taking away belongings of others, destroying their belongings, or forcing them to give certain things (such as shoes, purse, or money)"), verbal bullying ("insulting or laughing at others, making fun of them, or saying mean things on the Internet"), direct relational bullying ("excluding others from games, ignoring them, purposely not inviting them, walking away from someone who wants to talk or turning one's back on someone who wants to join") and indirect relational bullying ("giving others a bad name, gossiping about them or making sure others will think badly about them"). After reading the description, reporters nominated, for every victimization type, classmates who they thought had been victimized in the described ways. Reporters could nominate a maximum of 10 classmates per victimization type. Receiver j was considered nominated as a victim when reporter i nominated j for at least one of the five types of victimization.

Reporter-receiver agreement. Summarizing, from the set of all possible reporter-receiver dyads in the complete sample, a subsample was created consisting of only those dyads in which the receiver had reported to be victimized sometimes, often, or very often and the reporter had reported to be victimized (almost) never or rarely. The dependent variable was a binary dyadic variable taking value 1 whenever reporter i nominated receiver j for at least one of the five types of victimization.

Table 4.1 Sample sizes of the complete sample and the subsample

		Schools	Classrooms	Reporters	Receivers	Dyads
Complete sample	All students	28	115	2,413[a]	2,413[a]	57,523
Subsample	Reporters: (*almost*) *never* or *rarely* victimized	28	111	1,847	472	7,605
	Receivers: *sometimes*, *often*, or *very often* victimized					

Note. [a] In the complete sample all students were simultaneously reporters and receivers.

4.2.2.2 Independent variables

Gender similarity. Reporters' and receivers' gender similarity was measured with three binary variables reflecting whether the reporter-receiver dyad was a boy-boy, boy-girl, or girl-boy dyad (1) or not (0). Girl-girl dyads were treated as the reference group in the analyses.

Behavior during bullying episodes. Reporters' behavior during bullying episodes (i.e., behaving as an outsider, bully, reinforcer, and defender) was measured with the proportion of participating classmates in the classroom (in the complete sample) who nominated the reporter for each type of behavior. This measurement is analogous to the bullying role nomination procedure (Olthof et al., 2011). Proportion scores were used to account for differences in classroom size (Bukowski, Cillessen, & Vel Ásquez, 2012). For every reporter, all received nominations for each separate type of behavior were summed and divided by the number of participating classmates. For instance, when a certain reporter received 10 nominations as an outsider within a classroom of 21 participating students, this reporter would score 0.50 on the outsider variable. Using the proportion of participating classmates who nominated a reporter for a certain type of behavior implies that students did not have one specific role, but had scores on all five types of behavior. Moreover, students who received only a few nominations or no nominations at all still had valid scores (e.g., a score of zero).

Before students nominated classmates for the different types of behavior during bullying episodes, they were provided with descriptions of the roles as described by Olthof et al. (2011). Nominating classmates thus did not require any prior knowledge about bullying. Outsider behavior was described as actively shying away from bullying in the classroom. Bullying behavior was described as structurally and intentionally harassing others for whom it is not easy to defend themselves. Students could nominate classmates who bully others in one of the five described ways (i.e., physical bullying, property-directed bullying, verbal bullying, direct relational bullying, and indirect relational bullying). For every student, a measurement reflecting the proportion of classmates who nominated him or her for at least one of the five types of bullying was constructed. Furthermore, reinforcing was described as not behaving as a bully, but always being there when a classmate is being bullied, encouraging the bully. Finally, defending was described as comforting victims and trying to make them feel better by being friendly.

4.2.2.3 Control variables

In the analyses, variables that possibly affected reporter-receiver agreement were taken into account. At the dyadic level, we controlled for whether receivers had reported being victimized sometimes (1) or often/very often (0). Of the receivers who were self-reported victims, 70.6% had reported being victimized sometimes, 24.4% had reported being victimized often, and 5.1% had reported being victimized very often. In the analyses no distinction was made between being victimized often or very often because in many classrooms there were no receivers who reported they had been victimized very often.

Classroom characteristics may affect reporter-receiver agreement as well. In smaller classrooms, students might know each other better than in larger classrooms, and students might know better if any of the others was victimized (Cappella, Neal, & Sahu, 2012).

Accordingly, we controlled for classroom size. Moreover, we controlled for the total number of self-reported victims (i.e., the number of students who reported to be victimized sometimes, often, or very often), because it may be easier to recognize victimized classmates when many classmates had been victimized than when only a few classmates had been victimized.

4.2.3 Analyses

Three-level logistic regression models were estimated as the data consisted of reporter-receiver dyads nested in reporters within classrooms. All reporters within each classroom reported on every receiver who had been victimized according to his or her self-report. This makes the design of the present study analogous to a repeated measures design with multiple receivers per reporter. The models were estimated using the multilevel mixed-effects logistic regression package of Stata 12 (xtmelogit) (Rabe-Hesketh & Skrondal, 2012). This package uses an adaptive Gaussian quadrature procedure to estimate the models' parameters.

Results for three-level models were compared to results for four-level models (not presented here) with classrooms nested in schools in order to account for possible between-school variance. The variance in reporter-receiver agreement at the school level was negligible; no substantive differences between schools were found. Therefore, the results of the three-level models are presented.

A visual inspection of the independent variables demonstrated that the variables reflecting reporters' behavior during bullying episodes were skewed due to the relatively large proportion of reporters who did not receive nominations for these variables. Approximately 30.9% of the reporters did not receive a single outsider nomination, 35.3% did not receive bully nominations, 46.9% did not receive reinforcer nominations, and 30.5% did not receive defender nominations. To account for this large representation of zeros, a binary variable for each type of behavior during bullying episodes was included, reflecting whether reporters received at least one nomination for this variable (0) or not (1). The results of a model with binary variables were compared to a model without binary variables. No substantive differences between the two models were found.

4.3 Results

4.3.1 Descriptive statistics

4.3.1.1 Reporter-receiver agreement
Figure 4.1 displays the distribution of the number of given victim nominations (per student) in the complete sample (i.e., the sample that was not divided in non-victimized reporters and victimized receivers yet and where all students thus simultaneously were reporters and receivers). As can be seen in Figure 4.1, most students nominated five or fewer classmates as victimized.

Figure 4.1 Distribution of the number of given victim nominations
(per student) in the complete sample
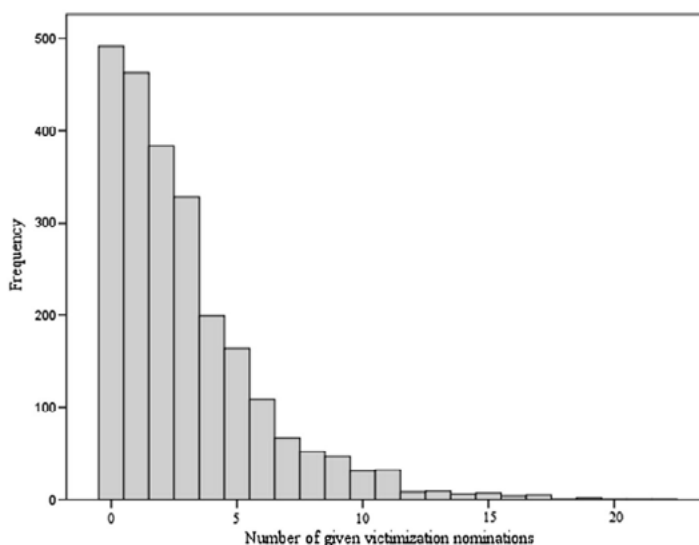
Students could nominate up to 10 classmates per victimization type, implying that they could theoretically mention 50 names. This explains why for a few students in Figure 4.1 the number of given victim nominations exceeded 10. In three classrooms there were more than 10 students who were victimized according to their self-reports. Even though students could nominate up to 10 classmates for each of the five forms of victimization it is possible that students in classrooms with more than 10 self-reported victims wanted to nominate more than 10 victims for one type of victimization and were not able to do so. Therefore, these three classrooms were excluded from the analyses.

In the subsample, all receivers were self-reported victims, which meant that there was reporter-receiver agreement each time reporters gave victim nominations to the receivers in their classroom. The mean number of given victim nominations in the subsample was 1.06 (*SD*=1.20) per reporter, whereas the mean number of self-reported victims per classroom was 4.25 (*SD*=2.09). Descriptive analyses at the dyadic-level demonstrated that reporters gave victim nominations to 26% of the receivers, suggesting that numerous students who were self-reported victims were not perceived as victimized by their classmates. Furthermore, only 3.4% of the reporters gave victim nominations to all classmates who were self-reported victims, and 41.3% of the reporters did not nominate any of the receivers. Finally, 19.3% of the receivers did not receive a single victim nomination.

4.3.1.2 Independent variables
In Table 4.2, the range, means, and standard deviations of all study variables of the subsample are summarized. Approximately 25% of the dyads were boy-boy dyads, 23% were boy-girl dyads, 27% were girl-boy dyads, and 25% were girl-girl dyads (reference group). The mean proportion of outsider nominations received per reporter was 0.12

(*SD*=0.14), and the mean proportion of received bully nominations was 0.14 (*SD*=0.19). Furthermore, the mean proportion of received reinforcer nominations was 0.06 (*SD*=0.08), and the mean proportion of received defender nominations was 0.09 (*SD*=0.11). Fourteen reporters did not receive nominations for behaving as a bully, reinforcer, outsider, or defender. According to their classmates, these students did not behave in one of the five defined ways during bullying episodes. These students did, however, have valid scores (i.e., zero) on the variables reflecting behavior during bullying episodes, and thus were not excluded from the analyses.

Table 4.2 Descriptive statistics of the study variables of the subsample

	Range	% of 1	
Reporter-receiver dyads			
Reporter-receiver agreement (agreement=1)	0-1	.26	
Boy-boy dyad	0-1	.25	
Boy-girl dyad	0-1	.23	
Girl-boy dyad	0-1	.27	
Girl-girl dyad (reference group)	0-1	.25	
Receiver victimized sometimes (sometimes=1)	0-1	.71	
	Range	Mean	SD
Reporters			
Proportion outsider nominations	0-0.80	.12	.14
Proportion bully nominations	0-1	.14	.19
Proportion reinforcer nominations	0-0.62	.06	.08
Proportion defender nominations	0-0.73	.09	.11
Classrooms			
Number of students in classroom	10-32	23.58	5.09
Number of self-reported victims in classroom	1-10	4.25	2.09

4.3.2 Bivariate correlations

Table 4.3 displays the bivariate correlations between the continuous reporter-level variables. Reporters who received many outsider nominations received fewer bully nominations (r=-0.33, p<0.001, n=1,847) and fewer reinforcer nominations (r=-0.29, p<0.001, n=1,847). Furthermore, there were positive relationships between receiving outsider nominations and defender nominations (r=0.33, p<0.001, n=1,847) and between

receiving bully nominations and reinforcer nominations (r=0.66, p<0.001, n=1,847). Finally, reporters who received more defender nominations were less often nominated as bullies (r=-0.19, p<0.001, n=1,847) or reinforcers (r=-0.19, p<0.001, n=1,847).

Table 4.3 Bivariate correlations between continuous reporter variables

	1.	2.	3.	4.
1. Proportion outsider nominations	-	-0.33***	-0.29***	0.33***
2. Proportion bully nominations		-	0.66***	-0.19***
3. Proportion reinforcer nominations			-	-0.19***
4. Proportion defender nominations				-

Note. ***p<0.001

4.3.3 Multilevel logistic regression analyses

4.3.3.1 Intercept-only model
The first model in Table 4.4 is an intercept-only model that was estimated in order to calculate intraclass correlations (Snijders & Bosker, 1999). Intraclass correlations were estimated using the Stata intraclass correlation extension (xtmrho) for the xtmelogit package. This extension estimates intraclass correlations following the logistic multilevel procedure described by Snijders and Bosker (1999). Intraclass correlations indicated that approximately 6.5% of the total variance in reporter-receiver agreement could be attributed to differences between reporters and that 16.3% could be attributed to differences between classrooms.

4.3.3.2 Main effects models
Table 4.4 presents the estimated multilevel logistic coefficients and odds ratios (OR) for reporter-receiver agreement. Model 1 contains control variables only. In Model 2 the independent variables were added. The significant likelihood ratio test in Table 4.4 (χ^2=191.48, *df*=7, *p*<0.001) suggests that adding the independent variables significantly increased the fit of the model. Given that the interpretation of multilevel logistic coefficients and odds ratios is not straightforward, the statistically significant effects are also discussed in terms of predicted probabilities. As the effects on the probabilities are not linear, predicted probabilities were presented for specific values of the variables that were statistically significant. These values were compared with the predicted probability of a benchmark model. In this benchmark model, all binary variables were set to the reference categories (i.e., 0), and all continuous variables were centered around their means and set to zero. The variables reflecting behavior during bullying episodes were likewise set to zero, but not centered because their distribution contained meaningful zeros. For theoretical reasons, non-significant independent variables were not excluded from the models, and all probabilities were computed using the full model. The benchmark model predicts the

probability that a female reporter who had not been nominated for any of the behaviors during bullying episodes gave a victim nomination to a female classmate who according to her self-report had been victimized often/very often, in an average sized classroom (*M* number of students in classroom=23.58) with an average number of victims (*M* number of self-reported victims in classroom=4.25). The predicted probability for this benchmark model was 0.44 (*SD*=0.16).

