Does friendship play a moderating role between bullying and classroom concentration?

Sally Quinn

Supervised by Nathalie Noret

April 2010

Does friendship play a moderating role between bullying and classroom concentration?

ABSTRACT

Previous studies have shown that being bullied can have negative consequences for the victim. Boulton e*t al.* (2008) report that being bullied can affect classroom concentration and the aim of the present study was to expand on this by including cyberbullying which to date has not been examined at the primary school level. Research has also shown that friendships can provide some level of protection from possible negative outcomes related to bullying. The present study therefore also examined the moderating role of friendship between bullying and disrupted classroom concentration. Participants consisted of 130 children aged 9 to 11 years from 4 primary schools in North Yorkshire. Self reports of incidences of direct physical, direct verbal, indirect bullying and cyberbullying were collected via a questionnaire which also included questions relating to recent classroom concentration and questions about their relationship with their best or closest friend. The results showed that cyberbullying is a phenomenon found within this age group and not just in adolescence. It was also found that being bullied in more than one way predicted disrupted classroom concentration. This was also true for the chronicity of bullying. Overall, the quality of the friendship between the participant and their best or closest friend was found to moderate this association. Further analysis revealed that this was significant for boys but not for girls. Suggestions are made for practical applications of these findings as well as suggestions for future research.

KEY WORDS:

Introduction

Bullying or peer victimisation has received considerable interest over the last 3 decades since the work of Olweus in Norway (e.g. Olweus, 1978). Different types of bullying have been established, namely direct physical, direct verbal, indirect and cyberbullying. Following an extensive UK government funded research project in 1989-1990 (Whitney & Smith, 1993), schools in the UK are now required to have an anti-bullying policy and headteachers are expected to ensure that their school has effective measures in place to deal with bullying (Smith *et al.,* 2004). However, studies which have been carried out in the UK since 1994 have suggested that bullying is still a significant problem in UK schools (e.g. Elsea and Mukhtar, 2000; Glover *et al.*, 2000; Wolke *et al.*, 2000). Bullying has been linked to many psychosocial problems (Hawker & Boulton, 2000) and to academic attainment (Schwartz *et al.,* 2005). Furthermore, Boulton *et al.* (2008) report that both actual victimisation and the fear of future victimisation (physical, verbal and indirect types of bullying) predicted disrupted classroom concentration. The aim of the present study is therefore to enhance the study of Boulton *et al.* by examining four types of bullying (direct physical, direct verbal, indirect and cyberbullying) and their relationship to classroom concentration. The role of friendship quality as a moderator between bullying and disrupted classroom concentration will also be examined.

Olweus (1993) defines bullying as 'when [a student] is exposed repeatedly and over time to negative actions in the part of one or more other students' (p.9). Olweus (1999) refers to a negative action as when 'someone intentionally inflicts, or attempts to inflict, injury or discomfort upon another' (p.10). Furthermore, it involves an imbalance of power or strength between the victim and perpetrator making it difficult for the victim to defend him or herself. This definition of bullying is now broadly used both in research settings (e.g. Whitney & Smith, 1993) and more widely in applied settings, such as schools. Distinctions have been made between direct and indirect bullying (Olweus, 1993). Direct bullying involves an 'open attack' (p.10) on the victim. This can include verbal (e.g. name calling) or physical (e.g. kicking or hitting). Indirect bullying (also referred to as relational or social bullying) involves such things as intentional exclusion from a group or the spreading of rumours. Bjorkqvist *et al.* (1992) point out that this type of bullying can typically involve the perpetrator creating a situation whereby it seems there has been no intention to inflict pain on the victim. For example, excluding a third party from the social relationships of the victim (Maccoby, 2004). Consequently, indirect bullying can be difficult for an outsider to notice and can therefore go undetected for some time (Crick & Grotpeter, 1995). Many studies have therefore examined bullying in respect of these 3 types of bullying - direct physical, direct verbal and indirect (e.g. Bjorkqvist *et al.*, 1992; Whitney & Smith, 1993) with age and gender differences being a focus for numerous studies.

Gender differences in bullying

There have been many studies which have reported on gender differences in bullying behaviour (e.g. Bjorkqvist et al., 1992; Crick & Grotpeter, 1995; Lagerspatz et al., 1988; Pepler et al., 2008; Seals & Young, 2003). With regard to children who are bullied, research has suggested that overall boys are bullied more than girls (Olweus, 1993; Whitney & Smith, 1993). More specifically, studies examining gender differences with regard to the different types of bullying have reported that boys are

more likely to be bullied through direct physical means whilst girls are more likely to be bullied through indirect means (Borg, 1999; Crick & Grotpeter, 1995; Juvonen *et al.*, 2000; Lagerspetz *et al.,* 1988; Wang *et al.,* 2009). Lagerspetz *et al.* (1988) offer an explanation for this trend in girls. They suggest that a higher level of social skills are needed for indirect bullying and that this may be a contributing factor since the majority of girls mature earlier than boys, at least on a social level. This link between indirect bullying and social skills is supported by Kaukiainen *et al.* (1999) who found a positive relationship between social intelligence and indirect aggression. There is also the suggestion that girls are more interested in social relationships (both their own and others) and are therefore more likely to manipulate these relationships (Maccoby, 2004). In addition, the nature of girls' friendships may facilitate indirect bullying more so than the friendships of boys (Lagerspatz *et al.,* 1988). For example, girls are more likely to spend time talking to each other than boys and to be more distressed than boys with regard to exclusion from 'the group' (Maccoby, 2004).

In terms of the trend reported in boys, it has been suggested that those children who lack verbal skills are more likely to use direct means of aggression (Bjorkqvist *et al.* 1992) and due to the differing maturation rates between boys and girls, this can be seen as a viable explanation. Alternatively, other suggestions for the reported differences between genders include the influence of gender stereotypes (Underwood *et* al., 2001). That is, boys are stereotypically more physically aggressive than girls. These stereotypes may be further consolidated by the attitudes of peers and teachers. For example, a girl who chooses to use physical aggression may be seen to be more deviant than a boy (Underwood *et al.,* 2001). This latter explanation can be linked to the socialisation process which entails the socialisation of children by influential others (e.g. parents, peers) to behave in a way expected of their gender - for boys to act more physically aggressive than girls (Zahn-Waxler and Polanichka, 2004). This can be exacerbated, particularly in the case of peers, by the group norm of the friendship group (Maccoby, 2002).

There have, however, been inconsistent findings with regard to gender differences. For example, some studies have reported that boys are more likely to be bullied through direct verbal means (Borg, 1999; Juvonen *et al.*, 2000) whilst others have found that this type of bullying was more prevalent in girls (Whitney & Smith, 1993). Bjorkqvist *et al.* (1992) found no significant gender differences in this type of bullying in adolescents at age 15 years nor between children at age 8 years for indirect bullying. With regard to studies involving primary school children, reported gender differences have varied particularly between those studies carried out in the UK. Whitney and Smith (1993) report that in year 6 (ages 10-11 years), girls were more likely to be bullied than boys. Wolke *et al.* (2000) found that more boys than girls were involved in direct bullying only and that more girls than boys were involved in indirect bullying only. They also reported that more boys than girls were involved in both indirect and direct bullying. However, Austin & Joseph (1996) found no gender differences in children of primary school age within the UK. It should be noted that this latter study did not provide participants with a definition of bullying and it has been shown that this in itself can affect prevalence rates (Vaillancourt *et al.*, 2008).

The mixed findings with regard to indirect bullying may be a result of developmental factors (i.e. the age at which children are likely to develop sufficient levels of social skills in order for this type of bullying to be effective). For example, Bjorkqvist *et al.* (1992) propose that at age 8 years, neither boys nor girls have

developed sufficiently with regard to their social skills to show a significant gender difference in indirect bullying.

There are still therefore inconsistencies especially with reports of direct verbal bullying and indirect bullying, although the latter of these may also be influenced by age-related developmental changes.

Age Differences in Bullying

Generally, experiences of bullying are found to be more prevalent at primary school than secondary school, at least in the UK (Rivers & Smith, 1994; Whitney & Smith, 1993; Borg, 1999). Non-UK studies have also reported a general age decline with regard to victimisation (Wang *et al.,* 2009; Nansel *et al.,* 2001). Smith *et al.* (1999) propose several reasons for this trend. Firstly, the prevalence of bullying in primary school, particularly in younger children, may be explained in part by reports that children tend to be bullied by older children. However, they do also state that the data from secondary schools does not support this since one would expect bullying rates in lower secondary school to increase to similar levels found at lower primary school. Another suggestion is that with age, the social skills of children mature and this can impact on the way they deal with incidences of potential and actual victimisation which in turn impacts on future incidences of victimisation. Thirdly, they suggest that the cognitive and moral development of children enables older children to be more empathic towards a victim and therefore less likely to be involved in bullying. There is also the possibility that younger children tend to include all negative incidences in their reports, including fighting, not just those which fit the description of bullying.

