Boys’ and girls’ conversational participation across four grade levels in Norwegian classrooms: taking the floor or being given the floor?

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The participation of girls and boys in teacher-led classroom conversations in Norway was examined across four grade levels (first, third, sixth and ninth). Boys participated more across all grade levels. The difference in girls’ and boys’ participation was least in the first grade and greatest in the ninth grade. A greater proportion of the girls’ utterances was initiated by the teacher allocating turns. The boys had more overlapping utterances with the teacher and contributed more comments that were not invited by the teacher. The difference in girls’ and boys’ participation was less in a classroom with a female rather than a male teacher. Boys made many uninvited comments in classrooms with male teachers. The discussion draws attention to relationships between conversation participation and learning, between participation and influence, and between participation and developing skills to take the floor in public.

Keywords: classroom conversation; conversational participation; grade level; teacher gender; pupil gender; turn allocation

Introduction

A number of studies have examined the extent of boys’ and girls’ participation in the classroom as well as the more specific qualities of this participation. A recurring finding is that girls participate to a lesser extent than boys (Bailey 1993; Kelly 1988; Pellegrini and Blatchford 2000; Sadker and Sadker 1994; Swann 1992; Tannen, Kendall and Adger 1997). The majority of studies have been carried out in the US or England and many of them are from some years back. This study has examined girls’ and boys’ conversational participation in the modern Norwegian classroom. In recent decades, Scandinavia has given high priority to gender equality in the workplace and politics, with girls for the last twenty years being in majority in higher education (Statistics Norway 2006). Is there nevertheless a difference between boys’ and girls’ classroom participation? Do girls and boys have similar or different strategies for becoming participants in classroom conversations? Does grade level and teacher gender matter for boys’ and girls’ participation? These questions will be examined based on observations of classroom conversations at Grade 1, 3, 6 and 9 in Norwegian schools.

In the 70s and 80s, a number of international studies reported that boys interacted more with teachers than girls (Berk and Lewis 1979; Good and Brophy 1987; Kelly 1988). In addition, later studies have concluded that girls receive less attention than boys, participate in less complex and challenging interactions with teachers and receive less constructive responses (Pellegrini and Blatchford 2000; Sadker and Sadker 1994; Swann 1992). Although some studies conclude that there are no differences to be found between boys’ and girls’ participation (Merritt and Wheldall 1992), most conclude that boys participate somewhat more than girls. Kelly (1988) carried out a meta-analysis of 81 research reports, all of which concerned the nature of

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boys’ and girls’ interaction with teachers. The majority of studies Kelly used as a basis for the analysis were carried out in the US or other English speaking countries, with Sweden as the only Scandinavian country represented in the meta-analysis. Kelly found that boys participated more in interaction with teachers across different countries, across different social classes and ethnic groups and across different subject areas. None of the studies in the meta-analysis found that the teacher interacted more with girls than with boys. The boys initiated contact more often with the teacher (and the teacher more often with them) and they interrupted more. Croll and Moses (1990) conducted a meta-analysis based on studies of classroom interaction in England and came to a conclusion similar to Kelly’s. Eccles and Blumenfeld (1985) also found a greater part of the teacher’s talk was directed towards the boys. However they found no significant difference in the relative distribution of the different kinds of address to boys and girls; the difference was in effect only that teachers talked more to the boys. Others have observed differences in the quality of the teacher’s interactions with girls and boys. It has been reported that boys get more questions directed to them (Barba and Cardinale 1991; Grima and Smith 1993; Pearson and West 1991; Tsouroufli 2002; Younger, Warrington and Williams 1999) and receive more verbal encouragement and criticism, as well as non-verbal encouragement (Simpson and Erickson 1983). Grayson (2001) found that teachers gave a shorter response time to girls, asked them less complex questions and gave them fewer follow up questions. Similarly, Duffy, Warren and Walsh (2001) and Tsouroufli (2002) found that teachers had a tendency to interact more with male pupils. This did not result from male pupils initiating more direct verbal contact with the teachers but from the teachers themselves allowing male pupils to speak and initiating contact with them. Boys have also been found to receive more negative attention in the form of reprimands and to request less help from the teacher, while girls received more positive attention supporting learning (Younger et al. 1999). In summary, most studies find that boys participate more than girls. Some studies conclude that the differences are first and foremost in the quantity of girls’ and boys’ participation. Other studies have reported differences in the quality of girls’ and boys’ interaction in the classroom. These qualitative differences are partly connected with the various strategies teachers use when they address girls and boys, but it is also connected to girls’ and boys’ own strategies (Younger et al. 1999).

Does grade affect gender based interaction patterns?
Kelly’s meta-analysis found that gender based interaction patterns became clearer the higher the grade. While girls in primary level received about as much attention and direct address from the teacher as boys, she found that this attention towards girls dropped dramatically after the age of nine. ‘Girls in the six to nine age group got almost as much instruction as the boys, but thereafter the percentage of instruction which was directed at girls declined steadily with age’ (Kelly 1988, 10). In a recent study of Greek high school students Pavlidou (2003) found that boys participated more than girls. Similarly, studies of students in higher education tend to conclude that male students interact more with teachers (for a recent review of gender differences in classroom interaction in higher education, see Caspi, Chajut and Saporta 2008).

