How are Closeness and Conflict in Student–Teacher Relationships Associated with Demographic Factors, School Functioning and Mental Health in Norwegian Schoolchildren Aged 6-13?

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How are Closeness and Conflict in Student–Teacher Relationships Associated with Demographic Factors, School Functioning and Mental Health in Norwegian Schoolchildren Aged 6–13?

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This study explored the association between teacher-reported student-teacher relationship quality (closeness and conflict) and demographic factors, school functioning and child mental health in a cross-sectional study. The study was conducted among a national sample of Norwegian school children (N = 825) in grades 1 to 7. Bivariate analyses and standard multiple regression analysis were conducted. Conflict in student–teacher relationships correlated highly with child mental health factors and in particular, problems of externalization. For closeness in student-teacher relationships, demographic factors accounted for the largest proportion of variance. Our findings suggest that different strategies may be needed to promote closeness and reduce conflict in student–teacher relationships.

Keywords: student-teacher relationship, STRS, demographic factors, school functioning, mental health

The past few decades have witnessed growing interest in the impact of social relationships on child development. In school, the quality of the relationship between teachers and students has important implications for children's social functioning, behavioral problems, adaptation to school, and academic competence (Furrer & Skinner, 2003; Baker, 2006; Hamre & Pianta, 2001). Children's feelings of connectedness to teachers and school influence their emotional and social adjustment and academic performance (Murray & Greenberg, 2000). Supportive student–teacher relationships seem to fulfil a basic psychological need and promote self-determination (Murray & Murray, 2004).

Positive relationships between students and teachers are characterized by closeness, a high degree of warmth, open communication and support provided by the teacher. Negative relationships on the other hand, are characterized by high levels of conflict, negative emotions, discordant interactions and lack of rapport (Birch & Ladd, 1998; Pianta, 2001).

Several factors at various levels (student and teacher characteristics, prior relationship experiences, and school factors, for example) may influence the quality of student–teacher relationships (Birch & Ladd, 1997, 1998; Howes, Phillipsen, & Peisner-Feinberg, 2000; Saft & Pianta, 2001). It is important to have knowledge of these factors to be able to

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identify negative student–teacher relationships and support the development of positive relationships. To date, most studies of factors associated with quality in student–teacher relationships have been performed in the US, and very few have been carried out in Scandinavian schools.

Current knowledge of factors associated with the quality of student–teacher relationships indicates that girls have more supportive relationships with their teachers than boys, and relationships between younger children and teachers are more positive than those between older children and teachers (Birch & Ladd, 1997; Murray & Murray, 2004; O'Connor, 2010). While the association between children's externalizing problems (shown through oppositional and/or antisocial behaviour) and negative student–teacher relationships is well documented (Birch & Ladd, 1998; Drugli, 2011; Murray & Murray, 2004; O'Connor, 2010), few studies have focused on internalizing problems (manifested in symptoms of depression and/or anxiety) and their association with the quality of the student–teacher relationship. However, problems of internalization in children have also been found to be associated with negative aspects of student–teacher relationship quality, although at lower levels than among those with conduct problems (Birch & Ladd, 1998; Henricsson & Rydell, 2004; Murray & Murray, 2004). Further, several studies have found that positive student–teacher relationships are associated with the academic performance of the student (Furrer & Skinner, 2003; Hamre & Pianta, 2001). Positive student–teacher interactions encourage better on-task behavior in the child, which influences academic performance (Pianta, Stuhlman, & Hamre, 2002), while children with learning problems often experience conflicts in their relationships with teachers (Pianta, 2001).

While a number of factors associated with student–teacher relationship quality have been documented, no studies of national school samples have analyzed these factors in ways that can assess both the independent and cumulative effects of demographic, school functioning, and mental health factors on closeness and conflict, respectively, in student–teacher relationships. Although Murray & Murray (2004) conducted such an analysis, it was performed on a sample of children from lower socioeconomic backgrounds in grades 3 to 5 in a single urban school district. Moreover, most studies of student–teacher relationship quality have been carried out on very young children (Ang, Chong, Huan, Quek, & Yeo, 2008).