There are studies which did not find a decline in aggression with age. For example, Bjorkqvist *et al.* (1992) report that in 3 different cohorts (aged 8, 11 and 15 years), aggression was at its peak at age 11 years and indirect bullying increased with age. This difference may be due to the fact that different measures were used. Salmivalli (2002) found that with self-report questionnaires, reports of bullying declined with age however prevalence rates declined slightly from grade 4 to 5 before rising again in grade 6 when peer reports were used. Since Bjorkqvist *et al.* (1992) used both peer ratings and self reports of the participant's own behaviour (and all previous studies used self-reports only), it may be reasonable to suggest that the peer ratings impacted on the results with regard to age differences. In terms of the increase in indirect bullying, Bjorkqvist *et al.* attribute this to the maturation of social skills required for this type of bullying, which develops with age.

It is therefore evident that although the majority of studies report on an age decline in bullying but that this can be challenged when different measures are used. In addition, indirect bullying may be the exception to this trend since it is thought that a certain level of social skills is required for it to be effective and these skills develop with age.

Cyberbullying

Although the majority of research has focussed on direct physical, direct verbal and indirect bullying, cyberbullying or electronic bullying has now become an area of interest due to advances in technology. Research into this type of bullying is fairly recent with the earliest reports surfacing circa 2000 (e.g. Finkelhor *et al.,* 2000). Smith *et al.* (2008) define cyberbullying as 'an aggressive, intentional act carried out by a group or individual, *using electronic forms of contact,* repeatedly and over time

against a victim who cannot easily defend himself or herself' (p.376, italics in original). It should be noted however that this definition has not yet been fully agreed upon by researchers as Olweus' definition of bullying has.

Various studies have examined different ways through which cyberbullying can occur. For example, Katzer *et al.* (2009) examined internet chatrooms whilst Rivers and Noret (2009) examined text messages and e-mails. Other studies have incorporated additional technological means through which cyberbullying can be carried out. For example, Kowalski and Limber (2007) asked participants to report on any instances of bullying involving e-mail, instant messaging, chat rooms, websites, or text messages. Smith *et al.* (2008) included these and also included phone calls and picture/video clips. Others have opted not to define any types and have asked participants to report on any instances of 'cyberbullying' (Li, 2008) or 'using technology to harass others' (Beran & Li, 2007). It is certainly evident that studies vary with regard to the types of cyberbullying included in them and this may have an effect on the variance in reported prevalence rates.

One observation made from examining studies relating to cyberbullying is that when additional means of electronic bullying are included or the term cyberbullying is specified as different types, the reported prevalence rates increase. For example, 9% of the participants in the study reported by Wolak *et al.* (2007) reported being a victim of internet harassment compared to 11% in the study reported by Kowalski and Limber (2007) which included 5 possible types of cyberbullying and 29% in the results reported by Patchin and Hinduja (2006) which included 7 possible types of cyberbullying. It is speculated that the reason behind this trend is that children may not consider their experience to be one of cyberbullying unless the specific type of media is mentioned in the questionnaire. This may be compounded by the contemporary nature of cyberbullying and the fact that specific definitions have not yet been agreed upon (Wolak *et al.,* 2007). Alternatively, a participant may be unsure which 'category' their experience falls into and therefore may choose not to report it unless a specific question prompts them to do so.

As with traditional bullying, studies examining cyberbullying have examined age and gender differences. With regard to the latter of these, there have been inconsistent findings with some studies reporting that girls are more likely to be cyberbullied (Wang *et al.*, 2009; Kowalski & Limber, 2007; Smith *et al,* 2008) or to experience distressing online harassment (Wolak *et al.,* 2006). Other studies have reported that boys are more likely to be bullied in chatrooms (Katzer *et al.,* 2009) and Finkelhor *et al.* (2000) report a very small gender difference in online harassment (boys 51%, girls 48%). Rivers and Noret (2009) report that girls were significantly more likely to receive nasty or threatening text messages at least once a term when compared to boys. However, when the data was analysed in respect of frequent incidences (i.e. once a week or more), no gender differences were found. Li (2006) reports no significant gender differences as did Patchin and Hinduja (2006), although the latter of these was heavily weighted in favour of girls (84.6%).

With regard to age differences, the evidence suggests that the peak in cyberbullying can be anything from age 13/14 years (Williams & Guerra, 2007; Kowalski & Limber, 2007) to age 15 years (Finkelhor *et al.,* 2000; Wolak *et al.,* 2006; Wang *et al.,* 2009). Smith *et al.* (2008) found that a larger proportion of older pupils reported being cyberbullied, however this difference was not statistically significant.

Raskauskas and Stoltz (2007) also report that in a sample of 13 to 18 year old pupils, older participants were more likely to be involved in cyberbullying. However, some studies have not found a difference between the genders. For example, Patchin and Hinduja (2006) report no significant age differences as did Rivers and Noret (2009). Smith *et al.* (2008) had mixed results in a sample of 11 to 16 year olds. In study 1, no significant age differences were found however in study 2, older pupils were significantly more likely to experience cyberbullying.

The evidence discussed thus far in relation to cyberbullying and gender differences seems somewhat mixed. As previously discussed, girls tend to be involved in indirect forms of bullying when compared to boys and the internet can be seen to facilitate this kind of victimisation, however the technological aspect may appeal to boys (Smith *et al.*, 2008). In addition, Williams and Guerra (2007) found that internet bullying shared causal pathways with all other types of bullying and in particular with verbal bullying. Since reports on gender differences in verbal bullying have been mixed, it may therefore not be surprising that the same finding is evident with cyberbullying. In contrast to other forms of bullying, some studies have provided evidence that cyberbullying peaks during mid-adolescence. However, the 2 UK studies have had mixed results and this can therefore challenge the suggestion of an age trend, at least with children and adolescents in the UK.

Studies relating to cyberbullying have, to date, focussed on children in secondary schools and have not included data on children at the primary school level. Some studies have provided evidence that younger children are less likely to experience cyberbullying. For example, Finkelhor *et al.* (2000) report that 2% of 10 year olds had been a victim of online harassment compared to 20% of 15 year olds. However, this study is now over a decade old and involved a sample from the USA. In the UK, the Office for National Statistics (2007) reports that 56% of children aged 8 to 11 years owned a mobile phone and 65% of this same age range used a computer at home. Furthermore, OFCOM (2008) report that 27% of children between the ages of 8 and 11 years have a profile on one or more social networking site (SNS) and the Anti-Bullying Alliance report that cyberbullying is now becoming an issue for primary school children (ABA, 2009).

Effects of bullying

Bullying can have negative effects on individuals both in the future (e.g. Rigby, 2001) and concurrently (e.g. Van der Wal, 2003). Hawker and Boulton (2000) carried out a meta-analysis on the links between bullying and psychosocial maladjustment. They report that victimisation was strongly associated with depression, loneliness and low self-esteem and that victims were more socially anxious than non-victims. A further conclusion drawn from this meta-analysis was that victims tend to have a negative view of themselves in social situations – although it should be noted that none of the studies which investigated this aspect examined indirect bullying. Other studies which have been carried out since this meta-analysis have supported the findings of Hawker and Boulton. For example, Schwartz *et al.* (2005) and Seals and Young (2003) report that children who are victimised score higher on depression scores than their non-victimised peers. Other studies have also found similar results with regard to loneliness (Nansel *et al.,* 2001; Juvonen *et al.,* 2000) and self-esteem (Juvonen *et al.*, 2000). Cyberbullying has also been reported to have negative psychosocial effects on the individual. Ybarra *et al.* (2007) report that students involved in internet harassment (both bully and victim)

were more likely to be involved in drug use and to have higher levels of alcohol use. However, this study examined internet harassment and unwanted sexual solicitation only and did not include other methods of cyberbullying.

The effects of bullying have also been examined in terms of chronicity. Unnever and Cornell (2004) measured chronicity of bullying and found that the pupils who were chronically bullied were more likely to inform another person of their bullying experience. However, as the focus of this study was the 'telling' behaviour of victims, it did not examine any relationships between chronicity and negative effects. Buhs *et al.* (2006) conducted a 5 year longitudinal study examining the effects of peer abuse and peer exclusion. They reported that both chronic peer abuse and chronic peer exclusion during primary school predicted later school maladjustment.