Does the gender of the teacher have any effect?
On the question of whether the teacher’s gender has any effect on girls’ and boys’ participation, results diverge. Brophy claims that:

… in general, the data suggest that differences between boys and girls in patterns of interaction with their teachers are due to differences in the behavior of the boys and girls themselves (and the effect
of this behavior on the teachers) rather than any consistent tendency of teachers to treat the two sexes differently. (Brophy 1985, 121)

Several other studies have similar conclusions (see Eccles and Blumenfeld 1985). Lockheed and Harris (1984) state also that the teacher responds to the pupils’ behaviour rather than to their gender. They find that the same type of behaviour on the part of the pupils, regardless of whether they are girls or boys, results in the same type of response from the teacher. Jungwirth also concludes by saying that, ‘the ordinary interaction patterns… differ according to the gender of the participating students. The gender of the teacher does not matter’ (1991, 268). Other studies have come to the opposite conclusion. Kelly’s meta-analysis concluded that boys had a higher level of participation in classes with male teachers than with female teachers, despite the fact that the girls indicated their desire to speak just as much as the boys. (e.g., by raising their hands). This difference was not detected among the lower grades.

**The classroom and wider society**

Even though some case studies have documented ‘silencing’ of girls (Fredericksen 2001; Leander 2002), there is no basis for claiming that girls as a group are marginalised in classrooms. Kelly estimated for example that the difference in participation in percentage was 44%–56% in the boys’ favour. Several researchers have argued that the difference in boys’ and girls’ participation in the classroom results from the school institutionalising forms of interaction that are normally preferred by boys (Corson 1993; Sadker and Sadker 1994). Tannen (1991), in studies of the classroom in higher education, points out that drawing attention to oneself in the classroom is more suited to the male student’s style than the female. The classroom is thought to reflect the wider society and to be an arena for replicating gender differences.

Many older studies of classroom interaction and gender were motivated by the assumption that girls did less well in school because they received less attention from the teacher and concluded that boys were provided with better conditions through both the quantity and quality of the interaction with their teachers (see Pellegrini and Blatchford 2000 for discussion). The assumption was that patterns of classroom interaction not only reflected, but were instrumental in maintaining and strengthening gender differences in the wider society (Croll and Moses 1990). Recently, assumptions about relationships between gendered classroom participation and achievement have been challenged. Girls’ educational careers have changed dramatically during the last 20 years, with 60% of all students in higher education in Norway being females today (Statistics Norway 2006). On the other hand, only three out of 10 middle managers in Norway are women and only about 35% of the representation in the municipal councils is female representatives (Statistics Norway 2006). It is therefore interesting to consider girls’ and boys’ conversational participation in the public arena that is the modern, Norwegian classroom. The study aims to shed light on the frequency of girls’ and boys’ participation in the classroom and the main strategies they employ to participate. As earlier studies have indicated that grade level and teacher gender may influence the frequency of girls’ and boys’ conversational participation as well as the particular conversational strategies they employ; grade level and teacher gender will be considered.

**Presentation of the study**

**Participants**

The study is based on videotaped observations of one teacher-led conversation in 26 different classrooms; six classes from first and third grade and seven classes from sixth and ninth grade
 took part in the study. Each of the 26 classrooms was visited for a whole week as part of a more comprehensive school reform evaluation. The 26 classrooms were spread across 20 different primary and secondary schools and these were recruited from different regions of Norway, from a large city (12 classrooms across Grades 1–9), a small town (six classrooms across Grades 1–9) and a rural community (eight classrooms across Grades 1–9). There were more boys (281) than girls (251) in the participating classrooms. Of the classes in the study 16 had an even gender distribution in the sense that there were never more than three more girls than boys, or vice versa, in the class. In 10 classes the distribution was more uneven; seven of these had more boys while three of them had more girls. All the teachers in first and third grades were female. The sixth and ninth grade classrooms had seven male and seven female teachers; four of the male teachers in sixth grade and three in ninth grade classes.

What types of conversations were observed?

The teachers were asked to choose for observation a full class conversation where the pupils would contribute their views and opinions and that lasted for at least 20 minutes (for instruction to teachers, see Appendix 1). The teachers themselves decided which subject should be observed. Conversations in the lower grades had a more narrative form and invited pupils’ stories and personal experiences, while conversations in the higher grades were more about prompting pupils’ views connected to the subject matter.

Classroom conversations were videotaped using a digital camera placed on a tripod. An extra powerful microphone was attached to the camera. The videotaped observations were transcribed using the CHAT transcription system (MacWhinney 2000) (for transcription symbols, see Appendix 2). The transcription included all utterances that were audible and directed to the whole class, including utterances that had no clear relevance to the topic under discussion. Whispering and chatting between two pupils were not included, even if these were audible when pupils were placed near the camera. Overlapping utterances, i.e., where two or more pupils spoke at the same time, were registered.