In a previous study of the present sample, the effects of demographic, school functioning, and mental health factors on a total sum score of student–teacher relationship quality as assessed by the original 28-item version of Student Teacher Relationship Scale (STRS) (Pianta, 2001) were explored (Drugli, 2011). The present study seeks to add nuance to these findings by exploring the two different dimensions of quality in student–teacher relationships – closeness and conflict – separately.

The study includes a national sample of Norwegian schoolchildren up to 13 years of age (in grades 1–7), and explores the association between student–teacher relationship quality and demographic factors (child gender, teacher gender, grade); school functioning (school adaptation, academic performance); and child mental health (internalizing and externalizing problems). All variables are incorporated into a single model, making it possible to evaluate both the independent and cumulative relationship between the factors and student–teacher relationship quality. On the basis of the findings of Murray and Murray's study (2004), the hypothesis was that the factors examined are more strongly associated with conflict in student–teacher relationships than with the closeness dimension.

Methods

Sample and Procedure

In a national sample, 1409 eligible children from grades 1–7 were randomly selected from the general population in Norwegian schools. The selection of subjects was stratified according to the number of children in each grade (the number of children in a grade was subdivided into three groups: 0–30; 31–50 and above 50), geographic localization, and centrality of the school (rural, semirural and urban schools). One child from each selected grade was extracted at random. A total of 863 questionnaires regarding 1409 children were completed by teachers – a response rate of 61.2%. However, only 825 teachers completed both the Student–Teacher Relationship Scale (STRS-SF) and Teacher Report Form (TRF), giving a final response rate of 58.6%. No significant difference between responding and non-responding teachers was found in regard to the stratification criteria (number of children in each grade, geographic localization, or school centrality).

The sample consisted of 51.1% girls ($n = 420$) and 48.9% boys ($n = 402$). 43.5% ($n = 359$) of the children were aged 6–8 (grades 1–3) and 56.5% ($n = 466$) were 9–13 years old (grades 4–7).

In order to avoid dependency and possible cluster effects in the teachers' evaluations, only one pupil was selected from each grade within each school. In order to increase the validity of the teachers' assessments of their student relationships, the study was performed in the middle of the spring semester, so that the teachers would have at least six months of acquaintance with pupils in the first grade.

The selection process was carried out by Statistics Norway (*Statistisk Sentralbyrå*), which mailed the information about the study to each school principal, who in turn distributed the material to the responsible teacher. The schools distributed information to parents in the form of letters indicating that participation was voluntary and that they could withdraw their child from the study at any time and have the data deleted. The questionnaires were returned to the research group in a prepaid envelope.

Assessment Measures

The Student–Teacher Relationship Scale (STRS). The STRS is designed to assess teachers' perceptions of their relationship with a particular child (Pianta, 2001). In the present study we used the short version of the STRS (STRS-SF), which has been found to be valid for studies of Norwegian schoolchildren (Drugli & Hjelmdal, 2012). This measure consists of 15 items with scores ranging from 1 to 5 (1 = does not apply at all; 5 = applies very well). Sum scores for two subscales, Closeness and Conflict, are calculated. The Closeness Scale consists of eight items (such as "I share an affectionate, warm relationship with this child", "This child values his/her relationship with me"), with scores ranging from 8–40, while the Conflict Scale consists of seven items (such as "This child easily becomes angry with me", "Dealing with this child drains my energy"), with scores ranging from 7 to 35. Alpha values for the Closeness scale were .82 and for the Conflict scale .84.

The STRS was used by agreement with its originator Robert Pianta, translated into Norwegian, and back-translated into English by a bilingual scholar. The two translators then met for discussion and agreement on the final formulations.

The Teacher Report Form (TRF). The TRF includes 118 problem items that focus on problem areas. Teachers are asked to rate the degree of emotional and behavioral problems

exhibited by the child in the previous two months on a 0–2 scale (0 = not true as far as you know; 1 = somewhat or sometimes true; 2 = very true or often true). We used the externalizing and internalizing syndrome scale scores, with 32 (range between 0–64) and 33 (range between 0–66) items, respectively. The externalizing syndrome scale includes the subscales oppositional and defiant problems (for example: argues, is defiant) and conduct problems (for example: breaks rules, fights), while the internalizing syndrome scale includes affective problems (for example: enjoys little, feels guilty), anxiety problems (for example: is dependent, indicates fears), and somatic problems (for example: aches, headaches).