It has been suggested that depression and other psychological issues can play a role in other negative effects relating to school (Schwartz *et al.,* 2005; Juvonen *et al.,*2000). Links have been made between bullying and the disliking of school (Boulton *et al.,* 2009) or school avoidance (Kochenderfer & Ladd, 1996). Other studies have suggested that victimisation can also lead to a deterioration of academic attainment and/or school disengagement. For example, Lopez and Dubois (2005) suggest that pupils who feel a sense of rejection from their peers may find it difficult to concentrate on their school work. In addition, Boulton *et al.* (2008) report that both concurrent victimisation and the fear of future victimisation had a negative effect on classroom concentration. There have also been reported links between cyberbullying and school related negative effects in secondary school aged children. Beran and Li (2007) report that those children who were cyberbullied were more likely to have lower school grades, to miss school and to have poor concentration at school (Beran and Li, 2007).

The role of friendships

As bullying can affect the victim in such negative ways, research has also tried to determine ways in which a victim can be protected, at least to some extent, from these effects. The quality of a victim's friendships has been one such aspect which has received some level of attention from researchers. The characteristics of friendships at the age consistent with the present study vary between the genders. For example, girls tend to have a small group of friends which is characterised by intimacy and the sharing of information whereas boys tend to be part of a larger group whose behaviour is characterised by the achievement of some group goal, for example as found in team games (Maccoby, 2002). In a meta-analysis, Newcomb and Bagwell (1995) found that generally children's friendships were characterised by such things as intimacy, faithfulness, a quicker resolution of conflict, a sense of equality and co-operation. It is therefore suggested that these characteristics can not only protect a potential victim (Ladd *et al.*, 1997; Hodges *et al.*, 1997; Bollmer *et al.* 2005) but can also protect *actual* victims from suffering negative effects.

Hodges *et al.* (1999) found that those victimised children who did not have a best friend were more likely to show increasing internalising problems (tearful, worrying etc.) and externalising problems (fighting, destroying others' belongings etc.). There is a suggestion, however, that an overly intimate friendship can be detrimental to victims since Hodges *et al.* also found that those victims who spent an above average amount of time with their best friend were more likely to increase in internalising problems when they were victimised. However, it should be

noted that this study only included physical and verbal bullying. Woods *et al.* (2009) examined direct (both verbal and physical) and indirect bullying. They reported that the quality of a victim's friendships had a moderating effect between direct victimisation and loneliness (but not between direct victimisation and emotional problems). Conversely, with regard to indirect bullying, friendships had no moderating effects for either loneliness or emotional problems. It therefore seems that friendships can have a moderating effect but this effect may be limited.

In summary, although gender and age related trends in bullying have emerged, there are still reported inconsistencies in particular with studies which focus on bullying at the primary school level and those which have been carried out in the UK. There is also a paucity of data on cyberbullying within this age group both within the UK and elsewhere and to date, this form of bullying has not been examined in relation to disrupted classroom concentration. Studies have reported that a victim's friendships can protect them to some extent from the negative effects of bullying but to date this has not included disrupted classroom concentration. The present study therefore aims to replicate the study of Boulton *et al.* (2008) with the addition of cyberbullying. It will also include an examination of friendship quality as a moderator. Specifically, the following research questions will be addressed:

- What is the prevalence of cyberbullying in primary school children?
- Are there any gender or year group differences in the different types of bullying?
- Does the type of bullying experienced predict disrupted classroom concentration?
- Does chronicity of bullying predict disrupted classroom concentration?
- Does friendship quality play a moderating role between chronicity of bullying and disrupted classroom concentration?

Method

Participants

Five primary schools from a town in North Yorkshire were invited to take part in this study. Three schools agreed for the pupils in years 5 and 6 to take part, 1 school agreed for the pupils in year 5 to take part and one school declined. Consent letters were sent to all parent/carers of children in the relevant year groups. A total of 325 letters were sent. In response to this, 141 consent forms were returned which equates to a 43% return rate. Of these, 10 participants were not involved in the final data set due to absences on the day of completion of the questionnaire. One child was withdrawn from the study before commencing the questionnaire due to anxiety about the questionnaire. The final sample therefore consisted of 130 pupils, 78 girls (60%) and 52 boys (52%), aged between 9 years and 11 years (mean age 9.72 years, SD 0.70) and were from either year 5 (55.4%) or year 6 (44.6%).

Measures

A self report questionnaire was employed for this study. Initial questions related to the demographics of participants (school name, age, year group and gender). The remaining part of the questionnaire was in 3 sections: questions relating to bullying, questions relating to classroom concentration and questions relating to friendship quality. All questions related to experiences since the beginning

of term (i.e. September 2009). A definition of bullying was given at the beginning of the questionnaire and was based on the definition provided by Olweus (1993):

> *We say someone is being bullied when another person or group of people say nasty and unpleasant things to him or her. It is also bullying when a person is hit, kicked, threatened or locked inside a room and things like that. These things may take place often and over a period of time. Also, it is difficult for the person being bullied to defend himself or herself. It is also bullying when a pupil is teased often in a bad way.*
>
> *But it is not bullying when 2 people of about the same strength quarrel or fight.*

Type of bullying

To measure the effect of the different types of bullying and whether or not the bullying occurred inside school, outside school or both, a questionnaire based on the Olweus Bully/Victim questionnaire was constructed. It has been shown that this questionnaire has good reliability and validity (Solberg & Olweus, 2003). Participants were given a list of 15 different types of being bullied. Possible answers were 'Yes, in school', 'Yes, outside of school'. 'Yes, both inside and outside school' or 'No'. These options were for the benefit of the reports sent to the schools rather than for the purpose of this study. Therefore for the analyses answers were re-coded as either 'yes' or 'no'. Answers were then categorised into the 4 different types of bullying. Direct physical bullying consisted of 'I've been hit or kicked', 'I've had my things taken' and 'I've had my homework taken or destroyed'; Indirect bullying consisted of 'People have said things to other people about me that aren't true', 'No-one will speak to me' and 'I've been frightened when a particular person has looked my way'; Direct verbal bullying consisted of 'I've been called names' and cyberbullying consisted of 'I have been sent nasty or mean text messages', 'I have been sent nasty or mean e-mails', 'I have had nasty or upsetting pictures, photos or video clips sent to me', 'Other people have sent nasty pictures, photos or video clips to others about me', 'I have been bullied in a chat room', 'I have been bullied through messages on MSN messenger or other messenger services' and 'I have been bullied on a social networking site such as facebook or Bebo'. The different media forms of cyberbullying were adopted from Rivers and Noret (2008) and Smith *et al.* (2008).

Chronicity of Bullying

In order to measure the chronicity of bullying, three measures from a chronicity scale (Unnever and Cornell, 2004) were adopted for use in this study. Participants were asked questions relating to the frequency of their bullying experiences, the number of bullies and the location of the bullying. For each question, an option of 'I have not been bullied this term' was provided for which a score of 0 was allocated. Frequency was measured by asking participants how often they had been bullied with possible answers ranging from 'only once or twice' to 'several times a week'. Scoring on this question ranged from 1 ('only once or twice') to 4 ('several times a week'). Number of bullies was measured by asking participants how many people had bullied them with possible answers ranging from 'mainly by 1 person' to 'by several people or groups of people' with the scoring on these questions ranging from 1 to 5 respectively. To measure the locations of bullying, participants were given a list of seven locations from which they could

choose (e.g. classroom, playground, corridor). Scoring was calculated for this question by allocating 1 point for each location selected. Each of the three items (i.e. frequency, number of bullies and number of locations) were summed to achieve a chronicity score for each participant with the maximum possible score being 16. Scores for the present sample ranged from 0 to 13 and an internal reliability test revealed a Cronbach's α value of 0.87.

Help-seeking

Participants were asked to indicate whether or not they had told someone abour their bullying experience by either indicating 'yes' or 'no'. If they had told someone, they were asked to write who they had told. The final question in this section was adopted from the Children and Young People's Questionnaire (ABA, 2007). This question asked participants what had happened once they had told someone with 5 different options being provided. For example, 'Something was done that stopped the bullying' or 'Nothing was done and the bullying carried on'. This section of the questionnaire was to provide data for the participating schools and was not included in the analyses of the present study.