Analysing conversations

Characteristics of conversational participation were identified as (1) frequency of participation; (2) turn allocations; (3) spontaneous utterances out of turn (comments); and (4) overlapping utterances.

(1) *The frequency of conversational participation* was described as relative participation (as part of the total number of utterances in the class conversation), as breadth of participation (how many pupils of each gender participated) and as the relative proportion of girls and boys among those pupils in each class who had the floor most of the time.

(2) *Turn allocations*. Pupil utterances were identified as turn allocated if the teacher either named the pupil or in some other way indicated which pupil was to talk (see Example 2 below in which the teacher in Utterance 3 allocated the turn to a pupil)

(3) *Spontaneous utterances out of turn (comments)*. The pupils contributed now and then comments from the sideline, below shortened to comments, which were not invited by the teacher. If an utterance was to be identified as a comment, it had to be evident from the context that the pupil took the floor without either explicit or non-verbal markers allocating the turn. Comments could be related to the conversation topic or introduce a new one and they were often characterised by humour or irony. Example 1 illustrates such sideline comments and is taken from a lesson in religious studies. The two boys Ola
and Erik offered in Utterance 3 and 4 spontaneous sideline comments, which were not invited, or followed up, by the teacher:

**Example 1 (Grade 3)**

(1) Teacher: så bestemte de at /alle //gutter som ble født # av Israelfolket # skulle //kastes i elva. [So they decided that/all/ the boys who were born # to the people of Israel # should/ be thrown in the river.]

(2) Teacher: det vil si at de skulle ble drept # men jentene /kunne få leve. [So that means they were going to be killed # but the girls/ would be allowed to live.]

(3) Ola: då ville jeg ha vært jente ass! [Then I would have been a girl!]

(4) Erik: det ville jeg også. (I would as well.)

(5) Teacher: så var det en familie som hadde to barn # en jente som het Miriam og en gutt som het Aron # og mora deres fikk et barn /til. [Now there was a family that had two children # a girl who was called Miriam and a boy who was called Aron # and their mother had /another baby.]

(4) **Overlapping utterances.** Utterances were identified as overlapping when they occurred simultaneously. In any conversation with many participants and swiftly changing speakers two or more will occasionally speak simultaneously. For examples of overlapping utterances, see Example 3 below in which pupil Utterance 2 overlapped with the last part of the previous teacher utterance.

**Results**

*What characterised the frequency of girls’ and boys’ conversational participation across grade levels?*

The body of material comprised 12,458 utterances. Of these, 4983 were pupil utterances. When collective utterances and utterances where gender was not possible to identify were eliminated, 4576 pupil utterances were left, providing the basis for the analysis. Of these, 39.0% (1783) were offered by girls and 61.0% (2793) by boys. The girls contributed 14.3% of all the utterances in the complete observation material (teacher utterances included), while the boys contributed 22.4%. The boys thus had a considerably higher rate of participation than the girls.

Because there were slightly more boys than girls in the data set, the utterances per head of boys and girls were calculated. Across classrooms and grades, girls had 7.3 utterances, while boys had 10.3 utterances (Table 1). The boys still produced more utterances than the girls at each grade level. The difference between boys and girls in number of utterances per pupil was less for Grade 1 than for the rest (see Table 2).

Table 1. Conversational strategies addressed to or used by girls and boys across grade levels.

<table>
<thead>
<tr>
<th></th>
<th>Girls (N = 251)</th>
<th>Boys (N = 280)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation – total number of utterances</td>
<td>1783</td>
<td>2793</td>
</tr>
<tr>
<td>Participation – number of utterances per pupil</td>
<td>7.3</td>
<td>10.3</td>
</tr>
<tr>
<td>Turn allocations from teacher – total</td>
<td>498</td>
<td>494</td>
</tr>
<tr>
<td>Turn allocations from teacher – number per pupil</td>
<td>2.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Comments – total</td>
<td>156</td>
<td>448</td>
</tr>
<tr>
<td>Comments – number per pupil</td>
<td>0.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Overlapping utterances – total</td>
<td>159</td>
<td>279</td>
</tr>
<tr>
<td>Overlapping utterances – number per pupil</td>
<td>0.6</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Notes: N = total number of girls and boys. Two utterances that overlap counts as one occurrence of overlapping utterances.
It is also of interest to look at the breadth of participation in the form of the proportion of boys and girls who participated. The relative proportion of participating pupils was high for both genders and for all grades, with 74.5% of all girls and 81.2% of all boys participating. With the exception of Grade 1 where the girls had somewhat broader participation than the boys, there were relatively more boys than girls who participated in each grade. In ninth grade the difference in participation was considerably in the boys’ favour. While the girls had a participation percentage of 57.9% in ninth grade, the boys’ was 74.4%. The main picture to emerge from these numbers is that both girls and boys participated broadly in the conversations. Among the pupils to participate most in each class, there were 31 girls and 47 boys. The following pattern therefore emerged: there were relatively more boys than girls who participated (with the exception of Grade 1), there were more boys among the pupils who participated most and each boy participated with more utterances than each girl.