Table 4.4 Estimated multilevel logistic coefficients and odd ratios for reporter-receiver agreement (N=111 classrooms, 1,847 reporters, 7,605 reporter-receiver dyads)

Parameters	Intercept-only model				Model 1				Model 2				Model 3			
	b	SE	OR	z	b	SE	OR	z	b	SE	OR	z	b	SE	OR	z
Intercept	-1.21***	0.09	0.30	-13.60	-0.47***	0.09	0.62	-5.15	-0.36*	0.14	0.70	-2.59	-0.24	0.14	0.79	-1.66
Reporter-receiver dyads																
Boy-boy dyad									0.46***	0.10	1.59	4.51	0.50***	0.10	1.64	4.81
Boy-girl dyad									-0.61***	0.11	0.54	-5.71	-0.61***	0.11	0.55	-5.65
Girl-boy dyad									-0.21*	0.09	0.81	-2.25	-0.18	0.09	0.84	-1.93
Receiver victimized sometimes (sometimes=1)					-1.08***	0.07	0.34	-15.95	-1.14***	0.07	0.32	-16.48	-1.34***	0.08	0.26	-16.40
Reporters																
Proportion outsider nominations									-1.40***	0.31	0.25	-4.48	-1.42***	0.31	0.24	-4.52
Proportion bully nominations									0.15	0.25	1.16	0.61	0.14	0.25	1.15	0.55
Proportion reinforcer nominations									0.27	0.55	1.32	0.50	0.28	0.55	1.32	0.50
Proportion defender nominations									1.00*	0.39	2.71	2.56	1.02*	0.39	2.77	2.58
Classrooms																
Number of students in classroom[a]					-0.08***	0.02	0.93	-4.65	-0.08***	0.02	0.92	-4.53	-0.08***	0.02	0.92	-4.47
Number of self-reported victims in classroom[a]					0.07	0.04	1.07	1.72	0.08	0.04	1.08	1.84	-0.04	0.05	0.96	-0.90
Number of self-reported victims*receiver victimized sometimes													0.18***	0.04	1.19	4.92
Classroom variance	0.70	0.13			0.55	0.11			0.59	0.11			0.63	0.12		
Reporter variance	0.28	0.06			0.36	0.07			0.36	0.07			0.37	0.07		
Likelihood ratio test χ^2					288.02***				191.48***				24.58***			
(df)					(3)				(7)				(1)			

Notes . [a] Variable centered around the mean over classrooms; [b] Decrease in deviance compared to empty model; *p<0.05; **p<0.01; ***p<0.001

Characteristics of the reporter-receiver dyad. It was expected that there would be greater reporter-receiver agreement in same-gender dyads. Table 4.4 (Model 2) displays that when the reporter and the receiver were boys, it was more likely that they agreed on the receiver's victimization than when they both were girls (*OR*=1.59, *p*<0.001). The predicted probability of reporter-receiver agreement in a boy-boy dyad (and all other values set as in the benchmark model) was 0.54 (*SD*=0.16), 10 percentage points higher than the predicted probability of the benchmark. When the reporter was a boy and the receiver was a girl, it was less likely that there would be reporter-receiver agreement than when they both were girls (*OR*=0.54, *p*<0.001). The predicted probability in this case dropped to 0.31 (*SD*=0.14). Finally, there was less reporter-receiver agreement when the reporter was a girl and the receiver was a boy than when they were both girls (*OR*=0.81, *p*=0.02). The predicted probability of a girl nominating a boy was 0.39 (*SD*=0.16; again, with all other values set as in the benchmark model).

Reporter characteristics. At the reporter-level, it was expected that outsiders, students who actively shy away from the bullying in their classroom, would be less likely to agree on the receivers' self-reported victimization. Table 4.4 provides support for this hypothesis (*OR*=0.25, *p*<0.001). When reporters received more outsider nominations, they were less likely to give victim nominations to receivers who were self-reported victims. The predicted probability for reporters who received a mean proportion of outsider nominations (i.e., 0.12) was 0.40 (*SD*=0.16). Compared to the benchmark probability, the difference in percentage points (4) is small due to the large proportion of reporters who did not receive any nominations for this variable (i.e., 0.31). When the maximum value of the outsider variable (i.e., 0.80) is used to compute the predicted probabilities, the predicted probability decreased to 0.22 (*SD*=0.11), 22 percentage points lower than the benchmark probability.

Although it was hypothesized that reporters who had received many bully and reinforcer nominations were likely to underreport the receivers' victimization, because these students actively participated in the bullying and therefore had strong incentives to deny knowledge of the bullying, no support for such a relationship was found. The bivariate correlation between the received proportion of bully nominations and the received proportion of reinforcer nominations was high (*r*=0.66, *p*<0.001, *n*=1,847) (see Table 4.3). It was investigated whether including both the bully variable and the reinforcer variable led to collinearity problems by adding these variables separately to the model. The results of these models were largely similar to the results of the model presented here.

As expected, the data demonstrated a higher probability that reporters agreed with the receivers' self-reported victimization when the reporters received more defender nominations (*OR*=2.71, *p*=0.01). Similarly to the predicted probabilities for the outsider variable, predicted probabilities were computed for the mean and maximum values on the defender variable. The predicted probability for a reporter who had received a mean proportion of defender nominations (i.e., 0.09) was 0.46 (*SD*=0.16), which was only a 2 percentage point difference from the benchmark probability. The predicted probability for a reporter who had been nominated by 73% of the participating classmates (the maximum value of the defender variable) was 0.60 (*SD*=0.16), 16 percentage points higher than the benchmark model.

Control variables. In the analysis, variables that possibly influenced reporter-receiver agreement were taken into account. At the dyadic-level, lower reporter-receiver agreement was found when the receiver had reported to be victimized sometimes (OR=0.32, p<0.001) than when the receiver had reported to be victimized often/very often. A closer inspection revealed that reporters agreed with the receivers' victimization in 20.3% of the cases when the receivers reported they had been victimized sometimes, in 36.1% of the cases when the receiver had been victimized often, and in 54.5% when the receiver had been victimized very often. The predicted probability for reporter-receiver agreement when the receiver had reported to be victimized sometimes was 0.22 (SD=0.11). Ceteris paribus, the probability that reporters agreed with the receivers' self-reported victimization was 22 percentage points lower for receivers who reported they had been victimized sometimes than for those who reported they had been victimized often/very often.

Interaction terms between the binary variable reflecting that the receiver had reported being victimized sometimes and the independent variables were included to investigate whether the relationship between these independent variables and the dependent variable differed for the group of receivers who had reported to be victimized sometimes compared to those who had reported to be victimized often/very often. Only the interaction term with the number of self-reported victims per classroom was significant, showing that the slope of the relationship between the number of self-reported victims per classroom and the logit of reporter-receiver agreement was positive and significant for the sometimes group and negative and not significant for the often/very often group. In other words, reporters were more likely to give victim nominations to receivers who had reported being victimized sometimes when there were more self-reported victims in the classroom. This interaction term is presented in Model 3 in Table 4.4.

At the classroom-level, lower probability for reporter-receiver agreement was found in larger classrooms (OR=0.92, p<0.001) (Model 2). To interpret this effect, two predicted probabilities were computed, corresponding to the minimum and maximum values of this variable. The benchmark predicted probability refers to the mean values of all continuous variables; in this case, the mean number of students per classroom was 23.58. Keeping all other variables constant, the predicted probability for a dyad within the smallest classroom (minimum number of students=10) was 0.67 (SD=0.15) whereas the predicted probability for a dyad within the largest classroom (maximum number of students in classroom=32) was 0.30 (SD=0.14).

4.4 Discussion

Using data from 2,413 Dutch secondary school students in 115 classrooms across 28 schools, this study investigated to what extent students who had not been victimized according to their self-reports (referred to as *reporters*) gave victim nominations to classmates who had been victimized according to their self-reports (referred to as *receivers*). Instead of comparing self-reported victimization to aggregated peer reports, as frequently done in previous studies on this topic, a dyadic approach was used and self-reports were compared to victim nominations given by individual reporters. This approach allowed us to investigate

characteristics of both the reporter-receiver dyad and the reporter that were possibly associated with reporter-receiver agreement.

4.4.1 Discrepancies between peer reports and self-reports

Consistent with earlier studies in which aggregated peer reports and self-reports were compared (e.g., Bouman et al., 2012; Cornell & Brockenbrough, 2004; Graham & Juvonen, 1998; Ladd & Kochenderfer-Ladd, 2002), the results of the current study highlighted discrepancies between peer and self-reported victimization. That is, self-reports identified substantially more victims per classroom than peer reports. Moreover, only a few reporters gave victim nominations to all victimized receivers, and almost half of the reporters did not nominate a single self-reported victim. Furthermore, it was found that a substantial number of students who were self-reported victims were not nominated as victimized by any of their classmates.

These findings are of potential concern as they may suggest that victimized students are not recognized as victims by their classmates. However, it is also possible that the discrepancies between peer and self-reported victimization may be due to receivers reporting that they had been victimized whereas they actually had not (i.e., 'paranoid' receivers, Graham & Juvonen, 1998). In the current design, as in nearly all studies on this topic, it was impossible to disentangle why peer and self-reports were discrepant (Bouman et al., 2012; Cornell & Brockenbrough, 2004; Graham & Juvonen, 1998; Ladd & Kochenderfer-Ladd, 2002). Given that there is no consensus on an objective method for determining whether a student is actually victimized, a rational guideline for identifying victims would be to take students who have reported being victimized seriously, even though others do not perceive these students as victimized. Moreover, when classmates report that a certain student has been victimized but the student did not report being victimized, this information should be taken seriously as well, because students might deny their own victimization (Graham & Juvonen, 1998). In short, we contend that when students report they have been victimized, or are reported as victims by others, they should be considered victimized.

4.4.2 Characteristics of the reporter-receiver dyad and of the reporter

An important advantage of this study compared to studies using aggregated peer nominations was the dyadic approach. Using a dyadic approach made it possible to investigate factors contributing to discrepancies between peer reports and self-reports. The results supported the idea that discrepancies between peer and self-reports can, at least to some extent, be attributed to characteristics of the reporter-receiver dyad and to differences between reporters. As expected, more reporter-receiver agreement was found in same gender dyads, and in particular in boy-boy dyads. An explanation could be that children and early adolescents predominantly interact in peer groups of the same gender and, consequently, are more likely to have information about social interaction patterns within

their peer groups than about social interactions involving peers of the other gender (Baerveldt et al., 2014; Rubin et al., 2006). Furthermore, an additional explanation for why greater reporter-receiver agreement was found in boy-boy dyads is that victimization among boys is perhaps easier to recognize than victimization among girls. Research suggests that boys tend to bully more directly (e.g., hitting or kicking), whereas bullying among girls often has a more indirect or secretive nature (e.g., gossiping; Smith, Cowie, Olafsson, & Liefooghe, 2002).

In terms of reporter characteristics, the results indicated a negative association between receiving outsider nominations and reporter-receiver agreement. Based on previous studies, it was expected that outsiders were aware of the bullying in their classroom, but that they, for various reasons, avoided getting actively involved in it and, as a result, were the least likely of all roles (i.e., behaving as an outsider, bullying, reinforcing, and defending) to have information about what happened. The results of this study call into question the extent to which outsiders actually know about the bullying among their classmates. An alternative explanation for why students who received more nominations as outsiders were less likely to give victim nominations to the receivers who were self-reported victims is that these students knew which classmates had been victimized, but their desire to stay uninvolved in the bullying episodes in their classroom was so strong that they denied the victimization, and did not provide names of victimized classmates.

The extent to which outsiders are aware of the bullying in their classroom and are willing to report it is an important topic for future research, as outsiders are a frequently targeted group in anti-bullying interventions (e.g., the Finnish KiVa anti-bullying program, the Olweus Bullying Prevention Program). These interventions aim to stimulate outsiders to help and defend their victimized classmates; however, if students do not know which of their classmates are victimized, or know it but do not want to admit it, they are unlikely to actually intervene. Understanding whether outsiders actually know who the victims are should be a primary goal for future research. If outsiders really are unaware of the bullying, anti-bullying interventions may be more successful when they explicitly teach students how to recognize victimized classmates and stress that it is the students' responsibility to intervene.

It was expected that students who actively contributed to the bullying (i.e., bullies and reinforcers), were likely to underreport receivers' victimization because they had strong incentives to deny any knowledge of the bullying; however, no support for such a relationship was found. A possible explanation for why this relationship was not found is that nominating victims in an anonymous survey did not cause cognitive dissonance. If this is true, however, it seems reasonable to assume that students who actively contributed to the bullying should be more likely to nominate classmates who were self-reported victims because these students have first-hand knowledge of what happened. Given that no support for a negative or positive relationship was found, it is possible that both effects were simultaneously present but canceled each other out.

Future studies could investigate why no relationship between reporter-receiver agreement and behaving as a bully or reinforcer was found in the present study by taking into account to whom these behaviors were directed (Huitsing & Veenstra, 2012). As mentioned earlier, it was hypothesized that when students bully a classmate they would be

unlikely to nominate this classmate as a victim due to cognitive dissonance. However, in the present study, the measures of bullying behavior were derived from asking students to nominate classmates who generally behaved in the described ways. Thus, it was not possible to disentangle who bullies whom. Investigating behavior during bullying episodes at a dyadic level would allow us to ascertain whether bullies indeed are unlikely to give victim nominations to their victims.