To evaluate students' academic functioning, teachers were asked to rate student performance in five academic subjects (Norwegian, mathematics, English, social studies and science) in comparison with typical pupils of the same age on a 1–5 scale (1 = "Well below average, 5 = "Well above average"). These scores are averaged to form an Academic Performance score. Teachers were also asked to rate the child on the following four adaptive characteristics on a 1–7 scale (1 = "Well below average", 7 = "Well above average"): compared with typical pupils at the same age, how hard is the student working, how appropriately is he/she behaving, how much is he/she learning, and how happy is he/she. These scores are summed to form a Total Adaptive Functioning score ranging from 4–28.

Mean test-retest reliability has been found to be .90 for all TRF scales (Achenbach & Rescorla, 2001). In our study, internal consistency was found to be high: alpha = .95 for the externalizing syndrome scale, .97 for the internalizing syndrome scale, 81 for the adaptive functioning score and .91 for academic performance.

Ethics

The Regional Committee for Medical Research Ethics at the Norwegian University of Science and Technology (NTNU) approved the study's research protocol.

Statistics

In accordance with the TRF manual, individuals with more than eight items missing on the problem scores were removed from the analyses, and for the STRS, individuals with more than 10% missing values were removed ($n = 38$). For the rest of the sample ($N = 825$), missing data were replaced using the EM algorithm (Little & Rubin, 1987).

First, bivariate analyses were performed. Student's t-test was used to explore differences in means of closeness and conflict scores according to demographic factors. Effect size (ES) was estimated by means of partial eta^2 and interpreted according to Cohen's criteria for the percentage variance accounted for: small effect = 1–5.9%, medium effect = 6.0–13.8%, large effect = above 13.8 % (Cohen, 1988). Correlation analyses were then carried out to explore the association between continuous variables.

A multiple regression analysis with enter procedure was performed in order to examine possible correlations between teacher–student relationships (conflict and closeness scores) and demographic factors (child gender: girl = 1 and boy = 2, grade level: 1–3 = 1 and 4–7 = 2; teacher gender: female = 1 and male = 2), school functioning (academic performance, adaptive functioning), and child mental health (externalizing and internalizing problems). Demographic factors were entered at step 1, school functioning factors at step 2, and mental health factors at step 3, for closeness and conflict in student–teacher relationships, respectively. A hierarchical model was used because we wanted to explore the cumulative association between our three groups of predictors and closeness and conflict, respectively.

Beta values presented in Tables 3 and 4 are those computed when all the predictors had been entered in the model (that is, after step 3).

A p-value < .05 was used to indicate a statistically significant result.

Results

Bivariate Analyses

Differences in means are shown in Table 1 and the results of correlation analyses in Table 2. All bivariate relations studied were statistically significant, except for the relationship between closeness in student–teacher relationships and academic performance. Correlations between conflict in student–teacher relationships and externalizing problems and between conflict and school adaptation were found to be at a high level, while other correlations were small. Effect sizes for the difference between female and male teachers and between grades 1–3 vs 4–7 according closeness in student–teacher relationships were of medium size; other effect sizes were small.

Multiple Regression Analyses

Closeness. The overall model accounted for 25.2% of the total variance in closeness scores: adjusted $R^2 = 24.5$, $F(7,785) = 37.5$, p< .001. Demographic variables entered in block 1 accounted for 17% of the total variance in closeness scores, school functioning entered in block 2 accounted for an additional 6%, and mental health entered in block 3 accounted for 2% of the variance. All the independent variables investigated, apart from externalizing problems, were found to be significantly associated with closeness in the student–teacher relationship. Higher levels of closeness were found to be associated with female gender for both students and teachers, grades 1 to 3 (vs. grades 4–7), higher levels of school adaptation, higher levels of academic performance and lower levels of internalizing problems. The strongest association was found between closeness scores and school adaptation ($\beta = .32$, p < .001): see Table 3.

Table 1.