These averages however, conceal considerable variations from class to class. It was not the case that boys consistently dominated the interaction, but in each grade there were more classes with a predominance of boys’ utterances compared to classes with a predominance of girls’ utterances and the difference was greater in the higher grades than in the lower grades. Most of the classes with a difference in girls’ and boys’ participation had relatively more boys’ utterances. Based on averages, the boys’ participation was higher throughout and the difference was clearer in the higher grades.

The classrooms and schools in the study were recruited from a large city, a small town and a rural community. The average number of utterances was in the big city 7.1 for girls and 10.0 for boys, in the small town 6.4 for girls and 9.2 for boys, and in the rural community 7.6 for girls and 10.6 for boys. Across the different communities and regions boys participated more than girls.

What characterised girls’ and boys’ conversational strategies?

To be given the floor

To shed light on how differences in the extent of participation arise, we will look at the degree to which girls and boys became participants by being allocated a turn – or themselves taking a
Gender and Education

Table 1 shows that in the whole body of the material the number of turns allocated to girls (498 turn allocated utterances) and to boys (494 turn allocated utterances) was almost identical. On average there were two turns allocated to each girl and 1.8 to each boy (Table 1). The actual number of turn allocations the teacher offered was just as high or higher to the girls as to the boys in the first, third and sixth grades, but somewhat lower in the ninth grade (Table 2). At all grade levels there was a higher percentage of girls’ utterances resulting from specifically allocated turns from the teacher than was the case for boys’ utterances.

When the girls participated, it was often the result of the teacher giving them the floor. The difference in percentage of girls’ utterances and boys’ utterances, which were initiated by the teacher allocating a turn, was considerable in each grade. On the other hand, as we have seen, there were only small differences in the absolute number of turns the teacher allocated to girls and boys respectively. It appears, therefore that we must look for reasons in other conversation strategies for the lower participation among girls than the teachers’ allocation of turn. Some studies have suggested that boys more often experience that teachers pose follow up questions and in depth questions directly to them, while turn allocation to girls is more a case of the teacher picking them out to answer after a question which has been posed to the whole class; this being based on who puts up their hand or signals that they want to answer (for review, see introductory section). Turn allocation happened most often when the teacher using a turn allocating utterance identified who should take the floor. Some turn allocations were based on raising hands. The teacher directed the conversation and identified the next speaker by naming one of the pupils who had raised their hand. In the next example the teacher gave the floor to a pupil, Mats, who did not give any sign of wanting to say something. The teacher communicated that he expected Mats to cooperate and be able to answer.

Example 2 (ninth grade)

(1) Teacher: sniffs # hva er det for noe # mystisk? [Sniffing # what is that # strange thing?]
(2) Teacher: er det noen som har kjennskap til det? [Is there anyone who knows anything about that?] [Nobody raises their hand.]
(3) Teacher: da spør jeg Mats # vet du hva sniffs er for noe? [Then I’ll ask Mats # do you know what sniffing is?]
(4) Mats: det er at du trekker inn stoffer gjennom nesen. [It’s when you take drugs through your nose.]

Some studies have indicated differences in teachers’ turn allocation with regards to turn allocation based on raising of hands versus more exclusive identification of the next speaker (Becker 1981; Grayson 2001; Sadker and Sadker 1994). An examination of the material along this dimension showed that turn allocation based on the raising of hands was the most usual across grades and gender.

Taking the floor

While the girls participated more often by being given the floor, the boys participated more often by taking the floor. Such uninvited utterances from the pupils were called comments. Table 1 shows that the girls made in total 156 such comments, while the boys made 448 comments. Each girl on average made 0.6 comments, while each boy made almost three times as many (1.6 comments per boy). Table 2 shows that in first grade there was no particular difference in the proportion of girl and boy utterances that were such spontaneous and uninvited comments, the percentage for both girls and boys being around 15%. In the other grades, the boys made a higher proportion of comments than the girls. Some, but far from all, comments got a follow up response from the teacher. Taking the floor outside a turn was not necessarily a way to enter the
conversation, as the next example illustrates. This example is excerpted from a ninth grade social studies conversation about fascism in European countries during the Second World War. The teacher prompted the pupils’ knowledge about Italian fascism. The boy (Utterance 2) who replied with the right answer without having been allocated a turn, was ignored by the teacher, who in Utterance 3 gave the floor to Ellen and then in Utterance 5, confirmed Ellen’s answer.

Example 3 (ninth grade)

(1) Teacher: hvilket land var det som hadde fasismen # men det var også # det var også /veldig <forskjellige> [>]? [Which country was it that had fascism # but that was also # that was also/very <different>(>)?]
(2) Boy: <Italia> [<]. [<Italy> [<].]
(3) Teacher: Ellen?
(4) Ellen: Italia. [Italy.]
(5) Teacher: Italia. [Italy.]