Finally, consistent with our hypothesis, the results of the current study indicated greater levels of agreement when reporters received more defending nominations. It was expected that defenders would be likely to give victim nominations as they were actively involved in the bullying by trying to make the victim's situation better rather than worse. However, because the data were cross-sectional, it was not possible to draw conclusions about the causal directions of the relationships found. It may be that reporters behaved as defenders because they recognized that their classmates were bullied. From this perspective, recognizing that a classmate is victimized would be an antecedent of behavior. Consistent with this argument, reporters who seemed to be well-aware of which classmates had been victimized tended to behave as defenders, whereas reporters who seemed to be less aware of which classmates had been victimized tended to behave as outsiders. Disentangling the causal mechanisms of these relationships is certainly another important avenue for future research, and would require a longitudinal design, which allows researchers to test whether recognizing that a certain classmate is victimized leads to the defending of this classmate (e.g., Huitsing, Snijders, Van Duijn, & Veenstra, 2014).

In this study, we controlled for variables that possibly affected reporter-receiver agreement. At the dyadic-level, it was found that reporter-receiver agreement depended on how often the receiver had been victimized. One explanation is that because these students were victimized more frequently, their classmates had more chances to observe it and, consequently, were better informed about the victimization. An alternative explanation is that those who reported to be victimized sometimes were more likely to over-report their victimization.

4.4.3 Classroom characteristics

Although this study focused on characteristics of the reporter-receiver dyad and the reporter, the results suggested that reporter-receiver agreement depended on classroom characteristics as well. That is, in some classrooms, self-reported victims were more often perceived as victimized than in other classrooms. At the classroom-level, a lower reporter-receiver agreement was found in larger classrooms. A possible explanation for this relationship is that in larger classrooms it is less likely that all classmates know each other well. Thus, students in larger classrooms may have less information about social interactions between classmates than students in smaller classrooms. Furthermore, it was found that reporters were more likely to give victim nominations to receivers who had reported to be victimized sometimes when there were more self-reported victims in the classroom. A possible explanation for this finding is that in classrooms with more self-reported victims, students were more experienced in recognizing victimized classmates.

Accordingly, in these classrooms students would be more likely to perceive classmates who are victimized sometimes as victimized. These findings are in line with other studies in which the bullying process has been found to be influenced by the classroom context (e.g., Oldenburg et al., 2015; Pozzoli, Gini, & Vieno, 2012; Salmivalli et al., 1996). Future studies could further investigate the relationship between classroom climate and reporter-receiver agreement.

4.4.4 Limitations

An important limitation of this study is that the complexity of the data was reduced by focusing on a subset of all possible dyads. This was done by including only reporters who did not report victimization and receivers who had reported being victimized. The focus was on non-victimized reporters because they potentially can intervene and stop the bullying. In addition, by making this division, it was possible to test the hypotheses using straightforward logistic multilevel models. It is likely that in reality, however, the distinction between victims and non-victims is not as straightforward. Moreover, by dividing students into non-victimized reporters and victimized receivers, it was not possible to investigate to what extent victims gave victim nominations to classmates who were self-reported victims, even though a recent study demonstrates that victims can defend each other as well (Huitsing & Veenstra, 2012). Future studies could build upon this study by adopting a design that allows students to be reporters and receivers at the same time.

Another limitation of this study is that peer and self-reported victimization were measured using different types of questions. Peer-reported victimization was measured by asking students to nominate up to 10 classmates for each of the five types of victimization (i.e., physical bullying, property attacks, verbal bullying, and direct and indirect relational bullying), whereas self-reported victimization was measured using one question with five response categories reflecting the frequency of the victimization. Combining the different questions led to a broad definition of reporter-receiver agreement. That is, there was reporter-receiver agreement each time the reporter nominated the receiver for one of the five types of victimization and the receiver indicated that he or she had been victimized sometimes, often, or very often. The comparison between peer and self-reports would have been more straightforward if peer and self-reports had the same format and contained information on the form as well as the frequency of the victimization.

As in other studies on school bullying, in the present study there was no objective way to determine reporters' behavior during bullying episodes. Previous studies indicated that students tend to provide rather favorable presentations of their own behavior by over-reporting positive behavior (i.e., defending the victim) and under-reporting negative behavior (i.e., bullying and reinforcing the bully) (O'Connell et al., 1999; Salmivalli et al., 1996). Thus, peer nominations rather than self-reports were used to measure behavior during bullying episodes. Several studies (Bouman et al., 2012; Gromann et al., 2013; Olthof et al., 2011; Pronk, Olthof, & Goossens, 2014; Reijntjes et al., 2013a; Reijntjes et al., 2013b) indicated that peer-nominated bullying behavior is associated in theoretically meaningful ways with various variables, including peer-nominated popularity and resource control,

teacher-rated resource control, peer-rated likeability, and self-perceived social competence. However, the proportions of peer-reported bullying behavior should not be interpreted as the degree of behaving in that role; the values actually represent the degree of others' awareness of the behavior. Even though it is plausible that reporters receive more nominations when they frequently behave in a certain way, peer-nominations may not reflect the amount of actual behavior.

Finally, in the present study some children were older than one would expect in the first year of secondary school. In the Netherlands children usually enter secondary school when they are approximately 12 years old. Older children in the first year of secondary school most likely were weaker performing pupils who repeated one or two grades in elementary school. Classrooms with a relatively high mean age may contain several of these weaker performing pupils who repeated grades in the past. It could be that there was less reporter-receiver agreement in those classrooms. Unfortunately, we do not have information on the classrooms' level of education and therefore suggest that future studies investigate the relationship between reporter-receiver agreement and educational level.

4.4.5 Conclusions

Despite these limitations, by using a dyadic approach, the present study shed light on the discrepancies between peer and self-reported victimization found in earlier studies. Results of the current study suggest that these discrepancies, at least to some extent, can be attributed to characteristics of the reporter-receiver dyad (i.e., gender similarity) and differences between reporters (i.e., reporters who behave as outsiders and defenders). Future research could focus on whether there is more reporter-receiver agreement for certain types of victimization. It is likely that agreement is higher for more visible types of victimization (e.g., physical victimization) than for less visible types of victimization (e.g., indirect relational victimization). In addition, future studies could investigate whether the bullying behavior of reporters toward specific receivers affects the extent to which reporters agree on the victimization of that specific receiver. Understanding to what extent and under what circumstances peer and self-reported victimization overlap may contribute to the identification of victims and improve anti-bullying interventions.

Chapter 5

Helping victims of bullying: The co-occurrence of defending, friendship, and dislike relationships

Abstract

This study investigated defending behavior in elementary schools using social network analysis. It was investigated to what extent defending relationships co-occurred with two common types of positive and negative relationships among elementary school students: friendship and dislike. Bivariate Exponential Random Graph Models (ERGMs) were used to analyze the defending-friendship and defending-dislike networks in seven grade-three classrooms. As expected, the results indicated that victimized students were likely to give defending nominations to students who they also nominated as a friend or who nominated them as friend. Moreover, defending was likely to occur when the victim and (potential) defender were both nominated as a friend by the same classmates. Victimized students were unlikely to give defender nominations to classmates whom they disliked or who had indicated to dislike them. Finally, defending was likely to occur between students who disliked the same classmates.

5.1 Introduction

One important reason for why students bully is that they aspire to social status in the peer group (Olthof et al., 2011; Olweus, 1993). By harassing others, bullies aim to demonstrate their power to the rest of the group (Veenstra, Lindenberg, Munniksma, & Dijkstra, 2010). Accordingly, bullying nearly always occurs in the presence of witnessing peers (Atlas & Pepler, 1998; Craig, Pepler, & Atlas, 2000).

Students who witness that their classmates are being bullied can react to this in three ways. They can: 1) support the bullying (e.g., join in or cheer), 2) ignore the bullying (e.g., walk away from it or pretend not to see it), or 3) defend the victim (e.g., help or comfort the victim). By supporting or ignoring the bullying, witnessing students inadvertently signal to the bully and victim that the bullying is 'cool' or that it at least is acceptable behavior. Conversely, by defending victimized classmates, students signal that they do not accept or like this kind of behavior. When most students disapprove the bullying and defend the victim, bullying is not an effective strategy to climb the social ladder. Indeed, one study demonstrated that defending was negatively associated with the frequency of bullying in the classroom (Salmivalli, Voeten, & Poskiparta, 2011). In addition, defending victimized classmates potentially mitigates the negative effects of bullying: one (cross-sectional) study demonstrated that defended victims had a better psychosocial adjustment than undefended victims (Sainio, Veenstra, Huitsing, & Salmivalli, 2011).

Defending is thus important: it may alter the bully's behavior and can provide a buffer against the negative consequences of bullying. In the past decade, several studies sought to better understand defending behavior. Although these studies provided valuable insight into defending, nearly all of them focused on individual characteristics of defenders (e.g., Nickerson, Mele, & Princiotta, 2008; Pozzoli et al., 2012), hereby ignoring that defending actually is a relational phenomenon. That is, defending is a directed dyadic relationship in which by definition at least two actors (i.e., a victim and a defender) are involved. This implies that rather than *being* a defender (i.e., always behaving in this way), students' behavior can be *flexible*; they may defend certain classmates but remain passive when other classmates are victimized (Huitsing & Veenstra, 2012).

We argue that in order to properly take this relational nature of defending into account, defending behavior should be investigated using social network analysis. In social network analysis the focus is not on individual-level outcomes but on the presence or absence of relationships between individuals within a certain social group. Recently, social network analysis has been used to investigate different types of positive and negative relationships among primary school and high school students (e.g., helping, liking, and bullying relationships) (Huitsing et al., 2012; Huitsing, Snijders, Van Duijn, & Veenstra, 2014; Van Rijsewijk, Dijkstra, Pattiselanno, Steglich, & Veenstra, 2016).

As far as we are aware of, only two studies have used social network analysis to investigate defending behavior. Sainio and colleagues (2011) investigated defending by analyzing dyadic relationships between victims and (potential) defenders (i.e., they investigated defending behavior between two students). Huitsing and colleagues (2014) carried these analyses a step further and investigated to what extent defending relationships

co-evolved with victimization and bullying relationships. They found that over time victims of the same bullies defended each other, that defenders ran the risk of becoming victimized by the bullies of the victims they defended, that bullies with the same victims defended each other, and that defenders of bullies joined the harassment of those bullies' victims.

Apart from these insights, not much is known about defending networks. The aim of the present study was to investigate defending networks in Dutch elementary schools. We were particularly interested in examining to what extent defending relationships co-occurred with two common types of positive and negative relationships among elementary school students: friendship and dislike. We elaborate on this in the following two sections.

5.1.1 Friendship

Dyadic friendship
Being friends with someone entails more than simply liking this person; friendship implies a certain degree of responsibility for each other's well-being. Consistent with this, several studies found a clear link between friendship and helping (Barry & Wentzel, 2006; Bowker et al., 2010; Bukowski, Hoza, & Boivin, 1994; Parker & Asher, 1993). It is likely that students feel responsible for defending their victimized friends and also expect to be defended by their friends when they are bullied.

A complication—and a possible explanation for why defending and friendship relationships may not fully overlap—is that friendships are not necessarily reciprocal. Although it is commonly assumed that when student i perceives student j as a friend, j will also perceive i as a friend, research suggests that this is not always the case (Vaquera & Kao, 2008).

In this study, three different friendship variations could be observed: 1) friendships in which the victim nominated the defender as a friend, but the defender did not reciprocate this nomination, 2) friendships in which the defender nominated the victim as a friend, but the victim did not reciprocate this nomination, and 3) reciprocated friendships. To account for this asymmetry, we did not only investigate to what extent defending relationships co-occurred with reciprocal friendship relationships, but also investigated to what extent it co-occurred with unreciprocated friendship relationships.

Friendship in groups
Friendship does not only occur in dyads, but also occurs in groups. According to Heider's (1958) balance theory, individuals tend to befriend friends of their friends. We argue that students are likely to defend victimized friends of their friends because even though they are not directly friends with these students (yet), they may have positive feelings towards them. In addition, by defending a victimized friend of their friend students may do this friend a favor.

5.1.2 Dislike

Dyadic dislike
By contrast, we argue that defending relationships are unlikely to co-occur with dislike relationships. Research demonstrated that students who defend victimized classmates run the risk of becoming targets of bullying as well (Huitsing et al., 2014; Meter & Card, 2015; Pozzoli, Gini, & Vieno 2012). We argue that students are unlikely to be willing to face this risk for victims whom they dislike. Accordingly, we expected that defending was unlikely to occur when the (potential) defender disliked the victim. Similarly to friendships, dislike relationships are not necessarily reciprocal. Accordingly, we investigated to what extent unreciprocated dislike relationships co-occurred with defending relationships.

Dislike in groups
In addition to dyadic dislike relationships, we investigated dislike relationships in groups. Heider's (1958) balance theory does not only imply that 'friends of my friends are my friends' but also that 'enemies of my enemies are my friends'. Being disliked by the same classmate or disliking the same classmate may create a bond. Therefore, we expected that defending relationships were likely to occur between students who were disliked by the same classmates or between students who disliked the same classmates.

5.1.3 The present study

In short, the present study aimed to contribute to prior studies on defending behavior by investigating defending networks in Dutch elementary schools. We investigated to what extent defending relationships co-occurred with two common types of positive and negative relationships among elementary school students: friendship and dislike. We hypothesized that defending was likely to occur between friends (hypothesis 1) and between friends of friends (hypothesis 2). In addition, we hypothesized that defending was unlikely to co-occur with dyadic dislike relationships (hypothesis 3). Finally, we hypothesized that defending relationships were likely to occur between students who were disliked by the same classmates (hypothesis 4) or between students who disliked the same classmates (hypothesis 5).

5.2 Method

5.2.1 Sample and procedure

The data were part of a larger ongoing project evaluating the effectiveness of the Dutch version of the KiVa anti-bullying program (see Huitsing et al., 2014; Oldenburg et al., 2015; Van Der Ploeg, Steglich, Salmivalli, & Veenstra, 2015). All data reported here were collected in May 2012, before the KiVa program was implemented. The data consisted of 462 elementary school classrooms. In order to be able to directly compare the parameter

estimates of the different classrooms, only (single grade) grade 3 classrooms with the median number of students (i.e., 23) were selected. The selected sample consisted of 7 classrooms.