Differences in Means for Closeness and Conflict Scores in Regard to Student and Teacher Gender and Grade Level (N = 825)

Variable	Closeness			Conflict		
	M	(SD)	ES	M	(SD)	ES
Student gender						
Girls	32.8	(4.9)***	5.0	8.9	(3.4)***	3.8
Boys	30.4	(5.3)		10.7	(5.5)	
Teacher gender						
Female	32.3	(5.0)***	6.5	9.5	(4.5)***	1.4
Male	29.1	(5.2)		10.3	(4.8)	
Grade level						
1-3 grade	33.4	(4.5)***	8.6	9.4	(4.2)*	0.6
4-7 grade	30.3	(5.4)		10.1	(4.9)	

Note. *p< .05, ***p< .001.

Table 2.

Correlations between Closeness and Conflict in Student–Teacher Relationships and School Functioning and Child Mental Health (N = 825)

Variables	Closeness	Conflict
School functioning		
Academic performance	.06	−.20***
School adaptation	.25***	−.52***
Child mental health		
Internalizing problems	−.20***	.31***
Externalizing problems	−.26***	.80***

Note. ***$p < .001$.

Table 3.

Multiple Regression Analysis for Closeness in Student–Teacher Relationship

Variable	Block	B	95% CI Lower	95% CI Upper	β	Adjusted R square
Student gender	1	−1.70	−2.39	−1.07	−.16***	
Teacher gender	1	−2.48	−3.23	−1.66	−.20***	
Grade level (grade 1–3 vs grade 4–7)	1	−2.65	−3.15	−1.60	−25***	.17***
School adaptation	2	.40	.26	.50	.32***	
Academic performance	2	−1.72	−2.33	−.92	−20***	.06***
Externalizing problems	3	.01	−.05	.05	.02	
Internalizing problems	3	−.16	−.23	−.08	−.15***	.02***

Note. *** $p < .001$.

Table 4.

Multiple Regression Analysis for Conflict in Student–Teacher Relationship

Variable	Block	B	95% CI Lower	95% CI Upper	β	Adjusted R square
Student gender	1	−.08	−.47	.31	−.01	
Teacher gender	1	.66	.20	1.11	.06**	
Grade level (grade 1-3 vs Grade 4-7)	1	.26	−.13	.65	.03	.05***
School adaptation	2	−.19	−.26	−.12	−.18***	
Academic performance	2	.80	.38	1.22	.11***	.26***
Externalizing problems	3	.40	.37	.43	.72***	
Internalizing problems	3	.05	.01	.09	.05*	.36***

Note. *$p < .05$; *'$p < .01$; *** $p < .001$

Conflict. The overall model accounted for 68.1% of the total variance in conflict scores, adjusted R^2, = 66.4, $F(7,787) = 223.7$, $p < .001$. Demographic variables accounted for 5% of the total variance in conflict scores, school functioning for an additional 26% and

mental health for 36%. Teacher gender, school adaptation, academic performance, internalizing problems, and externalizing problems emerged as statistically significant factors after controlling for child gender and grade level. The strongest association was found between conflict in student–teacher relationships and children externalizing problems ($\beta = .72$): see Table 4.

Discussion

The association between the quality of the student–teacher relationship (closeness and conflict) and demographic factors (child gender, teacher gender, grade level), school functioning (school adaptation, academic performance), and child mental health (internalizing and externalizing problems) both by means of bivariate analyses and in a multivariate model are explored. The study was performed on a national sample of Norwegian school children in grades 1–7 (aged 6–13).

The main finding is that demographic factors, school functioning and mental health are all associated with both closeness and conflict in student-teacher relationships, but in somewhat different ways and at different levels. Girls in Norwegian schools have more positive relationships (higher levels of closeness and lower levels of conflict) with their teachers than do boys, and younger children (in grades 1–3) have more positive relationships with teachers than older children (in grades 4–7). These findings are in line with those of earlier research (Birch & Ladd, 1997; Murray & Murray, 2004; O'Connor, 2010). However, the present study adds to earlier findings by also exploring the association between teacher gender and student–teacher relationship quality. Female teachers showed higher levels of closeness and lower levels of conflict in their relationships with students than did male teachers, and the difference is greatest when it comes to closeness in these relationships. Correlation analysis also revealed a strong association between conflict in student–teacher relationships and child conduct problems and school adaptation, respectively; findings which are in line with previous research from the US (Birch & Ladd, 1997; Murray & Murray, 2004). Bivariate analysis showed that closeness in student–teacher relationships was associated with school adaptation and children's internalizing or externalizing problems; however this was at a low level, again in line with previous research (Murray & Murray, 2004).