There was little difference in the teachers’ relative follow up of girls’ and boys’ comments. The teachers offered 19 follow up responses to the girls’ comments, that is 12.2% of them were followed up and 71 follow-ups to the boys’ comments, representing 15.8% of these. Both genders experienced that the teachers usually ignored comments from the sideline. Taking the floor was therefore in itself not an effective strategy for keeping the floor throughout several turns. On the other hand, there was a relationship between general participation in the classroom and uninvited comments and this relationship appeared for both girls and boys. In the total data set there were three classes in which the girls had more sideline comments than the boys (two classes in first grade and one in sixth grade). In all these classes, the girls also had a higher participation percentage than the boys. Even though taking the floor out of turn in itself was not an effective strategy for keeping the floor, it appeared that girls who often took the floor spontaneously also had access to other conversation strategies, which contributed to making them more active participants in the conversation.

Competing for the floor

The boys more often had simultaneous talk with the teacher than the girls. The total incidence of overlapping utterances was 279 for the boys and 159 for the girls (Table 1). Looking at the entire data set, each boy had on average one overlapping utterance with the teacher; the corresponding figure for the girls was 0.6 utterances. The teachers participated more often in simultaneous talk with the boys than with the girls at all grade levels (Table 2). The relative proportion of girls’ utterances that overlapped with others’ utterances was lower in all grades except the sixth (Table 2). There were two sixth grade classrooms in which the girls had relatively many more overlapping utterances with the teacher than the boys did. These were also the two only classrooms in the entire sample where the girls participated much more than the boys. We will return to these classrooms below.

The boys’ higher level of participation in overlapping utterances with the teacher was a result of their more frequently interrupting the teacher. Of the 279 incidences of simultaneous talk in which boys participated, they took the floor and overlapped with the teacher in 185 cases. The girls took the floor while the teacher was talking in 89 cases. The teacher overlapped with boys’ utterances in 94 cases and with girls’ utterances in 89 cases. The differences between boys’ and girls’ participation in simultaneous talk resulted therefore primarily from their more frequently than the girls taking the floor while the teacher was talking. Tannen (1996) has commented that simultaneous talk may serve many purposes in discourse and may be an expression of ignoring, interruption and support. The material was examined with the intention of identifying such
qualitative nuances in overlapping utterances. It turned out to be difficult to decide, however, what function the teacher’s overlapping with the pupil’s utterance had in each individual case (interruption or conversation support). Many studies have concluded that men have a tendency to interrupt women more than women interrupt men (Tannen 1996). James and Clark (1993) found, in a study of overlapping utterances, that this was more usual in conversations between women than those between men and discussed this in the light of the speakers’ intention; competition or speaking together. In the continual negotiation on taking the floor in these classrooms girls and boys used different strategies. The boys used more comments ‘from the sideline’ and they had more overlapping utterances. These strategies have much in common; in both cases it is about taking the floor rather than waiting to get it.

**Taking the floor and competing for the floor – what about the classes that were different?**

In the entire data set two classes stood out as different from the others. These were both sixth grade classrooms, let us call them Class A and B. Even though they were characterised by broad participation by both girls and boys (in Class A 10 out of 12 girls and 10 out of 10 boys participated, in Class B 8 out of 11 girls and 5 out of 5 boys participated), the girls offered many more utterances than the boys (in Class A 14.6 utterances per girl present in the classroom and 6.3 per boy present, in Class B 12.1 per girl present and 5.2 per boy). Out of the six most participating pupils in both classes, only one was a boy. The tree most talking girls in Class A offered 52.9 % of all pupil utterances, in Class B the equivalent number was 53.3%. Clearly, while these classrooms were characterised by broad participation of both boys and girls, they were also characterised by a group of girls, not just one girl or a couple of girls, who participated very actively. The girls in the two classes, more often than the boys, competed for the floor in the form of offering utterances that overlapped with the teacher. In this regard the two classes were similar to each other and different from all others. On the other hand they differed in the extent to which the girls also used sideline comments to take the floor. While neither girls nor boys in Class A tended to use sideline comments, the girls in Class B had more sideline comments than the boys and offered them frequently (which otherwise only applied to two first grade classrooms). The two classes therefore seemed to have institutionalised classroom talk somewhat differently, though they shared being different from other classes in regard to the girls’ participation. Both these six grade classrooms had more girls than boys (in Class A 12 girls and 10 boys, in Class B 11 girls and 5 boys). Some studies have indicated that gender composition in the individual class can affect participation patterns. In a study of four Swedish classrooms, Wernersson (1982) found that one of them did not show the same pattern of boys’ domination in participation that was evident in the other classes. She explained the girls’ participation in this one classroom by the fact that they were in the clear majority in the classroom and therefore had a greater influence. In her meta-analysis however, Kelly found that girls received more attention when they were in the distinct minority in the class. While classroom gender composition did not appear as a dimension that were related to gendered participation in the sample overall, it is worth noting that the two sixth grade classrooms that stood out as different had somewhat more girls than boys. Moreover, both classes had a female teacher. We will now turn to the impact of the teachers’ gender on the conversations.

**What characterised female and male teachers’ conversation strategies?**

The question of how female and male teachers interact with girls and boys respectively has been an issue in the research literature. In the two higher grades, half of the teachers were women and half men. The seven classrooms with male teachers generated a data set comprising 3597
utterances; the female teachers’ classrooms generated 3004 utterances. There were slightly more girls than boys in the female teachers’ classes and more boys than girls in the male teachers’ classes (for overview, see Table 3).