Participating students filled out web-based questionnaires during regular school hours. Schools sent a letter with information about the study's aims and procedures to the students' parents before the data were collected. Parents who did not want their children to participate were requested to return a form to the school. The students read the questionnaire by themselves; difficult concepts were explained in instructional videos. In these videos a professional actress explained the questions in such a way that students would understand them (e.g., by using age-appropriate language, talking slowly, and articulating words clearly). Classroom teachers were present to answer questions and to assist students whenever necessary. Teachers were supplied with detailed instructions before the data collection had started and they were encouraged to help students in such a way that it would not affect their answers (e.g., by asking them questions such as "Which words are unclear to you?"). Students were reassured that their answers would remain confidential and they were advised not to talk about their answers to others.

5.2.2 Defending, friendship, and dislike networks

Defending networks
The defending networks were measured by asking victimized students which classmates defended them. Students who had experienced at least one form of bullying (e.g., physical, relational, or material bullying) in the past months were asked to nominate their defenders. Victimization was measured using the Olweus bully/victim questionnaire (Olweus, 1996). Victimized students read a description in which it was explained that some children help others who are bullied by supporting them, comforting them, or by telling the bullies to stop. After they read the description, the victimized students were asked to select the names of classmates who supported, comforted, or helped them when they were bullied. Victims could select an unlimited number of classmates as defenders. The defending variable had score 1 when victim i nominated classmate j as a defender (i.e., there was a defending relationship) and score 0 when victim i did not nominate classmate j as a defender (i.e., there was no defending relationship). By measuring defending in this way, defending a victimized classmate was represented by an incoming nomination. In other words, defenders were nominated by the victims whom they defended.

Friendship and dislike networks
Students were asked to select the names of classmates who were their best friends and of classmates whom they disliked. They could select an unlimited number of classmates for both questions. The friendship and dislike variables had score 1 when student i nominated classmate j (i.e., there was a friendship/dislike relationship) and score 0 when student i did not nominate classmate j (i.e., there was no friendship/dislike relationship).

Gender

Several studies demonstrated that during childhood and early adolescence social interaction predominantly takes place in same-gender peer groups (Baerveldt, Van De Bunt, & Vermande, 2014; Rubin, Bukowski, & Parker, 2006; Veenstra et al., 2013). Moreover, helping relationships are more likely to occur in girls' relationships than in boys' relationships (Batanova, Espelage, & Rao, 2014; Trach, Hymel, Waterhouse, & Neal, 2010; Van Rijsewijk et al., 2016). Accordingly, we added configurations reflecting gender similarity and gender sender and receiver effects to the models. Boys were coded as 1. The number of boys ranged from 9 to 13 boys per classroom.

5.2.3 Analyses

The hypotheses were tested using Exponential Random Graph Models (ERGMs, for a comprehensive overview see Robins et al., 2007a; Lusher, Koskinen, & Robins, 2013). ERGMs allow the researcher to investigate which patterns (e.g., reciprocity or transitivity) characterize relationships in an observed social network. Based on theoretical arguments, the researcher selects *network configurations* which are included in the model as 'explanatory variables'. Somewhat similar to logistic regression, a positive parameter indicates a higher occurrence of the configuration in the observed network than would be expected by chance. In ERGMs the interpretation of every model parameter is conditional on the other parameters in the model. This implies that dyadic configurations need to be taken into account when interpreting triadic or higher order configurations.

We used XPNet (Wang, Robins, & Pattison, 2009) to analyze the defending-friendship networks and defending-dislike networks. XPNet is the only software available for the estimation of multivariate ERGMs (for a comprehensive overview see e.g., Wang, 2013). The maximum number of networks that can be analyzed simultaneously in XPNet is two.

In ERGMs univariate configurations are used as building blocks for the bivariate models. We used the configurations of Huitsing and colleagues (2012, friendship and dislike) and Huitsing and Veenstra (2012, defending) as starting points for selecting univariate defending, friendship, and dislike configurations (see the first two sections of Tables 5.3 and 5.4). Based on the XPNet user manual (Wang et al., 2009) bivariate configurations that best matched the hypotheses were selected.

Table 5.1 provides an overview of the selected bivariate configurations. Similarly to the studies of Sainio and colleagues (2011) and Huitsing and colleagues (2014), in this study victimized students were asked who defended them. It is important to note that by measuring defending in this way, defending a victimized classmate was represented by an incoming nomination. The dashed grey circles in Table 5.1 represent victimized students. Dashed arrows represent defending relationships, solid arrows represent friendship or dislike relationships. The arrows point from the student giving the nomination towards the student receiving the nomination. The seven classrooms are indicated by Roman numerals.

For the defending-dislike networks it was not possible to include the reciprocityABB configuration in the model because, as expected, this configuration was (almost) never

observed in the selected classrooms (see Table 5.1). In our sample victimized students were unlikely to give defender nominations to classmates with whom they had a reciprocated dislike relationship.

In order to take into account that only victimized students could nominate defenders, non-victimized students were treated as structural zeros in the defending networks. These students could receive defender nominations but could not give defender nominations. The number of students who were treated as structural zeros ranged from 4 to 12 per classroom.

XPNet uses Markov Chain Monte Carlo (MCMC) methods to obtain Maximum Likelihood estimates. The model estimation successfully converges when the values of all t-statistics of parameters that are included in the model are smaller than 0.10 (Wang, Robins, & Pattison, 2009). As suggested by Wang, Robins and Pattinson (2009), we increased the multiplication factor for models that did not converge using the default settings. The used settings are listed in the footnotes of the tables displaying the results of the analyses. Once all t-statistics had reached a value smaller than 0.10, XPNet calculated the goodness of fit statistics. The model fitted the data when (most) t-statistics of parameters that were not included in the model were lower than 2. Through careful parameterization an acceptable goodness of fit was obtained for all networks.

In order to be able to draw general conclusions, the results of the two analyses were combined in two meta-analyses, using R-package metafor (Viechtbauer, 2010). Due to the selection of classrooms with the same size, the parameter estimates can be considered as parallel measures and are therefore comparable on the same scale. Average parameter estimates with standard errors are obtained in the meta-analysis, facilitating an overall test of the hypotheses. Moreover, the meta-analyses indicated whether the estimates varied significantly over the seven classrooms.

Table 5.1 Configurations defending-friendship and defending-dislike

Interpretation	Name (*Name in XPNet*)	Graphical representation	Class I	Class II	Class III	Class IV	Class V	Class VI	Class VII
The grey victimized student nominates a classmate as a defender and as a friend	ArcAB		37	50	56	30	19	58	38
The grey victimized student gives a defending nomination to a classmate who nominated him as a friend	ReciprocityAB		25	34	41	25	17	50	37
The grey victimized student gives a defending nomination to a classmate with whom he has reciprocal friendship	Reciprocity ABB		21	33	33	23	17	43	27
The grey victimized student gives a defending nomination to a friend of classmates who nominated him as a friend	Multiple two-paths of B with cyclic closure of A (*CKT-BAB*)		46.9	76.9	84.2	38.3	26.4	114.0	76.2
The grey victimized student and the classmate he nominates as a defender are both nominated as friends by the same students	Closure of A for shared in-ties of B (*DKT-BAB*)		58.2	93.2	100.3	51.1	30.6	130.8	99.3
The grey victimized student nominates a classmate as a defender and as someone he dislikes	ArcAB		1	3	1	0	0	2	1
The grey victimized student gives a defending nomination to a classmate who dislikes him	Reciprocity AB		3	8	3	0	0	2	3
The grey victimized student gives a defending nomination to a classmate with whom he has reciprocal dislike relationship	Reciprocity ABB		0	3	0	0	0	0	0
The grey victimized student and the classmate he nominates as a defender are both disliked by the same students	Closure of A for shared in-ties of B (*DKT-BAB*)		22.8	51.9	79.4	42.9	16.8	107.9	34.3

| The grey victimized student and the classmate he nominates as a defender both dislike the same students | Closure of A for shared out-ties of B (*UKT-BAB*) | | 22.0 | 73.5 | 91.5 | 31.1 | 14.3 | 46.5 | 29.0 |
| The grey victimized student gives a defending nomination to a classmate who dislikes a student who dislikes him | Multiple two-paths of B with cyclic closure of A (*CKT-BAB*) | | 19.0 | 54.9 | 81.9 | 29.2 | 13.8 | 62.9 | 27.6 |

Note. Dashed grey circles represent victimized students (i.e., students who could nominate defenders). Dashed arrows represent defending relationships (network A), solid arrows represent friendship or dislike relationships (network B). The arrows point from the student giving the nomination towards the student receiving the nomination.

5.3 Results

Table 5.2 displays the density (i.e., the relative number of relationships in the network) and the reciprocity of the defending, friendship, and dislike networks. Overall, the density and reciprocity were highest in the friendship networks, and lowest in the defending networks.

Table 5.2 Density and reciprocity							
	I	II	III	IV	V	VI	VII
Density defending	0.10	0.13	0.14	0.07	0.04	0.15	0.10
Reciprocity defending	0.13	0.14	0.16	0.17	0.10	0.17	0.19
Density friendship	0.21	0.25	0.26	0.22	0.25	0.34	0.38
Reciprocity friendship	0.23	0.30	0.27	0.29	0.33	0.32	0.23
Density dislike	0.11	0.22	0.25	0.25	0.16	0.17	0.19
Reciprocity dislike	0.16	0.21	0.31	0.31	0.18	0.17	0.20

5.3.1 Defending-friendship networks

Table 5.3 displays the results of the analysis of the defending (network A) and friendship (network B) networks. The univariate statistics demonstrate that defending (b=0.87, p<0.001) and friendship (b=1.12, p<0.001) were likely to be reciprocated. Moreover, the defending networks were characterized by clustering rather than connectivity (multiple two-paths, b=-0.11, p=0.03; transitive closure, b=0.48, p<0.001). The friendship networks also exhibit various clusters (out-ties spread, b=-1.56, p<0.001; multiple two-paths, b=-0.20, p<0.001; transitive closure, b=1.02, p<0.001). Moreover, Table 5.3 demonstrates that defending and friendship often occurred in same-gender groups (gender interaction defending, b=3.25, p=0.02; gender interaction friendship, b=1.08, p<0.001).

The meta-analysis indicates that classrooms differed significantly from each other in the size of the gender similarity effect for defending. For instance, in classrooms I, II, and V no significant effects were found, whereas in classrooms III, IV, VI, and VII strong effects were found. In fact, as Figure 5.1 illustrates (black triangles represent boys, white circles represent girls), the defending network in classroom IV was completely segregated, which explains the high parameter estimates in this classroom.
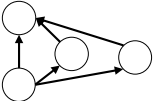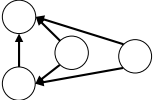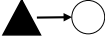
Figure 5.1 Defending network classroom IV
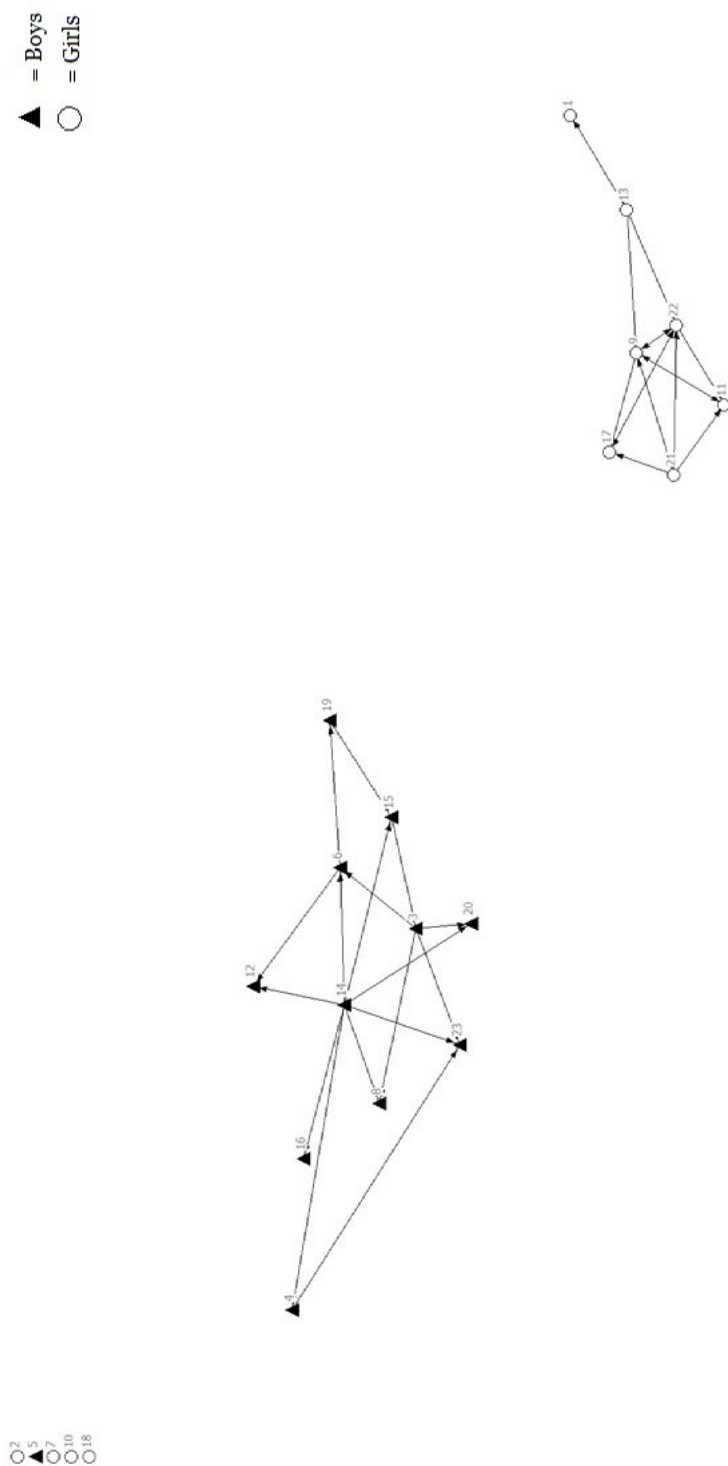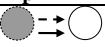
We hypothesized that defending was more likely to occur between friends and investigated three dyadic friendship variations. We found that victimized students were indeed likely to give defending nominations to students who they also nominated as their friend (arcAB, b=1.70, p<0.001). In addition, we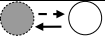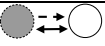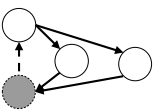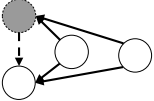 found that victimized students were likely to give defending nominations to students who nominated them as a friend (reciprocityAB, b=0.88, p=0.002). The reciprocity ABB configuration can be interpreted as a combination of the arc AB and reciprocity AB configurations. Table 5.3 shows a small non-significant negative estimate, indicating that there is no additional effect of this specific configuration.