Disrupted Classroom Concentration

A questionnaire developed by Boulton *et al.* (2008) was used to measure classroom concentration. This measure consisted of 11 items with a 4 point response scale ranging from 'never' to 'lots of times'. Answers were scored from 1 to 4 (e.g. 'never' = 1, 'lots of times' = 4). Examples of some of the 11 items are 'Recently, I have forgotten what work I have to do in class', 'Recently, I have not done my best work in class', and 'Recently, I have stopped enjoying my work in class'. A mean score for each participant was calculated to achieve a DCC score. The higher the score on this measure, the more disrupted the pupil's classroom concentration. Internal reliability analyses were carried out on this measure which revealed a Croncbach's α value of 0.98 (compared to α value of 0.94 in Boulton *et al.)*

Friendship Quality

Two subscales ('Validation and Caring' and 'Help and Guidance') from the Friendship Quality Questionnaire (Parker & Asher, 1993) were used to measure the friendship quality participants had with their best or closest friend. The measure used for this study therefore consisted of 19 items which consisted of statements such as 'Makes me feel good about my ideas', 'Sticks up for me if others talk behind my back', and 'Gives advice with working things out.' Participants were asked to think about their closest or best friend and to rate the quality of this friendship by indicating on a 5 point response scale, with possible responses ranging from 'not at all true' (scored as 0) to 'really true' (scored as 4). A mean score was calculated for each participant to achieve a FQ score. Internal reliability analyses were carried out for each of the subscales revealing a Cronbach's α value of 0.92 for the 'Validation and Caring' subscale (items 1 to 10) and a Cronbach's α value of 0.91 for the 'Help and Guidance' subscale (items 11 to 19). These 2 sub-scales were found to be highly and significantly correlated, r = 0.79 and were therefore merged to form one measure for friendship quality.

Procedure

Headteachers of each school were contacted to ask whether or not they would be interested in participating in the study. Consent letters were then sent to the schools who wished to take part to distribute to the relevant parents/carers. Once consent had been received, the schools were visited by the researcher during November 2009 to ask children to complete the questionnaire. Completion of the questionnaire was conducted in a classroom environment with group sizes ranging from 15 children to 21 children. An individual session was conducted for 1 child and a smaller group session was conducted for 6 children all of whom needed help with reading and/or understanding of the questions. The children were asked not to look at other children's answers and participant numbers were allocated to each child to ensure anonymity. Children were informed that they did not have to answer any questions if they did not want to and that it was not an exam and as such there were no 'correct' answers. They were also assured of the confidentiality of their answers. It was emphasised that all questions were relating to incidents which had occurred since the beginning of that term (i.e. September 2009). A definition of bullying was read to the participants before they completed the questionnaire. The children were then allowed to complete the questionnaire with no time restriction.

Ethical Considerations

Ethical approval was sought and approved by the ethical committee at York St John University. Guidelines provided by the British Educational Research Association (2004) and the British Psychological Society (2006) were adhered to in this study. Parental consent was received from all participants by way of a signed consent from. The accompanying letter provided all parents/carers with information about the nature of the study and included contact details of the researcher and supervisor. Participants' consent was also received before commencing the questionnaire by explaining that they did not have to answer any or all of the questions. They were also informed that their names would not appear on any of the completed questionnaires and that their teachers, headteacher and class mates would not be shown any of their individual answers. Participant numbers were allocated to all participants in order to maintain anonymity

Throughout the process of completion of the questionnaire, participants were monitored by the researcher (who holds a current CRB check) in the event that any child showed signs of distress. Plans were in place to remove any children from the study should this have happened, however this was not necessary. Participants were given an information sheet after completing the questionnaire which provided them with details of different charities and organisations which they could contact should they wish to talk to someone about bullying.

Each school is to be supplied with a report in order to fulfil the requirement of debriefing set out by BERA and BPS.

Results

Gender and year group differences in bullying

Overall, 66.92% of all participants reported being bullied. A slightly larger percentage of girls than boys reported being bullied (69.23% compared to 63.46%) however this difference was not found to be significant, χ^2 (1) = 0.47, p = ns. A slightly larger proportion of pupils in year 6 than in year 5 reported being bullied (67.24% compared to 66.67%), however this difference was also not significant, χ^2 (1) = 0.01, p = ns.

The different ways of being bullied were categorised into Direct Physical (DP), Direct Verbal (DV), Indirect (I) and Cyberbullying (CB). Any responses given to 'other' ways of being bullied were re-coded as either DP, DV, I or CB and included in the totals of these categories.

Table 1 shows the prevalence of bullying in boys and girls with an indication of how many participants answered the corresponding questions. A larger percentage of boys than girls were bullied through direct physical means (on all 3 sub-types) and by direct verbal means. A higher percentage of girls than boys were bullied indirectly (on all 3 sub-types). In addition, a higher percentage of girls than boys were cyberbullied overall however a higher percentage of boys than girls were bullied through photo or video clips being sent to them, photo or video clips sent to others about them and through social networking sites. None of these gender differences were found to be statistically significant.

Table 1
Prevalence of the different types of bullying in boys and girls.

	Answered N	Not Answered N	Total Bullied % (N)	Boys % (N)	Girls %(N)	Chi Square χ^2	Effect Size ω
Direct Physical	**128**	**2**	**39.80 (51)**	**47.10 (24)**	**35.10 (27)**	**1.84**	**0.12**
Hit/Kicked	127	3	32.30 (41)	40.00 (20)	27.30 (21)	2.25	0.13
Things taken	127	3	18.10 (23)	20.00 (10)	16.90 (13)	0.20	0.03
Homework taken or destroyed	127	3	0.80 (1)	2.00 (1)	0.00 (0)	**b**	**b**
Direct Verbal	**128**	**2**	**39.10 (50)**	**40.40 (21)**	**38.20 (29)**	**0.06**	**0.02**
Called names	128	2	37.50 (48)	38.50 (20)	36.80 (28)	0.04	0.02
Indirect	**130**	**0**	**55.40 (72)**	**48.10 (25)**	**60.30 (47)**	**1.87**	**0.12**
Rumours	130	0	48.50 (63)	38.50 (20)	55.10 (43)	3.47	0.16
No-one will speak to me	128	2	8.60 (11)	5.90 (3)	10.40 (8)	0.79	0.07
Frightened when a person looks at me	127	3	23.60 (30)	16.00 (8)	28.60 (22)	2.66	0.14
Cyberbullying	**128**	**2**	**17.20 (22)**	**11.80 (6)**	**20.80 (16)**	**1.75**	**0.12**
Text Messages	127	3	3.90 (5)	2.00 (1)	5.20 (4)	0.82	0.08
E-mails	127	3	3.90 (5)	2.00 (1)	5.20 (4)	0.82	0.08
Photos/video clips sent to me	127	3	1.60 (2)	1.90 (1)	1.30 (1)	0.82	0.08
Photos/video clips sent to others about me	128	2	3.90 (5)	3.90 (2)	3.80 (3)	0.00	0.00
Chatroom	127	3	7.10 (9)	4.00 (2)	9.10 (7)	1.19	0.01
Messenger service	127	3	10.20 (13)	6.00 (3)	13.00 (10)	1.61	0.11
Social networking site	128	2	2.30 (3)	3.90 (2)	1.30 (1)	0.92	0.08
Other **a**	125	5	15.20 (19)	14.00 (7)	16.00 (12)	0.09	0.03

a- 'other' responses were recoded as either DP, DV, I or CB types of bullying and are included in the totals of these categories, shown in bold
b- significance analyses were not carried out due to a zero count for either 'boys' or 'girls'

Table 2 shows the prevalence of bullying in pupils in year 5 and year 6. A higher percentage of year 5 pupils were bullied in all types of bullying with the exception of cyberbullying when compared to year 6 pupils. There was a significant difference between pupils in Year 5 and pupils in Year 6 for Direct Physical bullying, χ^2 (1) = 6.10, $p<0.05$, effect size $\omega = 0.22$, power = 0.62. There were no other significant differences between the 2 year groups for any other type of bullying. Although a higher percentage of year 5 pupils were bullied through direct physical means, a larger percentage of year 6 pupils were bullied by being hit or kicked and by having their homework taken or being destroyed. Furthermore, although overall a higher percentage of Year 6 pupils were cyberbullied, a larger percentage of Year 5 pupils were bullied through text messages, by having photo or video clips sent to others about them or were bullied on a social networking site. However, there were no significant year group differences for any of these sub-categories.