Table 3 shows that there was no significant difference in the boys’ participation when comparing classes which had a male teacher with those which had a female teacher. The boys contributed on average 23.5\% of the utterances in classes with male teachers and 24.3\% of utterances in classes with female teachers. The girls, on the other hand participated more in classes with female teachers. The girls contributed 18.1\% of the utterances in classes that had a female teacher and 10.5\% of the utterances in classes with a male teacher. The boys had a higher level of participation in all the classes with male teachers and in five of the seven classes with a female teacher. We will consider more closely the conversation strategies used by the male and female teachers in order to shed light on how these differences in girls’ and boys’ participation came about.

**Turn allocations**

The female teachers employed more explicit turn allocations both to girls and boys than their male colleagues (see Table 3). In both female and male teachers’ classrooms there was a higher proportion of girls’ utterances than boys’ utterances initiated by the teacher using turn allocation. The difference between the female and male teachers was simply that the female teachers offered more explicit turn allocations, but there was relatively little difference in the number allocated to girls as opposed to boys.

**Overlapping utterances**

There was no difference in the proportion of girls’ and boys’ utterances overlapping with a teacher’s in female and male teachers’ classrooms respectively. About 11\% of both the girls’ and the boys’ utterances were overlapping in classrooms with a female teacher, while the corresponding figure for both girls and boys in classes with a male teacher was about 8\% (Table 3).

<table>
<thead>
<tr>
<th></th>
<th>Female teacher</th>
<th>Male teacher</th>
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<tbody>
<tr>
<td></td>
<td>Girls</td>
<td>Boys</td>
</tr>
<tr>
<td>Participation – total number of utterances</td>
<td>545</td>
<td>729</td>
</tr>
<tr>
<td>Participation – number of utterances per pupil</td>
<td>7.4</td>
<td>10.6</td>
</tr>
<tr>
<td>Participation – percent</td>
<td>18.1</td>
<td>24.3</td>
</tr>
<tr>
<td>Turn allocations from teacher – total number</td>
<td>148</td>
<td>130</td>
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<tr>
<td>Turn allocations from teacher – number per pupil</td>
<td>2.0</td>
<td>1.9</td>
</tr>
<tr>
<td>Turn allocations – percent</td>
<td>27.2</td>
<td>17.8</td>
</tr>
<tr>
<td>Comments – total number</td>
<td>46</td>
<td>106</td>
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<tr>
<td>Comments – number per pupil</td>
<td>0.6</td>
<td>1.5</td>
</tr>
<tr>
<td>Comments – percent</td>
<td>8.4</td>
<td>14.5</td>
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<tr>
<td>Overlapping utterances – total number</td>
<td>62</td>
<td>80</td>
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<tr>
<td>Overlapping utterances – number per pupil</td>
<td>0.8</td>
<td>1.2</td>
</tr>
<tr>
<td>Overlapping utterances – percent</td>
<td>11.4</td>
<td>11.0</td>
</tr>
</tbody>
</table>

Notes: \( N \) is the number of girls and boys in classrooms with female and male teacher. Rows ‘Turn allocations – percent’, ‘comments – percent’ and ‘overlapping utterances – percent’ show the percent of girls and boys utterances that were turn allocated, comments and overlapping with other utterances, in female and male teachers’ classrooms.
Sideline comments from the pupils

The biggest difference between female and male teachers was connected to the degree to which the pupils contributed spontaneous sideline comments (Table 3). In female teachers’ classrooms, the girls offered 46 comments (30.3% of the comments) and the boys 106. In classes with male teachers, the girls offered 26 comments and the boys 166, that is to say the girls only represented 13.5% of the comments. Because the distribution of girls and boys in female and male teachers’ classrooms was uneven, it is also relevant to examine whether the difference in girls’ and boys’ tendency to offer comments holds true when the number of comments is seen in relation to the number of girls and boys present. Table 3 shows that boys contributed the most sideline comments in classrooms with both female and male teachers, but that the difference in the number of girls’ and boys’ comments was greater when the teacher was a man as opposed to a woman. In classes with male teachers, the number of uninvited comments from girls was low (0.4 comments per girl), but they occurred six times more often from boys (2.3 comments per boy). Such uninvited comments from girls occurred more often in classes with female teachers. The boys nonetheless contributed such comments twice as often as the girls, also in classrooms with female teachers.

Earlier studies have also found differences in boys’ and girls’ conversation participation in classrooms with female and male teachers (see above). This study has found differences in the subtle negotiations on taking the floor which girls and boys enter into with female and male teachers. The female teachers were more active in turn allocation than the male teachers. The right to take the floor without being invited seemed to be more established among the boys than the girls and this difference was particularly marked in the male teachers’ classrooms. The boys had a higher participation percentage and more sideline comments even in the female teachers’ classrooms, but the difference between boys and girls was still less than in classrooms with male teachers.