In addition, we hypothesized that defending was likely to occur between friends of friends. Taking into account the other effects in the model, we found that defending was more likely to occur when the victim and potential defender were both nominated as a friend by other classmates (closure of A for shared in-ties of B, b=0.34, p<0.001). Victimized students were unlikely to give defending nominations to friends of classmates who nominated them as friends (multiple two-paths of B with cyclic closure of A, b=-0.37, p<.001), indicating that there is not a tendency toward generalized exchange (Bearman, 1997) but to a non-cyclic (hierarchical) ordering.

		Class Iᵃ	Class IIᵃ	Class IIIᵃ	Class IVᵃ	Class Vᵃ	Class VIᵃ	Class VIIᵇ	Meta-analysis

Table 5.3 Defending-friendship

Name (*Name in XPNet*)	Graphical representation	Est. (se)	Est. (se)	Est. (se)	Est. (se)	Est. (se)	Est. (se)	Est. (se)	Est. (se)
Defending (network A)									
Arc (*ArcA*)		-2.59* (0.62)	-2.69* (0.46)	-3.02* (0.57)	-3.30* (0.76)	-3.64* (1.10)	-2.83* (0.47)	-2.71* (0.66)	-2.86* (0.22)
Reciprocity (*ReciprocityA*)		-0.15 (0.78)	0.94 (0.77)	1.01 (0.63)	1.35 (0.83)	1.67 (1.19)	0.96 (0.62)	0.74 (0.61)	0.87* (0.27)
Multiple two-paths (*A2P-TA*)		-0.04 (0.11)	-0.11 (0.09)	-0.22 (0.11)	-0.20 (0.25)	-0.60 (0.45)	0.02 (0.10)	-0.28 (0.18)	-0.11* (0.05)
Shared in-ties (*A2P-DA*)		-0.04 (0.13)	-0.08 (0.06)	0.22* (0.08)	-0.11* (0.26)	0.20 (0.24)	-0.03 (0.09)	-0.51 (0.31)	0.00† (0.07)
Transitive closure (*AKT-TA*)		0.51 (0.26)	0.40 (0.22)	0.72* (0.22)	0.32 (0.34)	0.99 (0.69)	0.43* (0.21)	0.40 (0.23)	0.48* (0.10)
Gender interaction (boy=1) (*RbA-Attribute1*)		0.45 (0.71)	-0.62 (0.70)	3.81* (1.29)	11.08* (2.26)	7.19 (4.04)	1.96* (0.86)	3.38* (1.44)	3.25*† (1.41)
Sender effect (boy=1) (*RsA-Attribute1*)		-0.92 (0.50)	-0.06 (0.35)	-1.61* (0.67)	-7.02* (1.96)	-3.81 (4.10)	-1.01* (0.47)	-1.57 (0.96)	-1.19*† (0.42)
Receiver effect (boy=1) (*RrA-Attribute1*)		-0.65 (0.49)	-0.80 (0.45)	-2.26* (1.03)	-4.83 (3.68)	-3.87 (4.21)	-1.23* (0.48)	-1.67 (1.04)	-1.05* (0.26)
Friendship (network B)									
Arc (*ArcB*)		-1.67 (1.36)	0.56 (2.37)	0.28 (1.60)	0.59 (1.52)	1.69 (2.53)	1.80 (2.92)	-12.89* (2.58)	-1.31† (1.22)
Reciprocity (*ReciprocityB*)		1.75* (0.51)	1.16* (0.54)	1.03* (0.53)	0.97 (0.52)	1.33* (0.46)	1.36* (0.46)	0.56 (0.39)	1.12* (0.18)
In-ties spread (*In-K-StarB*)		1.05* (0.45)	1.76* (0.68)	-0.36 (0.54)	-0.43 (0.60)	-1.93 (1.41)	-1.39 (1.61)	8.92* (1.44)	1.05† (1.29)
Out-ties spread (*Out-K-StarB*)		-1.22 (0.63)	-4.77* (1.35)	-1.48 (0.82)	-1.25 (0.76)	-0.79 (0.66)	-1.41 (0.85)	-2.43* (0.73)	-1.56* (0.29)
Multiple two-paths (*A2P-TB*)		-0.29* (0.06)	-0.12* (0.03)	-0.21* (0.05)	-0.22* (0.07)	-0.18* (0.08)	-0.22* (0.05)	-0.22* (0.03)	-0.20* (0.02)
Shared in-ties (*A2P-DB*)		0.28* (0.08)	0.63* (0.11)	0.08 (0.09)	0.21 (0.11)	0.17 (0.11)	0.22* (0.07)	2.88* (0.46)	0.56† (0.31)

Transitive closure (*AKT-TB*)		0.55* (0.24)	1.48* (0.29)	1.21* (0.28)	1.25* (0.29)	0.60 (0.41)	0.78* (0.32)	1.14* (0.26)	1.02* (0.14)
K-triangles (*AKT-DB*)		-0.33 (0.25)	-0.58 (0.33)	-0.23 (0.22)	-0.79* (0.26)	0.41 (0.38)	0.19 (0.29)	-2.00* (0.44)	-0.45† (0.27)
Gender interaction (boy=1) (*RbB-Attribute1*)		1.14* (0.48)	1.57* (0.48)	0.04 (0.34)	2.98* (1.34)	1.16* (0.57)	1.12* (0.45)	1.44* (0.53)	1.08* (0.27)
Sender effect (boy=1) (*RsB-Attribute1*)		-0.24 (0.35)	-0.27 (0.25)	0.03 (0.29)	-0.73 (0.69)	-0.39 (0.32)	-0.18 (0.20)	-0.60* (0.24)	-0.29* (0.11)
Receiver effect (boy=1) (*RrB-Attribute1*)		-0.33 (0.33)	-0.21 (0.31)	0.06 (0.25)	-1.69 (0.95)	-0.24 (0.43)	0.12 (0.29)	-1.01* (0.34)	-0.28 (0.17)
Defending-friendship									
ArcAB		2.14* (0.45)	1.81* (0.42)	2.20* (0.47)	1.78* (0.71)	1.80 (1.23)	1.07* (0.38)	1.27* (0.62)	1.70* (0.21)
ReciprocityAB		0.70 (0.66)	-0.59 (1.08)	1.72* (0.62)	0.54 (0.96)	-1.90 (3.42)	0.83 (0.55)	0.99 (0.65)	0.88* (0.28)
ReciprocityABB		-0.09 (0.72)	1.57 (1.10)	-0.90 (0.59)	0.40 (1.06)	3.74 (3.45)	-0.08 (0.58)	-0.69 (0.71)	-0.21 (0.30)
Multiple two-paths of B with cyclic closure of A (*CKT-BAB*)		-0.17 (0.22)	-0.51* (0.20)	-0.63* (0.22)	-0.36 (0.34)	-0.71 (0.73)	-0.54* (0.19)	0.10 (0.24)	-0.37* (0.11)
Closure of A for shared in-ties of B (*DKT-BAB*)		0.20 (0.20)	0.57* (0.17)	0.04 (0.15)	0.63* (0.26)	-0.08 (0.29)	0.42* (0.13)	0.55* (0.25)	0.34* (0.10)

Note. Dashed grey circles represent victimized students (i.e., students who could nominate defenders). Dashed arrows represent defending relationships (network A), solid arrows represent friendship relationships (network B). The arrows point from the student giving the nomination towards the student receiving the nomination. The black triangles represent boys.

* Parameter is significantly different from zero (*p*<0.05)

† Significant differences between classrooms (*p*<0.05)

a Subphases=5, max. estimation runs=10, multiplication factor=80

b Subphases=5, max. estimation runs=10, multiplication factor=1000

5.3.2 Defending-dislike networks

Table 5.4 displays the results of the analysis of the defending (network A) and dislike (network B) networks. In order to obtain converged models with an acceptable goodness of fit, a sink configuration was added for the defending network of classroom II and an out-star configuration was added for the defending-dislike network of classroom IV. The univariate statistics show that dislike nominations were likely to be reciprocated (b=1.00, p<0.001). Moreover, students differed in the number of dislike nominations they received from (in-ties spread, b=0.36, p=0.04) and gave to classmates (out-ties spread, b=1.03, p<0.001). Students were likely to be disliked by the same classmates (shared in-ties, b=0.25, p<0.001) and to dislike the same classmates (shared out-ties, b=0.24, p<0.001).

We expected that defending was unlikely to co-occur with dyadic dislike relationships. Consistent with this hypothesis, we found that it was unlikely that victims gave defender nominations to classmates whom they disliked (arcAB, b=-1.80, p<0.001) and to classmates who disliked them (reciprocityAB, b=-2.10, p=0.01). Note that the reciprocityAB parameters of classrooms IV and V had to be constrained in order to obtain converged models.

We hypothesized that defending relationships were likely to occur between students who were disliked by the same classmates, but did not find support for this hypothesis. Finally, as expected we found that defending was likely to occur between students who disliked the same classmates (closure of A for shared out-ties of B, b=0.28, p<0.001).

Table 5.4 Defending-dislike

Name (*Name in XPNet*)	Graphical representation	Class I[a] Est. (se)	Class II[b] Est. (se)	Class III[c] Est. (se)	Class IV[d] Est. (se)	Class V[b] Est. (se)	Class VI[a] Est. (se)	Class VII[d] Est. (se)	Meta-analysis Est. (se)
Defending (network A)									
Arc (*Arc-A*)		-1.74* (0.50)	-1.69* (0.44)	-1.12* (0.52)	-2.40* (0.47)	-1.60* (0.57)	-1.91* (0.41)	-1.95* (0.46)	-1.80* (0.18)
Reciprocity (*Reciprocity-A*)		0.64 (0.69)	1.45* (0.67)	1.46* (0.59)	1.97* (0.82)	2.79* (1.15)	0.79 (0.61)	0.82 (0.54)	1.21* (0.25)
Sinks (*Sink-A*)		-	2.56* (0.94)	-	-	-	-	-	-
Multiple two-paths (*A2P-TA*)		-0.05 (0.09)	-0.23* (0.10)	-0.45* (0.13)	-0.46* (0.22)	-0.80* (0.40)	-0.18* (0.09)	-0.20 (0.12)	-0.24* (0.06)
Shared in-ties (*A2P-DA*)		0.08 (0.11)	0.19* (0.08)	0.55* (0.12)	0.38* (0.15)	0.21 (0.18)	0.36* (0.08)	0.05 (0.15)	0.26*† (0.07)
Transitive closure (*AKT-TA*)		0.61* (0.22)	0.53* (0.19)	0.48* (0.21)	0.69* (0.24)	0.69 (0.55)	0.47* (0.18)	0.74* (0.17)	0.59* (0.08)
Gender interaction (boy=1) (*RbA-Attribute1*)		1.90* (0.63)	0.87 (0.57)	4.68* (1.46)	13.51* (2.22)	10.51* (4.42)	2.91* (0.90)	4.61* (1.49)	4.86*† (1.62)
Sender effect (boy=1) (*RsA-Attribute1*)		-1.38* (0.43)	-0.28 (0.22)	-2.19* (0.77)	-7.75* (2.71)	-5.03 (3.76)	-1.33* (0.53)	-2.08* (0.97)	-1.46*† (0.42)
Receiver effect (boy=1) (*RrA-Attribute1*)		-1.22* (0.43)	-0.81* (0.37)	-2.78* (1.06)	-5.86 (3.99)	-5.40 (4.10)	-1.46* (0.51)	-2.23* (1.01)	-1.30* (0.25)
Dislike (network B)									
Arc (*Arc-B*)		-3.64* (0.45)	-5.30* (0.52)	-4.54* (0.84)	-6.05* (0.59)	-5.56* (0.44)	-5.40* (0.83)	-5.46* (0.42)	-5.13*† (0.33)
Reciprocity (*Reciprocity-B*)		0.91 (0.55)	0.91* (0.39)	1.69* (0.40)	0.70 (0.43)	0.96 (0.48)	0.56 (0.51)	0.99* (0.41)	1.00* (0.17)
In-ties spread (*In-K-StarB*)		0.17 (0.44)	0.74 (0.42)	-0.26 (0.53)	0.14 (0.39)	0.88 (0.47)	0.82* (0.37)	-0.05 (0.34)	0.36* (0.17)
Out-ties spread (*Out-K-StarB*)		0.91 (0.55)	0.69 (0.43)	1.47* (0.58)	1.06* (0.42)	0.57 (0.41)	0.89* (0.34)	1.71* (0.38)	1.03* (0.17)
Multiple two-paths (*A2P-TB*)		0.06 (0.09)	0.00 (0.05)	-0.01 (0.10)	0.08 (0.08)	-0.07 (0.06)	-0.04 (0.06)	-0.01 (0.07)	-0.01 (0.02)