Table 2
Prevalence of the different types of bullying in Year 5 and Year 6

	Answered N	Not Answered N	Total Bullied % (N)	Yr 5 % (N)	Yr 6 %(N)	Chi Square χ^2	Effect Size ω
Direct Physical	**128**	**2**	**39.80 (51)**	**42.90 (30)**	**36.20 (21)**	**6.10***	**0.22**
Hit/Kicked	127	3	32.30 (41)	30.00 (21)	35.10 (20)	0.37	0.05
Things taken	127	3	18.10 (23)	21.40 (15)	14.00 (8)	1.16	0.09
Homework taken or destroyed	127	3	0.80 (1)	0.00 (0)	1.80 (1)	**b**	**b**
Direct Verbal	**128**	**2**	**39.10 (50)**	**43.70 (31)**	**33.30 (19)**	**1.42**	**0.11**
Called names	128	2	37.50 (48)	42.30 (30)	31.60 (18)	1.54	0.11
Indirect	**130**	**0**	**55.40 (72)**	**58.30 (42)**	**51.70 (30)**	**0.57**	**0.07**
Rumours	130	0	48.50 (63)	52.80 (38)	43.10 (25)	1.20	0.10
No-one will speak to me	128	2	8.60 (11)	7.00 (5)	10.50 (6)	0.49	0.06
Frightened when a person looks at me	127	3	23.60 (30)	27.10 (19)	19.30 (11)	1.07	0.01
Cyberbullying	**128**	**2**	**17.20 (22)**	**14.10 (10)**	**21.10 (12)**	**1.08**	**0.09**
Text Messages	127	3	3.90 (5)	4.30 (3)	3.50 (2)	0.05	0.02
E-mails	127	3	3.90 (5)	5.70 (4)	10.50 (6)	1.00	0.09
Photos/video clips sent to me	127	3	1.60 (2)	0.00 (0)	3.50 (2)	**b**	**b**
Photos/video clips sent to others about me	128	2	3.90 (5)	5.60 (4)	1.80 (1)	1.27	0.10
Chatroom	127	3	7.10 (9)	5.70 (4)	8.80 (5)	0.45	0.06
Messenger service	127	3	10.20 (13)	7.10 (5)	14.00 (8)	1.62	0.11

Table 2 continued

	Answered N	Not Answered N	Total Bullied % (N)	Yr 5 % (N)	Yr 6 %(N)	Chi Square χ^2	Effect Size ω
Social networking site	128	2	2.30 (3)	2.80 (2)	1.80 (1)	0.16	0.04
Other **a**	125	5	15.20 (19)	13.20 (9)	17.50 (10)	0.45	0.06

*p<0.05

a- 'other' responses were recoded as either DP, DV, I or CB types of bullying and are included in the totals of these categories, shown in bold
b- significance analyses were not carried out due to a zero count for either 'year 5' or 'year 6'

Does the type of bullying predict disrupted classroom concentration?

Each participant was categorised into one of six 'bullied' categories - those not bullied, those bullied through direct physical means only (DP only), those bullied through direct verbal means only (DV only), those bullied through indirect means only (I only), those cyberbullied only (CB only) and those who were bullied in more than one way (more than 1). Analyses were run to establish whether or not each of these bullied categories predicted disrupted classroom concentration (DCC). With regard to the two genders, the mean DCC score for boys and girls was 1.60 (SD 0.49) and 1.60 (SD 0.52) respectively. The DCC scores for year 5 and year 6 were 1.59 (SD 0.49) and 1.62 (SD 0.53) respectively. Mann-Whitney tests revealed that there were no significant gender (U = 1937, n_1=77, n_2 = 51, p = ns) or year group (U = 1988, n_1=71, n_2 = 57, p = ns) differences in DCC scores. Table 3 shows the means and standard deviations of disrupted classroom concentration (DCC) scores for each of the 'bullied' categories. Two participants were not included in this analysis due to missing data on the DCC measure.

Table 3
Disrupted Classroom Concentration Scores of pupils in the different 'bullied' categories

	N	***Mean***	***SD***
Not bullied	42	1.39	0.43
DP only	5	1.67	0.95
DV only	4	1.61	0.71
I only	18	1.86	0.49
CB only	2	1.69	0.71
More than 1	57	1.86	0.5

Those who were bullied in more than one way and those who were bullied through indirect means only scored highest on the DCC measure. Those who were not bullied scored lowest. The data did not meet the assumptions of parametric statistics and therefore a Kruskal Wallis test of significance was carried out revealing a significant difference between the types of bullying, $H(5) = 23.51$, $p<0.001$. Post-hoc Mann Whitney tests were carried out involving 9 comparisons - 'not bullied' with all other categories, and 'more than 1' with all other categories. These comparisons were selected as it was proposed that the 'not bullied' group acted as a control group and the 'more than 1' group would be classed as the most extreme of all other groups. A Bonferroni correction ($p<0.005$) was used. A significant difference was found between the 'more than 1' category and the 'not bullied' category, $U= 551$, $p<0.005$, effect size $r = 0.40$, power = 0.99. All other comparisons were not found to be significant.

Does chronicity of bullying predict disrupted classroom concentration?

Due to missing data on questions relating to the chronicity of bullying and/or missing data on the DCC scale, 8 participants were not included in this analysis. For the remaining participants, the mean chronicity score was 1.52 (SD = 2.65) and the mean DCC score was 1.64 (SD 0.54). Mann Whitney tests revealed no significant gender or year group differences in chronicity scores, $U = 1746.50$, $n_1=73$, $n_2 = 50$, p = ns; $U = 1689.50$, $n_1=65$, $n_2 = 58$, p = ns, respectively. A linear regression was conducted to examine whether chronicity of bullying predicted disrupted classroom concentration. The model accounted for 22.8% of the variance and was found to be significant, $F_{(1,120)} = 35.53$, $p<0.001$. Table 4 shows the constant, standard errors and beta values of chronicity.

Table 4
Constant and co-efficient Beta values of chronicity when DCC is the outcome variable

	B	***SE***	***β***
Constant	1.48	0.05	
Chronicity	0.10	0.02	0.48**

** p<0.001

Does friendship quality moderate the relationship between chronicity of bullying and disrupted classroom concentration?

In order to test for any moderating effect of friendship quality (FQ), the format suggested by Howell (2002) and Baron and Kenny (1986) was followed. Both the data for FQ and chronicity were centred resulting in a range of -1.52 to 11.48 for centred chronicity and -2.44 to 1 for centred FQ. The product of these (i.e. centred FQ x centred chronicity) was then calculated. A multiple regression was carried out using these 3 variables as predictors (centred FQ, centred chronicity and centred chronicity x FQ) with DCC as the outcome variable. The model accounted for 26% of the variance and was found to be significant, $F_{(3,118)} = 13.85$, $p<0.001$.

Table 5 shows the constant, standard errors and the coefficient beta values for each variable. Chronicity was found to be significant, $p<0.001$ and a significant interaction between chronicity and FQ was also found, $p<0.05$.

Table 5
Constant, standard errors and coefficient beta values of the 3 predictor variables (chronicity, FQ and chronicity x FQ) when DCC is the outcome variable.

	B	***SE***	***β***
Constant	1.64	0.04	
Centred chronicity	0.11	0.02	0.51**
Centred FQ	-0.07	0.05	-0.11
Centred chronicity/FQ	0.03	0.02	0.18*

* p<0.05
**p<0.001

The data was then split by gender and the same analysis run for girls and boys. Table 6 shows the constant, standard errors and coefficient beta values for girls and boys. For girls, the model accounted for 25.7% of the variance and was found to be significant, $F_{(3,68)} = 7.82$, p<0.001. Chronicity was found to be significant, p<0.001 but the interaction between chronicity and FQ was not significant. For boys, the model accounted for 42.3% of the variance and was found to be significant, $F_{(3,46)} = 11.23$, p<0.001. Chronicity was found to be significant, p<0.001 and the interaction between chronicity and FQ was also significant, p< 0.001.

Table 6
Constant, standard errors and coefficient beta values of the 3 predictor variables (chronicity, FQ and chronicity x FQ) when DCC is the outcome variable; split by gender.

		B	***SE***	***β***
Constant	Boys	1.67	0.06	
	Girls	1.65	0.06	
Centred chronicity	Boys	0.1	0.02	0.50**
	Girls	0.11	0.02	0.52**
Centred FQ	Boys	-0.13	0.08	-0.2
	Girls	-0.04	0.07	-0.06
Centred chronicity/FQ	Boys	0.13	0.03	0.47**
	Girls	0.1	0.02	0.09

**p<0.001

Discussion

One aspect of this study was to provide data on the prevalence of cyberbullying in primary schools. The results show that this phenomenon is indeed evident in children between the ages of 9 and 11 years with 17.2% reporting some kind of cyberbullying experience. When comparing this rate to previous UK studies, it is evident that the rate is high. For example, Smith *et al.* (2008) reported that between 5-10% of pupils were cyberbullied in a sample of pupils aged 11 to 16 years which did not include any children from the primary school level. The fact that the level found in the present study is higher cannot be attributed to the number of ways in which cyberbullying could be reported since both the present study and Smith *et al.* listed seven different methods. It may be that cyberbullying in adolescents has also increased since Smith *et al.*'s study was conducted however, this can only be speculated. Additionally, the large prevalence rate may be attributed to the sample type which was provided by schools from a relatively affluent town in North Yorkshire and therefore may not be typical of children at primary schools in the UK as a whole. Nevertheless, the present study does provide evidence that primary school children experience cyberbullying and it is not just a phenomenon found in adolescence. The highest percentage of reports from the present sample involved messenger services and chat rooms. This finding was also found by Kowalski and Limber (2007). This may be attributed to the fact that these forms of communication are free (unlike text messages) and do not have age restrictions such as some social networking sites (SNS). However, the fact that 2.3% of participants reported being bullied on a SNS is interesting since most SNS require members to be a minimum age of 13 years (e.g. Facebook, Twitter, Bebo). In addition, a larger percentage of year 5 pupils were bullied in this way when compared to year 6 pupils (although not statistically significant) indicating that children as young as 9 years old are registered on one or more SNS. This may be due to the possibility that parents may or may not be aware of the age restrictions or that many parents may not fully understand what their children are doing online (Byron, 2008). It may therefore be prudent to educate parents about online 'communities' and what they can do to help their child to be safe online. However, it is also accepted that parents may be aware of these age restrictions but are apathetic about the online behaviour of their child(ren) or see it as a necessary part of their child(ren)'s friendships. Further studies could provide information on the attitudes of parents towards younger children using the internet and the relationship between using the internet at this younger age with friendship maintenance.