Summary of findings

The analysis of girls’ and boys’ participation has revealed differences in the extent of participation and in the use of conversational strategies along the following dimensions:

(1) Boys participated more across all grades. The difference between girls’ and boys’ participation was least in first grade and relatively greatest in the ninth grade.
(2) A greater proportion of the girls’ utterances were initiated by the teacher allocating turns.
(3) The boys had more overlapping utterances with the teacher than the girls; resulting from the fact that the boys more often overlapped the teachers.
(4) With the exception of the first grade, the boys contributed more comments that were not invited by the teacher.

Further, the analysis revealed the following differences in girls’ and boys’ conversation participation with female and male teachers:

(1) The boys participated most both in classes with female and with male teachers. The difference in girls’ and boys’ participation was somewhat less for classes with a female teacher than a male teacher.
(2) Female teachers had more examples of explicit turn allocation than male teachers.
(3) In classes with male teachers, there was a lower frequency of uninvited comments from girls, while they were six times more frequent from the boys. Such uninvited comments occurred relatively more often from girls if they had a female teacher, even though the boys also delivered the most sideline comments in these classrooms.
Discussion

The results agree with several international studies which have found that boys in relative terms participate more in whole class conversations than girls (Berk and Lewis 1979; Croll and Moses 1990; Good and Brophy 1987; Kelly 1988; Pavlidou 2003). Pellegrini and Blatchford conclude for example in their exploration of the field that, ‘to sum up, the evidence from studies that have used systematic observation methods and numerical analysis shows a clear tendency for girls to receive slightly less interaction than boys’ (2000, 198). In the Norwegian classrooms, the girls represented about 40% of the utterances; a figure that is close to the participation percentage found in other studies (Kelly 1988). The difference in girls’ and boys’ participation was moderate, but was noticeable along all dimensions of participation.

Classrooms with female and male teachers in the study diverged in relation to the number of uninvited comments from girls and boys and in the realm of turn allocation. The difference in girls’ and boys’ participation took the same direction regardless of whether the teacher was a woman or a man, but it was more marked in a classroom with a male teacher. On the question of the female and male teachers’ interaction with girls and boys, the results from earlier studies are at variance. The results from this study concur with Pellegrini and Blatchford’s conclusion that, ‘sex differences in classroom interaction are more pronounced in the case of the male than female teachers’ (2000, 197).

The difference between girls’ and boys’ participation was more marked in the higher grades. This observation is also in keeping with earlier international findings. Kelly for example found small differences in girls’ and boys’ participation in primary school, but more differences in the higher grades. Similarly, Pellegrini and Blatchford suggest that, ‘after the age of nine girls receive progressively less instruction from teachers’ (2000, 198). Merritt and Wheldall (1992) found no difference in female and male teachers’ interaction with boys and girls in primary school. According to them, the teachers’ gender seemed to have an effect on interaction with girls and boys only in the higher grades. In the present study all the teachers from first and third grade were women, while in the sixth and ninth grades half of the teachers were women and half men. When girls’ and boys’ participation appeared to differ from each other more in the ninth grade than in lower grades, it can therefore be a result of the interaction between grade levels and the teachers’ gender.

The pupils did not only differ in terms of gender, but also in terms of belonging to different local communities and, within these, different social and ethnic groups. While girls’ and boys’ participation did not differ with the community, it is a limitation of the study that we did not have information on the pupils’ social and ethnic background and therefore were not able to examine how social class and ethnicity may have interacted with gender (for discussion, see Biggs and Edwards 1991; Pellegrini and Blatchford 2000; Poveda 2003; Renold 2006; Tannen et al. 1997; Wolfe 2000).

Earlier studies of girls’ and boys’ classroom interaction were usually motivated by a desire to explain why girls did not succeed as well in the education system as boys (see Stanworth 1981; Walkerdine 1990; for review see Swann 1998). Today the educational career of girls and boys is radically different. Arnot, Gray, James and Rudduck have pointed out that, ‘gender differences in classroom processes are therefore present but their significance for educational performance is not self-evident’ (1998, 26). Pellegrini and Blatchford discuss the question of what impact gender based interaction patterns may have on classroom learning. They conclude that there is no linear or clear relation between attention from the teacher and educational results, questioning whether the significance of attention from the teacher has been overestimated at the cost of other aspects of the learning process. Pupils learn through participation and engagement in a variety of learning activities and contexts, out of which the whole class discussion is probably not even
the most frequent. Some studies have for example shown that girls, particularly in small group discussions in the classroom, display conversation strategies which contribute to ‘collaborative learning’ (Davis 2005; Sheldon 1997) and have suggested that this element can help to explain why girls do better at school (Davis 2005; Younger et al. 1999). Swann advocates a similar perspective on relationships between classroom talk and achievement: ‘But you can also learn a lot by listening and maybe by making fewer, but well-thought-out and well-timed contributions. It is not necessarily the case that, merely by talking less, girls are academically disadvantaged’ (1992, 75). Also Younger et al. question the idea that girls are marginalised in classroom interaction. They suggest that teachers as well as most pupils perceive the situation somewhat differently and conclude that ‘the greater management challenge which some boys are seen to present to the classroom inevitably leads to greater conflict with the teacher authority and boys’ growing awareness of their own masculinity: an understandable teacher response is to direct more attention and more direct questioning to boys, in an attempt to retain male involvement and class control’ (1999, 339). Moreover, they argue that there was little evidence in most of the lessons they observed that the boys were given more support than the girls in the teaching–learning process.