Shared in-ties (*A2P-DB*)		-0.04 (0.22)	0.24* (0.08)	0.12 (0.15)	0.21* (0.09)	0.31* (0.06)	0.30* (0.05)	0.13 (0.10)	0.25* (0.03)
Shared out-ties (*A2P-UB*)		0.17 (0.13)	0.32* (0.07)	0.30* (0.10)	0.18 (0.13)	0.20 (0.13)	-0.03 (0.16)	0.23* (0.11)	0.24* (0.04)
Gender interaction (boy=1) (*RbB-Attribute1*)		1.18 (0.60)	-0.12 (0.47)	-1.47* (0.68)	-2.35* (0.76)	-4.18* (1.16)	-10.15* (2.93)	-0.67 (0.53)	-1.74† (0.92)
Sender effect (boy=1) (*RsB-Attribute1*)		-1.15* (0.47)	-0.26 (0.30)	0.08 (0.42)	1.70* (0.50)	1.03* (0.35)	1.30* (0.44)	0.35 (0.28)	0.42† (0.35)
Receiver effect (boy=1) (*RrB-Attribute1*)		-0.45 (0.36)	0.36 (0.25)	0.74 (0.37)	1.10 (0.57)	1.14* (0.36)	1.32* (0.52)	0.58 (0.32)	0.62*† (0.22)
Defending-dislike									
ArcAB		-2.05 (1.10)	-1.68* (0.67)	-2.40* (1.06)	-6.24 (4.12)	-4.45 (5.91)	-1.21 (0.73)	-2.15* (1.09)	-1.80* (0.38)
Reciprocity AB		-0.49 (0.68)	-0.36 (0.44)	-1.30 (0.70)	fixed	fixed	-1.30 (0.76)	-0.69 (0.66)	-2.10* (0.81)
Outstar (*Out2StarAB*)		-	-	-	0.10* (0.04)	-	-	-	-
Closure of A for shared in-ties of B (*DKT-BAB*)		0.05 (0.28)	-0.03 (0.12)	-0.52* (0.19)	-0.19 (0.38)	0.05 (0.44)	-0.35 (0.20)	0.15 (0.26)	-0.16 (0.11)
Closure of A for shared out-ties of B (*UKT-BAB*)		0.54* (0.13)	0.20 (0.17)	0.20 (0.14)	-0.26 (0.58)	-0.06 (0.96)	0.19 (0.17)	0.20 (0.24)	0.28* (0.08)
Multiple two-paths of B with cyclic closure of A (*CKT-BAB*)		-0.61 (0.42)	0.02 (0.19)	0.34 (0.26)	0.25 (0.61)	0.12 (1.07)	0.17 (0.25)	-0.02 (0.34)	0.07 (0.11)

Note. Dashed grey circles represent victimized students (i.e., students who could nominate defenders). Dashed arrows represent defending relationships (network A), solid arrows represent dislike relationships (network B). The arrows point from the student giving the nomination towards the student receiving the nomination. The black triangles represent boys.

* Parameter is significantly different from zero ($p<0.05$)

† Significant differences between classrooms ($p<0.05$)

[a] subphases=5, max. estimation runs=10, multiplication factor=500

[b] subphases=5, max. estimation runs=10, multiplication factor=1000

[c] subphases=5, max. estimation runs=10, multiplication factor=160

[d] subphases=5, max. estimation runs=10, multiplication factor=320

[e] subphases=5, max. estimation runs=10, multiplication factor=80

5.4 Discussion

Defending is important: it may alter the bully's behavior and can provide a buffer against the negative consequences of bullying. The present study aimed to contribute to prior studies on defending behavior by investigating to what extent defending relationships co-occurred with two common types of positive and negative relationships among elementary school students: friendship and dislike.

We argued that students are likely to feel responsible for helping their victimized friends and predicted that defending was likely to occur between students who were friends. We investigated three dyadic friendship variations. The analyses showed that victimized students were indeed likely to give defending nominations to students who they also nominated as their friend. Moreover, we found that victimized students were likely to give defending nominations to students who nominated them as friend.

Consistent with balance theory (Heider, 1958), we found that students were likely to defend the defenders of their defenders and befriend the friends of their friends. We hypothesized that defending was likely to occur between friends of friends and found that defending was more likely to occur when the victim and (potential) defender were both nominated as a friend by other classmates. However, we also found that victimized students were unlikely to give defending nominations to friends of classmates who nominated them as friends. An explanation for this finding is that in positive networks, there is a tendency to have a hierarchical ordering with relatively little cyclic closure. For that reason, longitudinal social network studies using SIENA often find a negative estimate for the three-cycle parameter (Veenstra, Dijkstra, Steglich, and Van Zalk, 2013).

We expected that defending was unlikely to co-occur with dyadic dislike relationships. In line with this hypothesis, we found that it was unlikely that victims gave defender nominations to classmates whom they disliked. In addition, victimized students were unlikely to give defender nominations to classmates who disliked them. Moreover, as the descriptive statistics showed, the victimized students in our sample did not give defender nominations to classmates with whom they had a reciprocated dislike relationship.

Finally, we expected that defending relationships were likely to occur between students who were disliked by the same classmate but did not find support for this hypothesis. Instead, we found that defending was likely between students who disliked the same classmates. It may be that these disliked classmates are the victims' bullies. This explanation is in line with the study of Huitsing and colleagues (2014) who found that victims of the same bullies defended each other.

Consistent with previous studies demonstrating that during childhood and early adolescence social interaction predominantly takes place in same-gender peer groups (Baerveldt, Van De Bunt, & Vermande, 2014; Rubin, Bukowski, & Parker, 2006; Veenstra et al., 2013), we found that defending often occurred in same-gender groups. The strength of the gender effects varied per classroom. That is, in some classrooms no gender effects were found, whereas in other classrooms the defending network was completely segregated. In a larger study classroom gender effects might be further studied.

The findings of this study should be interpreted tentatively. We hope that future studies will repeat our study using a larger sample and students of different age groups.

Future studies may also further investigate differences in defending between classrooms. Moreover, given that defending was measured by reports of victims, it is unclear whether students were actually defended by the classmates whom they nominated as defenders. Although, students were asked to report on *actual* defending, it is possible that victimized students nominated their friends as *hypothetical* defenders, even though they had not actually been defended by these classmates. In other words, students may have nominated friends whom they perceived as potential defenders. Our data did not allow to test whether the nominated defenders confirmed their behavior. Even though it is the *perceived* defending rather than the *actual* defending that affects the victim's well-being (Sainio et al., 2011), it would be interesting to find out whether victims and the students they nominate as defenders agree on their defending relationship.

Furthermore, a rather broad definition of defending behavior was used in this study. Defending was defined as helping, supporting, or comforting the victim. It would be interesting to investigate possible differences between publicly standing up for the victim and more subtle forms of defending behavior, such as comforting the victim after the bullying. In addition, in most studies on school bullying students are considered victimized when they had been bullied at least twice a month, whereas in the present study students were considered victimized when they had been bullied at least once in the past four months.

Despite these limitations, the present study can be considered a first step in investigating defending, friendship, and dislike relationships using a social network approach. We conclude that victimized students were indeed likely to give defending nominations to students who they also nominated as their friend or who nominated them as friend. Moreover, defending was more likely to occur when the victim and potential defender were both nominated as a friend by the same classmates. In addition, we conclude that victims were unlikely to give defender nominations to classmates whom they disliked or who had indicated to dislike them. Finally, we found that defending was likely to occur between students who disliked the same classmates, perhaps the bullies. Given that the strength of some patterns varied per classroom, it seems that classroom characteristics affect defending behavior as well. This may imply that when addressing defending behavior, for instance by anti-bullying interventions, uniform measures may not be adequate. We hope that future studies will follow up on our study and further investigate this.

Chapter 6

General conclusions and discussion

6.1 Investigating the role of teachers and classmates

School bullying, the systematic and intentional abuse of students who cannot easily defend themselves, poses a substantial threat to the current and later well-being of those who are bullied, those who witness the bullying, and those who bully (Isaacs, Hodges, & Salmivalli, 2008; Olweus, 1993; Scholte et al., 2007). In the past two decades much progress has been made in understanding the underlying mechanisms of bullying. It is now understood that bullying is a complex phenomenon in which teachers and classmates play important roles. More specifically, it is understood that teachers are important actors within the classroom context (e.g., Hektner & Swenson, 2011; Veenstra et al., 2014), that classmates are the bully's audience (Salmivalli et al., 1996), and that bullying is a relational phenomenon (Huitsing et al., 2012; Huitsing & Veenstra, 2012).

In this dissertation I presented four empirical studies in which I further investigated the role that teachers and classmates play in handling bullying. More specifically, I investigated teachers' and classmates' perceptions of and behavior towards bullying. Chapter 2 investigated how teachers' characteristics—in particular their perceptions of bullying—were associated with the number of victims in their classroom. Chapter 3 investigated whether teachers were prepared to tackle bullying by examining their perceptions of what bullying is and which students were victimized, and what strategies they used to find out about bullying. Chapter 4 investigated whether the classmates of self-reported victims perceived them as victimized. Finally, chapter 5 investigated the extent to which defending relationships co-occurred with friendship and dislike relationships. Table 6.1 provides an overview of the findings per topic. In the following sections I discuss the main findings and implications of the four empirical studies. In addition, I discuss directions for future research and practical recommendations.

Table 6.1 Overview of findings per topic		
	Perceptions of bullying	**Behavior towards bullying**
Teachers	• More students reported to be victimized in classrooms of teachers who believed that bullying could be attributed to external factors (chapter 2) • More students reported to be victimized in classrooms of teachers who perceived that they were able to handle bullying among students (chapter 2) • More students reported to be victimized in classrooms of teachers who had a personal history of bullying others (chapter 2) • Teachers gave incomplete definitions of bullying (chapter 3) • Teachers often did not recognize self-reported victims (chapter 3)	• Teachers used limited strategies to find out about bullying (chapter 3)
Classmates	• Students in same-gender dyads were likely to recognize self-reported victims (chapter 4) • Students who behaved as outsiders were unlikely to recognize self-reported victims (chapter 4) • Students who behaved as defenders were likely to recognize self-reported victims (chapter 4) • Students were unlikely to agree on the victimization of students who reported that they had been victimized sometimes (chapter 4)	• Victimized students were likely to be defended by students who they nominated as a friend or who nominated them as friend (chapter 5) • Defending was more likely to occur when the victim and potential defender were both nominated as a friend by the same classmates (chapter 5) • Victimized students were unlikely to be defended by classmates whom they disliked or who disliked them (chapter 5) • Defending was likely to occur between students who disliked the same classmates (chapter 5)

6.2 Main findings and implications

6.2.1 Teachers and bullying: unprepared or afraid?

Chapter 2 showed that teachers' characteristics were associated with the number of victims in the classroom. There were more self-reported victims when teachers attributed bullying to external factors (i.e., factors outside their control), when teachers perceived that they were able to handle bullying behavior among their students, and when teachers had a personal history of bullying others. Although the explorative character of chapter 2 implies that these findings need to be interpreted cautiously, these findings suggest that teachers' perceptions and personal experience rather than fixed characteristics, such as teachers' work experience or gender, affected the prevalence of victimization.

Previous studies showed that teachers' perceptions about bullying are not always accurate. For instance, Craig, Henderson, and Murphy (2000) found that whereas teachers believed that they were sufficiently aware of the bullying in their classrooms, their students thought they were only aware of a fraction of all the bullying episodes. Consistent with this study, chapter 2 suggests that some teachers had inaccurate perceptions about bullying. For instance, even though tackling bullying is generally considered a difficult task (Merrell, Gueldner, Ross, & Isava, 2008; Smith, Schneider, Smith, & Ananiadou, 2004) some of the teachers indicated that they found it (very) easy to handle bullying behavior among their students. In the classrooms of those teachers the prevalence of bullying was the highest, which suggests that these teachers overestimated their own capacities or that they underestimated the complicated nature of bullying.

Inaccurate perceptions were also found in chapter 3. Even though the teachers in chapter 3 had been participating in an anti-bullying program for at least one year, and throughout the program the core elements of bullying were regularly emphasized, none of them provided a complete definition of bullying. This finding is consistent with the study of Bauman and Del Rio (2005) who found that the majority of the investigated (trainee) teachers did not have a clear understanding of the definition of bullying. Moreover, only a few of the self-reported victims were perceived as victims by their teachers. Some teachers argued that their students exaggerated their victimization. In addition, several teachers gave victim nominations to students who according to their self-reports were not victimized.

These findings are worrying because teachers' perceptions affect whether they will intervene in bullying episodes in their classroom and with how much effort, persistence, and intensity they will do so (Poulou & Norwich, 2002). Moreover, teachers function as role models for their students and their perceptions may affect the bullying process (Poulou & Norwich, 2002). Even though teachers have a central role in tackling bullying, they may not be fully prepared for this task. This impression is supported by the finding that teachers used limited strategies to find out about bullying. Based on the results of chapters 2 and 3, I agree with previous scholars (e.g., Hektner & Swenson, 2011; Veenstra et al., 2014) who argued that teachers should not only be seen as *implementers* of anti-bullying interventions, but also as *targets* of these interventions.