An additional aim of this study was to provide evidence in relation to gender and age differences in the different types of bullying. No significant gender differences were found and this therefore supports the findings of Austin and Joseph (1996). Prevalence rates have been shown to be affected by the provision/non-provision of a definition of bullying with a larger number of reports of bullying being recorded when no definition is provided (Vaillancourt *et al.,* 2008). This is thought to be a result of participants basing their responses on their own personal definitions of bullying which may include all negative actions (Vaillancourt *et al.,* 2008). The study conducted by Austin and Joseph (1996) did not provide their participants with a definition whereas the present study did. The similar findings with regard to gender differences in bullying cannot therefore be attributed to this explanation. With regard

to indirect bullying, it may be that as Bjorkqvist *et al.* (1992) suggested, neither gender have developed enough social skills to show a significant difference, even though the children in the present study were older than those in the study of Bjorkqvist *et al.* (ages 9-11 years compared to 8 years).

The data on direct verbal bullying adds to the already inconsistent findings of other research where some have reported a higher prevalence in girls (Whitney & Smith, 1993) whilst others report a higher prevalence in boys (Juvonen *et al.,* 2000; Borg, 1999). However, verbal bullying was found to be the most prevalent type of bullying overall and this is consistent with previous findings (e.g. Whitney & Smith, 1993). Interestingly, there were no significant gender differences in direct physical bullying. Research to date has found that boys are significantly more likely to experience this type of bullying when compared to girls (e.g. Wang *et al.,* 2009; Borg, 1999). These non-significant findings in the present study may be attributed to a government focus on bullying (Smith, 2004) which may have resulted in teachers being more effective in reducing incidences of bullying at least with regard to direct bullying. The overall reduction in incidences may therefore have eradicated any significant gender differences which were evident in earlier UK studies (e.g. Whitney & Smith, 1993). There is however a caveat with accepting this explanation in that around 39% of children reported being bullied through direct physical means and direct verbal means which is still a relatively high percentage. Furthermore, the percentage for direct verbal bullying (39.1%) is comparable to that reported by Rivers and Smith (1993) and Wolke *et al.* (2000) and so the suggestion that direct bullying may have decreased overall is tentative. Alternatively, the non-significant result in direct physical bullying may be explained by the theories of socialisation of gender roles (Zahn-Waxler and Polanichka, 2004). That is, that some boys (at least in the present sample) have not been socialised to behave in a physical way and consequently, the group norm of some of their social groups is not to victimise through means of physical bullying. If this is accepted, this would have implications on the stereotype hypothesis offered by Underwood *et al.* (2001) in that the definitions of 'boy' and 'girl' stereotypes may be becoming less definitive. There is a further suggestion in that girls may be becoming more physically aggressive and therefore diminishing any gender differences found to date in physical bullying. However, this is purely speculative and further research is needed to establish whether or not current gender trends in direct physical bullying differ from those found to date.

That there were no significant gender differences in incidences of cyberbullying is interesting and adds to the already inconsistent reports of gender differences in this type of bullying. The present study did not ask participants how frequently they had experienced cyberbullying and this may be a contributing factor to the findings. Previous studies which have reported on significant gender differences asked participants to report on how frequently they had been cyberbullied (e.g. Wang *et al.*, 2009; Kowalski & Limber, 2007; Smith *et al,* 2008; Katzer *et al.,* 2009). However, other studies reporting no significant gender differences also asked participants about the frequency of incidences (e.g. Li, 2006; Patchin & Hinduja, 2006). Since to date there are no published data on cyberbullying in children between the ages of 9 years and 11 years, it may be reasonable to suggest that a significant gender difference may be found when frequencies of cyberbullying incidents are investigated. Therefore, further research into cyberbullying in this age group may be advised to include questions relating to this.

The only significant difference between the two year groups was found for direct physical bullying with pupils in year 5 being more likely to experience this when compared to pupils in year 6. With regard to the hypotheses put forward by Smith *et al.* (1999), it seems unlikely that this difference is due to the idea that children are usually bullied by older children since the pupils in year 5 are amongst the oldest in primary school. In any case, one would expect to find significantly higher levels on all types of bullying in year 5 and not just direct physical. It may still however be possible that children in year 5 are being bullied by those children in year 6 (at least in the form of direct physical bullying). A further explanation for the significant difference may be that the children in year 6 have developed sufficiently in their social skills in order to deal with threats of victimisation effectively and consequently experience less bullying incidents, at least with regard to direct physical bullying. However, if this hypothesis is accepted, it is reasonable to question whether or not these newly developed social skills aid children in warding off threats of verbal or indirect bullying since no significant differences were found in these types of bullying (although a larger percentage of pupils in year 5 reported being bullied in these ways). Alternatively, as suggested by Bjorkqvist *et al.* (1992) some pupils in year 5 may still use physical aggression as their verbal skills may not have developed to a level whereby they would choose to use direct verbal or indirect means of bullying. It is this latter suggestion which would seem to be the most feasible at present however further investigation into the hypothesis of social skill development may be able to support this.

Contrary to Boulton *et al.* (2008), the present study did not find a significant association between each individual singular type of bullying and classroom concentration. The only significant difference was between those who were bullied in more than one way and those who were not bullied. The inconsistencies with Boulton *et al.* may be due to the way in which bullying was categorised. Boulton *et al.'*s study involved a frequency score for each participant for each individual type of bullying and as such participants may have fallen into more than one type of bullying category. The present study however categorised each way of bullying as 'yes' or 'no' which resulted in the categories of each singular type of bullying (e.g. indirect only) and the additional category of 'more than one type'. It was therefore possible to distinguish between those participants who were bullied in one way only and those who were bullied in more than one way. Consequently, it provides data which suggests that there is no significant association between bullying and disrupted classroom concentration when a child is bullied in one way only. With regard to cyberbullying, contrary to the results found by Beran and Li (2007), pupils were not more likely to have poor concentration when compared to either those who weren't bullied or those who were bullied in more than one way. Since the sample of Beran and Li were of secondary school age, it may be reasonable to assume that cyberbullying at the primary school level does not significantly affect classroom concentration, at least when a child is cyberbullied only.

In the present study, the association between bullying and disrupted classroom concentration becomes significant when the child is bullied in more than one way thus suggesting that those children who are bullied in more than one way are more susceptible to disruption to concentration in class. If the suggestion of Lopez and Dubois (2005) is considered (i.e. that pupils who feel a sense of rejection from their peers may find it difficult to concentrate), it would seem that the link between rejection and concentration is dependent upon the number of ways in which

the rejection materialises, at least with regard to rejection in the form of bullying. Further research is needed to establish whether or not there is a pattern between particular combinations of types of bullying and disrupted classroom concentration. For example, a child may suffer more with disrupted classroom concentration if they were indirectly bullied and cyberbullied when compared to a child who is bullied through direct physical means and cyberbullied.

Chronicity of bullying was also found to be significantly related to disrupted classroom concentration. It is therefore evident that when addressing the effects of bullying, it is not only the type of bullying which needs to be considered but also the chronicity. It is not unexpected that the chronicity of bullying has effects on the victim since Buhs *et al.* (2006) reported that chronic peer abuse predicted later school maladjustment. The present study does however provide new information on the concurrent effects of the chronicity of bullying. It may therefore be reasonable to suggest that concurrent disrupted classroom concentration has a role to play in the link between chronicity of bullying and later problems in school. Longitudinal studies would provide evidence to clarify this suggestion. Teachers and parents must therefore be aware that the effects of bullying are also related to how often the bullying takes place, the number of people who are bullying the individual and the number of different places in which the bullying takes place. Furthermore, it would be beneficial to teachers if they were to be aware that a child who is bullied, for example both in school and on the way home, is more likely to suffer from disruption to their concentration than a child who is bullied at school only. Consequently, it is imperative that both teachers and parents work together to inform each other of known incidences of bullying either in school or out of school in order to reduce the negative consequences on the victim. Since both chronicity and the 'more than one type' group were significantly related to disrupted classroom concentration, it will be of further interest to test whether both type and chronicity together can predict disrupted classroom concentration. It is therefore suggested that future studies would benefit from an analysis of the chronicity of each individual type of bullying to establish any trends. For example, a certain level of chronicity in direct physical bullying may be more strongly linked to negative effects than the same level of chronicity in cyberbullying.