If there are no clear relationships between gendered whole class interaction and achievement, why does this kind of interaction still deserve our attention? In responding to the question I will take as a starting point that for most young people the whole class situation is the closest they come to participating in a public arena, putting forward and defending their points of view. Earlier studies have often assumed that girls’ lower participation levels in the classroom reflected marginalisation and lack of influence. However, it is not clear that participating less in the conversation necessarily means having less influence over it (Baxter 1999). Following the rules of turn taking in group situations, as girls to a greater extent do, can indeed be an effective strategy for achieving recognition and influence. The girls played by the rules to a larger extent than the boys, they had less overlapping utterances and far less sideline comments. In this regard girls appeared more efficient in classroom discourse management. On the other hand, the girls seemed less permitted to challenge conversational rules and expectations, which may have impacted the repertoire of the conversational strategies they acquired. Moreover, if boys had to compete for the floor and offer sideline comments to position themselves as boys in the classroom, this, in a similar vein, may have limited their opportunities to use a variety of conversational strategies selectively.

The whole class discussion represents for most young people their first experiences with talking in the public, with putting forward their points of view and opinions, with acquiring a ‘voice’, a position from which to speak (Wertsch 1998). In the instruction to the teachers we particularly asked them to choose a conversation where the pupils contributed their comments and opinions. Though the recorded conversations covered a variety of subject areas, they shared this particular characteristic of inviting the pupils’ perspectives and opinions on subject matter. Given that women in Norway still lag behind men in societal areas like leadership and political representation on the local level, gendered classroom participation may be more clearly linked to female societal participation than to achievement measures. Various authors have suggested that classroom conversations qualify girls and boys differently when it comes to expressing their own ideas and resist teacher authority. Tsouroufli argues for example that teachers may ‘deprive girls of opportunities to ‘speak, to express ideas and perhaps improve their verbal ability, and their confidence in presenting and defending ideas in front of an audience’ (2002, 145). Renold, in a similar vein, points out that the enduring picture of the ‘good pupil’ as ‘hard-working, rule-following, cooperative, conscientious and academically able is a highly gendered one’ (2006, 441). Teachers, she argues, continue to identify these qualities as the properties of typical ‘girl pupils’. In contrast, the characteristics of typical ‘boy pupils’ are
identified as dominant, disruptive, underperforming and generally challenging (2006, 441). Moreover, she argues, pupils who challenge or disagree with the teacher are interpreted differently, depending upon the gender of the speaker. If the speaker is a boy, this behaviour is interpreted more positively than if the speaker is a girl, who is more often seen as threatening teacher authority. Following her line of thinking, boys and girls may be interpreted differently when they interrupt the teacher and offer sideline comments out of turn, as the boys did more often than the girls in these Norwegian classrooms. Boys seemed more permitted to resist what was going on in the classrooms through the humour and irony that often characterised their sideline comments.

Modern, sociocultural learning theory emphasises agency in learning and has paid particular attention to the types of classroom interaction that facilitates learning (see Säljö 2006; Wertsch 1998). Learning is considered a process of agency in which the learner makes new knowledge his or her own (‘appropriation’). Institutionalised ways of interacting are cultural tools or resources that may both support and inhibit learning. Regarded in this way, gendered expectations about classroom interaction that limit the repertoire of interactive strategies girls and boys have access to and appropriate, also limit their opportunities to acquire a broader variety of ways of being in the public room; respecting rules of turn taking as well as not following them in certain situations. For both girls and boys gendered expectations about classroom interaction may limit the availability of the variety of institutionalised forms of conversation that are cultural tools for speaking in public.

Cazden claims that, ‘because girls as a group do as well or better than boys in k-12 school grades, opportunities to become fluent and confident in speaking in public may be the most important aspect of gender equity in classrooms’ (2001, s. 86). We need more knowledge about how specific ways of participating in classroom conversations prepare girls and boys to master the public arena, for which school qualifies them.

References


Appendix 1. Instructions to teachers
In the course of our week visiting the class we would like to video a class conversation where the pupils contribute their comments and opinions. The conversation should be led by you. We would like you to suggest when it would be convenient to have such a session. Relevant subject areas are Norwegian, Social Studies, Religion and Ethics or another subject that would be suitable for conversation with the pupils; dependent of course on which topics you will be working on in the different subjects the week we visit. We would like the conversation to be at least 20 minutes in length.

Appendix 2. Transcription symbols
/ = stress on word.
// = extra stress on word.
+... = incomplete utterance.
+./ = interrupted utterance.
# = pause, up to three signs can be used to describe longer pauses.
< >[<] = utterance in < > overlaps previous utterance.
< > [>] = utterance in < > overlaps following utterance.