In order to effectively target teachers in anti-bullying interventions it is important to better understand why teachers have inaccurate perceptions of bullying. It could be that

they did not have enough knowledge about bullying, but it is also possible that teachers gave socially desirable answers. As in many other countries, there is a strong anti-bullying climate in the Netherlands. A general awareness of suicide as a consequence of bullying has emerged after recent suicide cases by adolescents and young adults. Without doubt more attention for the possible negative consequences of bullying is a positive development, but a downside of this may be that teachers are afraid to admit that there is bullying in their classroom or that they have problems stopping bullying. Accordingly, teachers may deny that their students are actually victimized and claim that if there would be bullying in their classroom, they could easily stop it.

6.2.2 Identifying victims of bullying

I argue that when teachers and classmates do not perceive certain students as victimized, it is unlikely that they will intervene and help these students when they are bullied. Chapters 3 and 4 suggest that numerous students who were self-reported victims were not perceived as victims by their teachers or classmates. Only a few teachers and classmates gave victim nominations to all self-reported victims. These findings are of potential concern as they may suggest that teachers and classmates are insufficiently aware of the victimization in their classroom. However, it may also be that teachers and classmates suspect bullying but rather ignore it or underestimate its severity by regarding it as not *really* bullying. The idea of being at least partially responsible for the victim's suffering potentially causes teachers and classmates to experience mental stress and discomfort (i.e., cognitive dissonance). A simple method for eliminating these negative feelings is by denying that the victim is actually bullied (Teräsahjo & Salmivalli, 2003).

An alternative explanation for why students' self-reported victimization does not overlap with reports of classmates and teachers is that students exaggerated their victimization. Some teachers in chapter 3 argued that this was the case and also in previous studies (e.g., Graham & Juvonen, 1998) it was argued that students may over-report their victimization. Students may for instance over-report their victimization because they misperceive certain behavior as bullying (i.e., 'paranoid' victims, Graham & Juvonen, 1998).

As in nearly all studies on this topic, it was impossible to disentangle why certain self-reported victims were not perceived as victims by their teachers and classmates (Bouman et al., 2012; Cornell & Brockenbrough, 2004; Graham & Juvonen, 1998; Ladd & Kochenderfer-Ladd, 2002). Without consensus on an objective method for determining whether a student is actually victimized, typically reports of different informants (e.g., students, teachers, and parents) are used to identify victims of bullying (Bouman et al., 2012; Graham & Juvonen, 1998; Ladd & Kochenderfer-Ladd, 2002). When all informants agree on the victimization of a certain student, it seems safe to assume this student is actually (not) victimized. However, when the reports of different informants are discrepant, identifying victims becomes more problematic. A rational guideline would be to take self-reported victims seriously, even though others do not perceive these students as victimized. After all, it is the perceived victimization rather than the actual victimization that affects the victim's well-being. Moreover, when teachers, classmates, or parents perceive that a certain

student has been victimized but this student did not report being victimized, this information should be taken seriously as well, because students might deny their own victimization (Graham & Juvonen, 1998). For instance because they feel ashamed or are afraid of potential reprisals from the bullies. In short, I contend that when students report they have been victimized, or are reported as victims by others, they should be considered victimized.

Focusing on which students were perceived as victims by *individual* classmates allowed investigating whether certain students were more competent in reporting the victimization of their classmates. It was found that students who behaved as outsiders during bullying episodes (i.e., students who actively shied away from the bullying) were less likely to give victim nominations to self-reported victims, and in contrast, students who behaved as defenders (i.e., reporters who helped and supported victims) were more likely to give victim nominations to self-reported victims. Future studies may further investigate whether some teachers or students are better able to recognize victimized students than others. For instance, future studies could investigate whether teachers who provided more complete definitions of bullying and used more effective strategies to find out about bullying were more successful in recognizing victimized students. Moreover, it was found that students who were victimized sometimes were less likely to be perceived as victims by their classmates than students who were victimized often or very often. Future studies could investigate whether some victims are easier to recognize (e.g., victims of more visible forms of bullying) than others. Using social network analysis, future studies may not only investigate whether teachers and classmates recognize victimized students, but may also examine whether they know *who* bullies *whom*. It is plausible that teachers would be better able to tackle bullying when they have accurate perceptions of who bullies whom.

6.2.3 Defending

Defending is important behavior: it may alter the bully's behavior and can provide a buffer against the negative consequences of bullying (Sainio, Veenstra, Huitsing, & Salmivalli, 2011; Salmivalli, Voeten, & Poskiparta, 2011). Even though most students seem to hold negative attitudes towards bullying, they rarely defend their victimized classmates (Atlas & Pepler, 1998; Hawkins, Pepler, & Craig, 2001). A possible explanation for this is that students do not perceive their victimized classmates as victimized, as found in one study where students argued that some classmates were not *actually* bullied (Teräsahjo & Salmivalli, 2003). It seems plausible that students will not stand up for classmates whom they do not consider to be bullied. Chapter 4 investigated this topic by comparing self-reported victimization to peer reported victimization. A dyadic approach was used which allowed investigation of whether students with certain characteristics were more likely to agree on the self-reported victimization of their classmates than others and whether there was more agreement in certain relationships. The results show that students who behaved as defenders were more likely to recognize victimized students. This could imply that recognizing that certain students are victimized leads to defending. However, the use of cross-sectional data implies that no conclusions on the causal direction of this relationship

can be drawn. It is also possible that defending victimized classmates leads to better recognition or that there is a two-way causal relationship.

I investigated to what extent defending relationships co-occurred with two common types of positive and negative relationships among elementary school students; friendship and dislike. I predicted that defending was likely to occur between friends and between friends of friends. I also hypothesized that defending was unlikely to co-occur with dyadic dislike relationships. Finally, I hypothesized that defending relationships were likely to occur between students who were disliked by the same classmate and between students who disliked the same classmate. The findings of chapter 5 show that victimized students were indeed likely to give defending nominations to students who they also nominated as a friend or who nominated them as friend. Moreover, defending was likely to occur when the victim and (potential) defender were both nominated as a friend by the same classmates. Victimized students were unlikely to give defender nominations to classmates whom they disliked or who had indicated to dislike them. Finally, defending was likely to occur between students who disliked the same classmates. Chapter 5 also demonstrated that gender affected defending relationships, but that the strength of the gender effects varied per classroom. Given that the strength of the effects varied per classroom, it seems classroom characteristics affect defending behavior as well. This may imply that anti-bullying interventions are not equally effective in all classrooms.

6.2.4 The classroom composition matters

Although not the focus of this dissertation, the studies presented in this dissertation underline the need to take the classroom composition into account when investigating ways to stop bullying. Chapter 5 demonstrated that defending behavior varied per classroom. Moreover, chapter 4 demonstrated that students were less likely to perceive self-reported victims as victimized in classrooms with more students. A possible explanation for this finding is that in classrooms with more students it is less likely that all classmates know each other well. Thus, students in larger classrooms may have less information about social interactions between classmates than students in smaller classrooms. Consistent with this explanation, it was recently found that there was less bullying when students knew each other better (Van Den Berg, 2015).

The classroom composition also mattered in chapter 2. In that chapter was found that there were less victimized students in multi-grade classrooms. A possible explanation for this finding is that there is less competition in multi-grade classrooms. This explanation fits the evolutionary approach that Ellis and colleagues (2012) use to better understand bullying. From an evolutionary perspective, bullying can be seen as a strategy to obtain and control valuable physical, social, or sexual resources (e.g., food or social status). It is plausible that in multi-grade classrooms there is less need for competition over these resources, because due to the mix of older and younger students there is a natural social hierarchy.

6.3 Directions for future research

The use of cross-sectional data and small-scale samples implies that the findings of the studies presented in this dissertation should be interpreted carefully. Future studies are needed to corroborate whether teachers indeed have inaccurate perceptions of bullying and are not fully prepared to tackle bullying. These studies should not only focus on teachers' 'shortcomings', but also investigate how bullying affects teachers. Moreover, future studies should investigate whether recognition of victimized classmates indeed leads to defending these classmates.

The findings of this dissertation might be extended to bullying at work, a topic recently receiving a lot of (media) attention in the Netherlands. A work context in which people are not free to choose their coworkers may bear sufficient similarities to the classroom setting, where the group process may not only lead to friendship, but also to bullying and defending behavior.

I particularly hope that future studies will follow up on the finding that teachers and classmates do not seem to recognize victimized students. I argue that this finding is worrying given that teachers and classmates are unlikely to help and support students whom they do not perceive as victimized. Future studies could not only investigate whether teachers and classmates know who the victims are, but also investigate whether they know *who* bullies *whom*. Moreover, these studies could investigate perceptions of teachers and classmates on other relationships such as friendship, dislike, and defending.

Studies on cognitive social structures (CSS) could provide a useful framework for future research (e.g., Krackhardt, 1987; Neal, Neal & Cappella, 2013). CSS studies investigate individuals' perceptions of the social structures within a given social context. In CSS studies individuals report on the relationships between all other actors in the social context. Different reports (e.g., students and teachers) are subsequently compared.

Cognitive networks might also be a good starting point to discuss the situation in the classrooms with the teachers. In the study presented in chapter 3, teachers were asked for the names of victimized students. After the interviews some teachers were curious about the agreement between their perceptions of the victims in their classroom and the reports of the students; indicating that they were not fully sure about their own answers. Perhaps this curiosity could serve as a starting point for discussing the situation in the classroom with teachers. A coach could discuss teacher's victim nominations with the teacher and compare these with students' reports.

6.4 Practical recommendations

Based on the presented findings four practical recommendations can be made.

6.4.1 Improve teachers' knowledge about bullying

Teachers play central roles in tackling bullying. Yet they seem not fully equipped for this task. I argue that anti-bullying programs and teacher trainings should spend more time

educating teachers about bullying. Based on the findings presented in this dissertation I argue that more emphasis should be placed on what bullying exactly is and on the severe consequences it may have. Teachers should be made aware that bullying happens in almost every classroom (also their classroom!) and that it tends to happen in places where they cannot see it. They should also be made aware of the fact that students tend to be reluctant to inform their teachers about the bullying. In other words, it is important that teachers realize that even when they do not see or hear about bullying, it does not mean that it does not happen. Moreover, teachers should understand that bullying is a complex phenomenon and that it is often difficult to pinpoint the exact cause. Finally, teachers should be made aware that they have a responsibility to intervene when bullying occurs and that they should take signs of bullying seriously, even when they have the feeling these signals are wrong.

6.4.2 Set realistic goals

At the same time it is important that teachers and the people around them (e.g., the school management and parents) have realistic goals. As shown in chapter 2, there are almost no classrooms where no students are victimized at all. Bullying is a complex phenomenon and it seems unrealistic to expect that teachers can completely eradicate it. It should be stressed that the occurrence of bullying does not mean that teachers are not doing their job well. By underlining the complex nature of bullying, teachers may feel more comfortable to admit that there is bullying in their classroom and that they sometimes do not know how to stop it. It should be stressed that teachers may not be able to fully stop the bullying, but that they can improve the victim's situation. Accordingly, teachers' goal could be to improve the victim's situation rather than to completely stop the bullying.

6.4.3 Improve students' knowledge about bullying

In several anti-bullying interventions (e.g., KiVa, see Kärnä et al., 2011) students are stimulated to defend their victimized classmates. However, chapter 4 suggests that students do not always recognize victimized classmates. It seems plausible that students will not help classmates whom they do not consider to be bullied. Accordingly, I argue that anti-bullying programs should spend more attention on recognizing bullying. It should be explained that bullying is largely a subjective phenomenon and that it could be that not everyone in the classroom agrees on a students' victimization. Students should be made aware that what matters is not so much the actual victimization but the perceived victimization and that their help can improve the situation of the victim.

6.4.4 Change the classroom composition

This dissertation demonstrated that the classroom composition affects the bullying process. Chapter 2 demonstrated that there were less victimized students in multi-grade classrooms and chapter 4 demonstrated that students were less likely to perceive self-reported victims

as victimized in classrooms with more students. Teachers and schools may not be able to control all factors that cause bullying, but they may be able to affect the classroom composition. Even though more research is needed to replicate these findings, teachers and schools may experiment with the classroom composition and investigate whether this has an effect on the bullying.

6.5 Conclusion

In short, this dissertation provided more insight into the role that teachers and classmates play in stopping bullying. The results suggest that even though teachers have a central role in tackling bullying, they may not be fully prepared for this task. Moreover, the results suggest that victimized students were often not recognized by their teachers and classmates and that students who behaved as defenders were more likely to recognize victimized students. Furthermore, it was found that defending behavior was associated with friendship and dislike relationships. Finally, the results suggest that the classroom composition is associated with the recognition of victims and the prevalence of victimization. In short, the findings of this dissertation point out the need to consider teachers' and classmates' perceptions and behavior and the classroom composition in anti-bullying interventions.

Nederlandse samenvatting

(Summary in Dutch)

Samenvatting (summary in Dutch)

Pesten is een groot probleem dat ernstige gevolgen voor het welzijn van alle betrokkenen kan hebben. In de afgelopen jaren is er veel onderzoek naar pesten gedaan. Uit deze onderzoeken blijkt dat pesten niet, zoals eerder werd gedacht, een negatieve interactie tussen alleen de pester en het slachtoffer is, maar dat het een complex sociaal verschijnsel is waarbij leerkrachten en klasgenoten ook een belangrijke rol spelen. Onlangs hebben studies aangetoond dat 1) leerkrachten belangrijk actoren zijn als het gaat om pesten, 2) klasgenoten als publiek voor de pester fungeren en 3) pesten en daaraan gerelateerd gedrag beïnvloed worden door de directe relaties tussen leerlingen en door andere relaties in de klas.