The study also indicated that the factors investigated were related more to conflict in student–teacher relationships than to closeness. The overall regression model accounted for a much greater proportion of variance in conflict in student–teacher relationships than in closeness. This is in agreement with findings from previous research (Murray & Murray, 2004), and indicates that factors other than those explored up to now may be associated with positive dimensions of student–teacher relationships. The strongest association we found was between externalizing problems and conflict in student–teacher relationships. This association may, however, be affected by the fact that the same teacher evaluated both the problem level of the child and the relationship quality.

Few previous studies have investigated factors associated with the quality of student–teacher relationships in multivariate models. Murray & Murray's study (2004) is an exception. It used the same groups of variables used in this study, but applied them to a sample of disadvantaged children. The study found that demographic factors accounted for the largest proportion of the variance in the closeness score, while for conflict, mental health factors accounted for the largest proportion of variance. The present study found the same results among children in a national school sample, indicating that demographic factors such as

child gender, teacher gender and grade level are related more to closeness in student–teacher relationships than to the conflict dimension. Where negative relationships with high levels of conflict are concerned, mental health factors (internalizing and externalizing problems) have the strongest associations, particularly externalizing problems. Children with externalizing problems seem to be at great risk of having high-conflict relationships with their teachers. However, this study is unable to unpack which comes first: the externalizing problems in the child, or the negative student–teacher relationship. Previous longitudinal research indicates that over time, both factors may have a negative effect on each other (Hamre & Pianta, 2001).

The results of the present and previous studies are of interest where strategies to promote positive relationships between students and teachers are concerned. When relationships are established there will be a mutual interplay between child and teacher characteristics, and external factors that affect the quality of these relationships (Pianta, 1999). However, it will be the teacher's responsibility to facilitate good relations with all children in the class. Most often there will be a need for multilevel interventions, targeting both teachers and students (Murray & Murray, 2004). Different strategies may be needed to promote high levels of closeness and low levels of conflict. Teachers need to focus on their relationships with boys and older children, and on establishing and developing warm and open relationships with these groups in order to promote closeness. In addition, there seems to be a need to focus on how to promote positive relationships between male teachers and their students. Where negative relationships are concerned, our multivariate analysis indicated a need to focus in particular on the connection between student–teacher relationships and child mental health. Promoting relationships with low levels of conflict ought probably to be a part of primary prevention strategies in schools, and when children display emotional or behavioral problems, student–teacher relationship quality should be evaluated and, if necessary, subjected to intervention.

School adaptation was associated in our study with both high levels of closeness and low levels of conflict, findings that emerged in the multivariate analyses. This indicates the importance of promoting positive relationships between all students and teachers. Children who adapt to school will display better emotional and social adjustment and academic performance (Murray & Greenberg, 2000).

While the relatively low response rate is a limitation of the present study, no difference was found between participants and non-responders on stratification criteria (number of children in each grade cohort, geographic localization, or school centrality). Another limitation is the cross-sectional design, which makes it impossible to conclude anything about the direction of associations between student–teacher quality and the factors investigated. A third limitation of the study is that the teacher rated both student–teacher relationship quality and the independent variables (school functioning and child mental health). The findings may be susceptible to the same source of rater bias. The strengths of the study are the inclusion of a national Norwegian school sample and the relatively high number of participants. Few studies have focused on student–teacher quality in Scandinavian schools using standardized measurements.

Conclusions

Conflict in student–teacher relationships correlated highly with child mental health factors. Problems of externalization showed the closest association with conflict scores. For closeness in student–teacher relationships, demographic factors (child gender, teacher gender, grade)

accounted for the largest proportion of variance. Our findings indicate that different strategies may be needed to promote closeness and reduce conflict in student–teacher relationships.

However, the low response rate in this study requires further evaluation of our findings through other school samples. To explore the direction of the associations found between factors in the present study, studies with a longitudinal design should be conducted.

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