Friendship quality was found to be a significant moderator between the chronicity of bullying and disrupted classroom concentration. In other words, if a child has a good quality friendship with their best or closest friend, any disruption to classroom concentration is likely to be less when compared to a child who does not have a good quality friendship. This finding adds to the existing evidence that friendships can help those children who are being bullied by providing some level of support (Hodges *et al.,* 1999; Woods *et al.,* 2009). However, this significant finding was only evident for boys and not for girls. It is therefore possible that the nature of girls' friendships could exacerbate the negative effects of bullying rather than protect a victim. For example, with regard to this age group, girls' friendships are characterised by intimacy and the sharing of information (Maccoby, 2002). These characteristics may aid bullying (in particular indirect bullying) rather than provide girls with a source of protection or support. The finding that boys' friendships can offer some level of protection is important as teachers would benefit from being aware that those boys who are bullied and do not have good quality friendships are more likely to suffer with disruption to their concentration in class. It may therefore be prudent for teachers and parents to encourage friendships between victims and

other children and also to facilitate the improvement in quality to any existing friendships.

Although the present study found that friendship quality had a moderating role between chronicity of bullying and disrupted classroom concentration, it did not offer an analysis of this relationship with regard to each individual type of bullying. Woods *et al* (2009) reported that friendship did not act as a moderator between indirect bullying and emotional problems or loneliness. It may therefore be reasonable to suggest that friendship quality may provide different levels of protection against disrupted classroom concentration depending on the chronicity of each different type of bullying. For example, friendship quality may have a moderating role with direct forms of bullying at a certain level of chronicity but not for cyberbullying at the same level of chronicity. In addition, friendship may provide some level of protection for girls with possibly one form of bullying but not with other forms of bullying. As already suggested, further research would benefit from including an analysis of the chronicity levels for each different type of bullying and it would therefore be beneficial to include this in any future research examining the moderating effect of friendships within this context.

There are some limitations to the present study. As already discussed, the present sample was from a relatively affluent town in North Yorkshire which does not have an extensive ethnic minority population. It may therefore not be representative of children in the UK as a whole and as a result, care must be taken when generalising the findings.

A further limitation is related to the chronicity score which in part was calculated by summing the number of locations where the bullying took place. However, since an investigation into cyberbullying was a particular aim of this study, it may have been beneficial to expand on the list of locations provided by Unnever and Cornell (2004) to include locations where cyberbullying is likely to take place, for example in the home or at a friend's house. It may therefore be argued that the chronicity scores in the present sample do not wholly include incidences of cyberbullying. Further research which includes an analysis into the chronicity of cyberbullying may therefore benefit from modifying the chronicity scale to include such places where this form of bullying may take place.

The present study does however add to the limited current literature on classroom concentration and chronicity of bullying by providing data which suggests that chronicity of bullying may have a role to play in the link between bullying and classroom concentration. An additional strength of this study is that it provides empirical data concerning cyberbullying at the primary school level which has not been provided to date. A platform has therefore been provided for further research into this area of bullying within this age group.

In conclusion, the present study provides evidence that cyberbullying is indeed an issue for children at the primary school level, at least for those children in years 5 and 6. Although the UK government have issued information to schools about online safety (e.g. Department for Children, Schools and Families, 2007), teachers and parents may benefit from further training in order to equip them with the necessary skills to deal with this relatively new form of bullying. The findings reported above also indicate that those children who are bullied in more than one way and/or who have a high level of chronicity are more likely to suffer disruption to their concentration at school. Teachers need to be aware of this as a bullied child who has poor concentration may be being exposed to more bullying incidences than

school staff are aware of. As friendship quality has been shown to provide some level of protection for boys, this may be an area where parents and teachers can help. As well as attempting to eradicate incidences of bullying, it will be beneficial to the child if adults can encourage the on-going development of existing friendships as well as the forging of new friendships. These measures may therefore help those children who are a target for bullying to cope with the cognitive demands placed on them in the classroom environment.

References

ABA (2007). *Children and young people's questionnaire (short)*. Retrieved 20 October 2009 from www.anti-bullyingalliance.org.uk

ABA (2009). *New research on cyberbullying highlights the role of parents in prevention.* Retrieved 29 November 2009 from www.anti-bullyingalliance.org.uk/ press_centre/ latest_news/new_research_on_cyberbullying.aspx

Austin, S. & Joseph, S. (1996). Assessment of bully/victim problems in 8 to 11 year-olds. *British Journal of Educational Psychology, 66,* 447-456.

Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, Strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Beran, T. & Li, Q. (2007). The relationship between cyberbullying and school bullying [Electronic version]. *Journal of Student Wellbeing, 1*(2), 15-33

Bjorkqvist, K., Lagerspatz, K.M.J. & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression [Electronic version]. *Aggressive Behavior, 18,* 117-127.

Bollmer, J.M., Milich, R., Harris, M.J. & Maras, M.A. (2005). A friend in need. The role of friendship quality as a protective factor in peer victimization and bullying. *Journal of Interpersonal Violence, 20*(6), 701-712.
Borg, M.G. (1999). The extent and nature of bullying among primary and secondary schoolchildren [Electronic version]. *Educational Research, 41*(2), 137-53.

Boulton, M.J., Chau, C., Whitehand, C., Amataya, K. & Murray, L. (2009). Concurrent and short-term longitudinal associations between peer victimization and school and recess liking during middle childhood [Electronic version]. *British Journal of Educational Psychology, 79,* 207-221.

Boulton, M.J., Trueman, M. & Murray, L. (2008). Associations between peer victimization, fear of future victimization and disrupted concentration on class work among junior school pupils. *British Journal of Educational Psychology, 78,* 473-489.

British Educational Research Association *Revised ethical guidelines for educational research.* Retrieved 28 November 2009 from www.bera.ac.uk/files/ guidelines/ethica1.pdf

British Psychological Society (2006). *Code of conduct, ethical principles and guidelines.* Leicester: British Psychological Society.

Buhs, E.S., Ladd, G.W. & Herald, S.L. (2006). Peer exclusion and victimization: processes that mediate the relation between peer group rejection and children's classroom engagement and achievement [Electronic version]. *Journal of Educational Psychology, 98*(1), 1-13.

Byron, T. (2008). *Safer children in a digital world. The report of the Byron review.* Department for Children, Schools and Families: HMSO.

Crick, N.R. & Grotpeter, J.K. (1995). Relational aggression, gender and social-psychological adjustment [Electronic version]. *Child Development, 66,* 710-722

Department for Children, Schools and Families (2007). *Cyberbullying: A whole-school community issue.* London: HMSO

Elsea, M. & Mukhtar, K. (2000). Bullying and racism among Asian schoolchildren in Britain [Electronic version]. *Educational Research, 42*(2), 207-217.

Finkelhor, S., Mitchell, K. & Wolak, J. (2000) Online victimization: a report on the nation's youth. Retrieved 10 November 2009 from www.unh.edu/ccrc/pdf/ Victimization_Online_Survey.pdf

Glover, D., Gough, G., Johnson, M. & Cartwright, N. (2000). Bullying in 25 secondary schools: incidence, impact and intervention [Electronic version]. *Educational Research, 42*(2), 141-156.

Hawker, D.S.J. & Boulton, M.J. (2000). Twenty years' research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies [Electronic version]. *Journal of Child Psychology and Psychiatry, 41*(4), 441-455

Hodges, E.V.E., Malone, M.J. & Perry, D.G. (1997). Individual risk and social risk as interacting determinants of victimization in the peer group [Electronic version]. *Developmental Psychology, 33*(6), 1032-1039.

Hodges, E.V.E., Boivin, M., Vitaro, F. & Bujowski, W.M. (1999). The power of friendship: protection against an escalating cycle of peer victimization [Electronic version]. *Developmental Psychology, 35*(1), 94-101.

Howell, D.C. (2002) Statistical Methods for Psychology (5th Edn.) Thomson Wadsworth, Belmont, CA.

Juvonen, J., Nishina, A. & Graham, S. (2000). Peer harassment, psychological adjustment and school functioning in early adolescence [Electronic version]. *Journal of Educational Psychology, 92*(2), 349-359.

Katzer, C., Fetchenhauer, D. & Belschak, F. (2009). Cyberbullying: Who are the victims? A comparison of victimization in internet chatrooms and victimization at school [Electronic version]. *Journal of Media Psychology, 21*(1), 25-36.