In dit proefschrift presenteer ik vier empirische studies waarin ik de rol van leerkrachten en klasgenoten bij pesten verder heb onderzocht. De focus lag op percepties en gedrag van leerkrachten en klasgenoten. In de volgende secties zet ik per hoofdstuk uiteen welke vragen onderzocht zijn en wat de belangrijkste bevindingen waren.

Is er een relatie tussen leerkrachtkenmerken en het aantal gepeste leerlingen?

In het eerste empirische hoofdstuk, **hoofdstuk 2**, onderzocht ik of er een relatie was tussen leerkrachtkenmerken en het aantal gepeste leerlingen in de klas. Ondanks de centrale rol die leerkrachten spelen bij het tegengaan van pesten, is nog nooit onderzocht of er meer gepest wordt in klassen van leerkrachten met bepaalde kenmerken. In hoofdstuk 2 onderzocht ik dit door data van 3.385 basisschool leerlingen te combineren met data van 139 leerkrachten van deze leerlingen. De resultaten lieten zien dat verschillen tussen klassen in het aantal gepeste leerlingen inderdaad (voor een deel) aan leerkrachtkenmerken toe te schrijven waren. Zo waren er meer gepeste leerlingen wanneer leerkrachten pesten associeerden met factoren buiten de leerkracht om, wanneer leerkrachten geloofden dat zij het pesten van hun leerlingen makkelijk konden beïnvloeden en wanneer leerkrachten zelf een verleden als pester hadden. Ten slotte bleek de klassensamenstelling ook van invloed op het aantal gepeste leerlingen: er waren minder gepeste leerlingen in combinatiegroepen en in klassen met oudere leerlingen.

Zijn leerkrachten voldoende toegerust om pesten aan te pakken?

Het aanpakken van pesten is geen gemakkelijke opgave. In **hoofdstuk 3** onderzocht ik in hoeverre leerkrachten zijn toegerust om pesten aan te pakken. Ik stelde dat leerkrachten 1) moeten weten wat pesten is, ze 2) informatie over het pesten onder hun leerlingen moeten hebben en ze 3) slachtoffers als dusdanig moeten herkennen. Ik combineerde interviewdata van 22 basisschool leerkrachten met surveydata van 373 van hun leerlingen. Uit de data bleek dat leerkrachten onvolledige definities van pesten gaven, inefficiënte methoden gebruikten om pesten te detecteren en dat ze leerlingen die beweerden gepest te worden vaak niet als slachtoffers beschouwden. Deze studie suggereert dat hoewel leerkrachten een centrale rol hebben bij het tegengaan van pesten ze hier niet voldoende op toegerust zijn.

(H)erkennen leerlingen klasgenoten die gepest worden?

Uit hoofdstuk 3 bleek dat leerkrachten leerlingen die gerapporteerd hadden gepest te

worden vaak niet als slachtoffer beschouwden. In **hoofdstuk 4** onderzocht ik hoe dit zat voor klasgenoten. Het is onwaarschijnlijk dat leerlingen klasgenoten die zij niet als slachtoffers beschouwen, zullen helpen en verdedigen. In diverse studies wordt (impliciet) verondersteld dat de meeste leerlingen in de klas op de hoogte zijn van het pesten. Deze aanname is echter nog nooit expliciet onderzocht. In eerdere studies werden wel zelf-rapportages en rapportages van klasgenoten vergeleken, maar de rapportages van klasgenoten werden dan meestal samengevat in percentages. Door de nominaties op deze manier te aggregeren, kon niet onderzocht worden of sommige leerlingen beter waren in het herkennen van slachtoffers dan andere leerlingen.

In hoofdstuk 4 onderzocht ik of individuele middelbare scholieren klasgenoten die rapporteerden gepest te worden ook als slachtoffers (h)erkennen. Door de overeenstemming tussen zelf-rapportages en rapportages van klasgenoten op een dyadische manier te onderzoeken, kon onderzocht worden of overeenstemming samenhing met relationele, individuele en klaskenmerken. Beschrijvende analyses lieten zien dat een groot aantal leerlingen dat volgens hun zelf-rapportages gepest werd, niet als slachtoffers beschouwd werd door hun klasgenoten. Met andere woorden, er was weinig overeenstemming tussen zelf-rapportages en rapportages van klasgenoten. Multilevel logistische regressie analyse liet meer overeenstemming zien tussen leerlingen van hetzelfde geslacht, vooral tussen jongens. Leerlingen die probeerden niet betrokken te raken bij het pesten (zogeheten buitenstaanders) beschouwden zelf-gerapporteerde slachtoffers minder vaak als slachtoffers. Leerlingen die zich doorgaans als verdedigers gedroegen, waren het daarentegen vaker eens met de zelf-gerapporteerde slachtoffers. Daarnaast lieten de resultaten zien dat leerlingen minder vaak slachtoffer-nominaties gaven aan klasgenoten die af en toe werden gepest dan aan klagenoten die (erg) vaak werden gepest. Ten slotte suggereert hoofdstuk 4 dat het herkennen van pesten niet alleen van de relaties tussen leerlingen en hun individuele kenmerken, maar ook van de klassensamenstelling afhangt. Er was minder overeenstemming tussen leerling in grotere klassen.

In hoeverre overlappen verdedigen, vriendschap en iemand niet leuk vinden?

Ten slotte, onderzocht ik in **hoofdstuk 5** door middel van sociale netwerk analyses in hoeverre verdedigingsrelaties overlappen met vriendschapsrelaties en iemand niet leuk vinden. Ik verwachtte dat verdedigen vaak plaatsvindt tussen vrienden en tussen vrienden van vrienden en dat het weinig gebeurt tussen klasgenoten die elkaar niet leuk vinden. Ik verwachtte ook dat verdigen vaak plaatsvindt wanneer twee gepeste kinderen door dezelfde klasgenoten niet leuk gevonden worden en wanneer zij dezelfde klasgenoten niet leuk vinden.

Ik toetste deze hypotheses door middel van bivariate Exponential Random Graph Models (ERGMs) en gebruikte het programma XPNet. Ik onderzocht verdedigingsnetwerken in zeven basisschoolklassen (groep 5) en vond, zoals verwacht, dat gepeste leerlingen verdedigingsnominaties gaven aan klasgenoten die zij als vriend zagen of wie hen als vriend zagen. Daarnaast was de kans op verdedigen groter als de gepeste leerling en zijn potentiele verdediger allebei als vrienden genomineerd werden door dezelfde klasgenoten. Ik vond ook dat het onwaarschijnlijk was dat gepeste leerlingen klasgenoten die zij niet leuk vonden of die hen niet leuk vonden, nomineerden als verdediger. Ten slotte, werd er vaker verdedigd als leerlingen dezelfde klasgenoten niet leuk vonden.

Algemene conclusies

Op basis van deze empirische hoofdstukken kan een viertal conclusies getrokken worden.

1. Leerkrachten: Niet goed toegerust of onzeker?

Ten eerste blijkt uit hoofdstuk 2 dat leerkrachten een verschil kunnen maken als het gaat om het aantal gepeste kinderen in de klas, maar suggereert hoofdstuk 3 dat leerkrachten niet volledig toegerust zijn om het pesten ook daadwerkelijk aan te pakken. Zowel uit hoofdstuk 2 als uit hoofdstuk 3 bleek dat leerkrachten soms incorrecte opvattingen over pesten hebben. Zo gaven sommige leerkrachten aan dat zij het gemakkelijk vonden om pesten onder hun leerlingen aan te pakken, terwijl er in die klassen juist veel gepeste leerlingen waren. Daarnaast leken de leerkrachten niet goed te weten wat pesten precies is, zagen ze sommige leerlingen die beweerden gepest te worden niet als slachtoffers en nomineerden ze leerlingen die volgens hun zelf-rapportages niet gepest werden juist wel als slachtoffers.

In Nederland heerst er momenteel, net als in veel andere landen, een sterk anti-pestklimaat. Het is waarschijnlijk dat leerkrachten hierdoor soms sociaal-wenselijke antwoorden gaven. Het zou kunnen dat leerkrachten het pesten ontkenden omdat ze bang waren toe te geven dat er gepest werd in hun klas en dat ze het moeilijk vonden om dit te stoppen. Mocht dit inderdaad het geval zijn, dan zou er meer aandacht moeten komen voor hoe moeilijk het is om pesten te stoppen. Pesten kan negatieve gevolgen hebben voor de betrokken leerlingen, maar, zoals hoofdstuk 2 ook liet zien, in bijna iedere klas wordt wel gepest. Als er gepest wordt, betekent dit niet meteen dat de leerkracht zijn of haar werk niet goed doet. Tegelijkertijd betekent dit niet dat de leerkracht helemaal niet hoeft in te grijpen; leerkrachten kunnen de situatie van gepeste leerlingen wel degelijk verbeteren.

2. Pesten is een subjectief verschijnsel

De tweede conclusie die op basis van de studies in dit proefschrift getrokken kan worden, is dat het moeilijk is om te bepalen of een leerling *echt* gepest wordt. Hoofdstukken 3 en 4 laten zien dat er weinig overeenstemming is tussen zelf-gerapporteerd slachtofferschap en rapportages van leerkrachten en klasgenoten. Deze bevinding is zorgwekkend omdat het kan betekenen dat leerkrachten en klasgenoten niet goed weten wie er in de klas gepest worden. Het kan echter ook zo zijn dat leerkrachten en klasgenoten het wel weten, maar zichzelf (en anderen) vertellen dat er niet *echt* gepest wordt. Leerkrachten en klasgenoten voelen zich mogelijk verantwoordelijk voor het pesten en dit kan voor stress zorgen. De—schijnbaar—eenvoudigste manier om van deze stress af te komen, is door te ontkennen dat een bepaalde leerling echt gepest wordt. Ten slotte kan het zo zijn dat er weinig overeenstemming is tussen zelf-gerapporteerd slachtofferschap en rapportages van leerkrachten en klasgenoten omdat leerlingen ten onrechte hebben gerapporteerd dat ze gepest werden. Diverse leerkrachten gaven aan dat hun leerlingen het pesten overdreven en ook in de literatuur wordt gesteld dat leerlingen soms onterecht rapporteren gepest te worden. Omdat moeilijk vast te stellen is of bepaalde leerlingen *echt* gepest worden, zou een richtlijn kunnen zijn om leerlingen die aangeven dat ze gepest worden altijd serieus te nemen. Het is immers het pesten zoals het ervaren wordt door het slachtoffer wat diens welzijn beïnvloedt.

3. Verdedigen

Wanneer leerlingen hun gepeste klasgenoten verdedigen, is het voor de pester minder aantrekkelijk om door te gaan met het pesten. Daarnaast kan verdedigen als een buffer tegen de negatieve gevolgen van pesten werken; er is ten minste iemand die je helpt. Hoewel uit onderzoek blijkt dat de meeste kinderen tegen pesten zijn, verdedigen ze hun gepeste

klasgenoten niet altijd. Een mogelijke verklaring hiervoor is dat ze pesten niet als dusdanig herkennen. Hoofdstuk 4 suggereert dat leerlingen die hun gepeste klasgenoten verdedigen, ook beter zijn in het herkennen van slachtoffers. Dit zou kunnen betekenen dat het herkennen van pesten leidt tot verdedigen. Echter, omdat de data in hoofdstuk 4 cross-sectioneel waren, is het niet mogelijk hier conclusies over te trekken. Het zou ook zo kunnen zijn dat verdedigen leidt tot beter herkennen.

4. De klassensamenstelling doet ertoe

Ten slotte bleek uit hoofdstukken 2 en 4 dat de klassensamenstelling van invloed is op het herkennen van pesten en op het aantal slachtoffers in de klas. Hoofdstuk 4 liet zien dat leerlingen in grotere klassen minder vaak slachtoffer-nominaties gaven aan klasgenoten die hadden gerapporteerd gepest te worden. Een mogelijke verklaring hiervoor is dat leerlingen elkaar minder goed kennen en minder over elkaar weten in grotere klassen. Daarnaast liet hoofdstuk 2 zien dat er minder slachtoffers waren in combinatiegroepen. Dit wordt mogelijk veroorzaakt doordat in deze groepen er een mix van jonge en oudere leerlingen is en er daardoor minder competitie is. Toekomstige studies kunnen verder onderzoeken of aanpassingen in de klassensamenstelling leiden tot minder pesten.

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About the author

Beau Oldenburg was born in Hank, Brabant, the Netherlands on May 30, 1987. She moved to Utrecht to study Cultural Anthropology in 2005. In 2008 she obtained a Bachelor degree in Cultural Anthropology with a minor in Sociology at Utrecht University. In 2008 Beau switched to sociology and she subsequently completed the academic master 'Policy and Organization' (2009) and the research master 'Sociology and Social Research' (2011) at Utrecht University. In September 2011, she moved to Groningen and started a PhD at the Interuniversity Centre for Social Science Theory and Methodology (ICS), at the Sociology Department of the University of Groningen. During her PhD she was involved in a large scale data collection among elementary school students and their teachers (KiVa). This experience sparked her interest in Research Data Management. Accordingly, she conducted a three months internship at Data Archiving and Networked Services (DANS). Currently, Beau is employed as a postdoctoral researcher at the Sociology Department of the University of Groningen. In addition, Beau is secretary of the ICS board.

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