Kaukiainen, A., Bjorkqvist, K., Lagerspatz, K., Osterman, K., Salmivalli, C., Rothberg, S. & Ahlbom, A. (1999). The relationships between social intelligence, empathy, and three types of aggression. *Aggressive Behavior, 25*(2), 81-89.

Kochenderfer, B.J. & Ladd, G.W. (1996). Peer victimization: cause or consequence of school maladjustment? *Child Development, 67,* 1305-1317.

Kowalski, R.M. & Limber, S.P. (2007). Electronic bullying among middle school students [Electronic version]. *Journal of Adolescent Health, 41,* S22-S30.

Ladd, G.W., Kochenderfer, B.J. & Coleman, C.C. (1997). Classroom peer acceptance, friendship, and victimization: distinct relational systems that contribute uniquely to children's school adjustment. *Child Development, 68*(6), 1181-1197.

Lagerspatz, K.M.J., Bjorkqvist, K., & Peltonen, T. (1988). Is indirect aggression typical of females? Gender differences in aggressiveness in 11-to 12 year old children. *Aggressive Behavior, 14,* 403-414.

Li, Q. (2006). Cyberbullying in schools. *School Psychology International, 27*, 1-14

Li, Q. (2008). A cross-cultural comparison of adolescents' experience related to cyberbullying [Electronic version]. *Educational Research, 50*(3), 223-234.

Lopez, C. & DuBois, D. (2005). Peer victimization and rejection: investigation of an integrative model of effects on emotional, behavioural and academic adjustment in early adolescence. *Journal of Clinical Child and Adolescent Psychology, 34,* 25-36.

Maccoby, E.E. (2002). Gender and group process: A developmental perspective. *Current Directions in Psychological Science, 11,* 54-58.

Maccoby, E.E. (2004). Aggression in the context of gender development. In M. Pullatz & K.L. Bierman (Eds.) *Aggression, anti-social behavior and violence among girls* (pp3-22). London: The Guildford Press.

Nansel, T.R., Overpeck, M., Pilla, R.S., Ruan, W.J., Simons-Morton, B. & Scheidt, P. (2001). Bullying behaviors among US youth. Prevalence and association with psychosocial adjustment [Electronic version]. *Journal of American Medical Association, 285*(16), 2094-2100.

Newcomb, A.F. & Bagwell, C.L. (1995). Children's friendship relations: A meta-analytic review. *Psychological Bulletin, 117*(2), 306-347.

OFCOM (2008). *Social Networking. A quantitative and qualitative research report into attitudes, behaviours and use*. Retrieved 9 March 2010 from http://www.ofcom.org.uk/advice/media_literacy/medlitpub/medlitpubrss/socialnetworking/report.pdf

Office for National Statistics (2007). *Preference for internet and mobile phones increase with age.* Retrieved 29 November 2009 from www.statistics.gov.uk/CCI/nugget.asp?ID=2199&Pos=2&ColRank=2&Rank=1000

Olweus, D. (1978). *Aggression in the schools: Bullies and whipping Boys.* London: Hemisphere

Olweus, D. (1993). *Bullying at school. What we know and what we can do.* Oxford: Blackwell.

Olweus, D. (1999). Sweden. In P.K. Smith, Y. Morita, J. Junger-Tas, D. Olweus, R. Catalano & P. Slee (Eds.) *The nature of school bullying: A cross-national perspective* (pp.7-27). London: Routledge.

Parker, J.G. & Asher, S.R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology, 29*(4), 611-621.

Patchin, J.W. & Hinduja, S. (2006). Bullies move beyond the schoolyard. A preliminary look at cyberbullying [Electronic version]. *Youth Violence and Juvenille Justice, 4*(2), 148-169.

Pepler, D., Craig, W., Jiang, D. & Connolly, J. (2008). Developmental trajectories of bullying and associated factors [Electronic version]. *Child Development, 79*(2), 325-338.

Raskauskas, J. & Stolz, A.D. (2007). Involvement in traditional and electronic bullying among adolescents [Electronic version]. *Developmental Psychology, 43*(3), 564-575.

Rigby, K. (2001). Health consequences of bullying and its prevention in schools. In J. Juvonen & S. Graham (Eds.) *Peer harassment in school: the plight of the vulnerable and victimized* (pp. 310-331). New York: Guildford Press.

Rivers, I. & Noret, N. (2009). 'I h 8 u': findings from a five-year study of text and email bullying. *British Educational Research Journal, i*First Article, 1-29.

Rivers, I. & Smith, P.K. (1994). Types of bullying behaviour and their correlates. *Aggressive Behavior, 20,* 359-368.

Salmivalli, C. (2002). Is there an age decline in victimization by peers at school? [Electronic version]. *Educational Research, 44*(3), 269-277.

Schwartz, D., Gorman, A.H., Nakamoto, J. & Toblin, R.L. (2005). Victimization in the peer group and children's academic functioning [Electronic version]. *Journal of Educational Psychology, 97*(3), 425-435.

Seals, D. & Young, J. (2003). Bullying and victimization: prevalence and relationship to gender, grade level, ethnicity, self-esteem, and depression [Electronic version]. *Adolescence, 38*(152), 735-747.

Smith, P.K., Madsen, K.C. & Moody, J.C. (1999). What causes the age decline in reports of being bullied at school? Towards a developmental analysis of risks of being bullied. *Educational Research, 41*(3), 267-285.

Smith, P.K., Sharp, S., Eslea, M. & Thompson, D. (2004). England: the Sheffield project. (pp99-124). In P.K. Smith, D. Pepler & K. Rigby (Eds.) *Bullying in schools. How successful can interventions be?* Cambridge University Press, Cambridge.

Smith, P.K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S. & Tippett, N. (2008). Cyberbullying: its nature and impact in secondary school pupils [Electronic version]. *The Journal of Child Psychology and Psychiatry, 49*(4), 376-385.

Solberg, M.E. & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus bully/victim questionnaire [Electronic version]. *Aggressive Behavior, 29,* 239-268.

Underwood, M.K., Galen, B.R., Paquette, J.A. (2001). Top ten challenges for understanding gender and aggression in children: Why can't we all just get along? [Electronic version]. *Social Development, 10*(2), 248-266.

Unnever, J.D. & Cornell, D.G. (2004). Middle school victims of bullying: who reports being bullied? *Aggressive Behavior, 30,* 373-388.

Vaillancourt, T., McDougall, P., Hymel, S., Krygsman, A., Miller, J., Stiver, K. *et al.* (2008). Bullying: Are researchers and children/youth talking about the same thing? *International Journal of Behavioral Development, 32*(6), 486-495.

Van der Wal, M.F., de Wit, C.A.M. & Hirasing, R.A. (2003). Psychosocial health among young victims and offenders of direct and indirect bullying [Electronic version]. *Pediatrics, 111*(6), 1312-1317

Wang, J., Iannotti, R.J. & Nansel, T.R. (2009). School bullying among adolescents in the United States: Physical, verbal, relational, and cyber [Electronic version]. *Journal of Adolescent Health, 45,* 368-375.

Whitney, I. & Smith, P.K. (1993). A survey of the nature and extent of bullying in junior/middle and secondary schools. *Educational Research, 35*(1), 3-25.

Williams, K.R. & Guerra, N.G. (2007). Prevalence and predictors of internet bullying [Electronic version]. *Journal of Adolescent Health, 41,* S14-S21.

Wolak, J., Mitchell, K. & Finkelhor, D. (2006). *Online victimization of youth: five years later.* Retrieved 29 November 2009 from www.unh.edu/ccrc/pdf/CV138.pdf

Wolak, J., Mitchell, K.J. & Finkelhor, D. (2007). Does online harassment constitute bullying? An exploration of online harassment by known peers and online-only contacts [Electronic version]. *Journal of Adolescent Health, 41*, S51-S58.

Wolke, D., Woods., S., Bloomfield, L. & Karstadt, L. (2000). The association between direct and relational bullying and behaviour problems among primary school children [Electronic version]. *Journal of Child Psychology and Psychiatry, 41*(8), 989-1002.

Woods, S., Done, J. & Kalsi, H. (2009). Peer victimisation and internalising difficulties: the moderating role of friendship quality [Electronic version]. *Journal of Adolescence, 32,* 293-308.

Ybarra, M.L., Espelage, D.L. & Mitchell, K.J. (2007). The co-occurrence of internet harassment and unwanted sexual solicitation victimization and perpetration: associations with psychosocial indicators [Electronic version]. *Journal of Adolescent Health, 41*, S31-S41.

Zahn-Waxler, C. & Polanichka, N. (2004). All things interpersonal: Socialisation and female aggression. In M. Pullatz & K.L. Bierman (Eds.) *Aggression, anti-social behavior and violence among girls* (pp48-68). The Guildford Press: London.