The Nature and Use of Within Class Groupings in Secondary Schools

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1. Project Background

Within every secondary classroom, pupils work in some form of grouping for instruction. Extensive research exists regarding the effects of grouping students into classes on the basis of ability. However, there is surprisingly little research at secondary school level regarding the nature and use of pupil groups within classrooms. In this project the classroom is viewed as a social pedagogic site, where students are brought together in various groupings for learning activities. Groupings may vary in size, structure and purpose and can be constrained by a number of factors including concerns with age and ability of students, and subject studied. Groupings within classrooms are a main structuring factor in everyday learning experiences, which may facilitate or inhibit learning (Creemers, 1994).

Within-class pupil grouping has been informed by political debate. The ‘Excellence in Schools’ White Paper (1997) emphasised the “further development of innovative approaches to pupil grouping” to promote more effective learning within classrooms but this advice was not based on research evidence. Debate about within class grouping has tended to be limited to ‘traditional’ vs. ‘progressive’ practices and calls for whole class teaching methods and homogeneous ability grouping within curriculum areas. Debate has not been based on a social pedagogy for learning (Kutnick, 1994), and does not recognize that ability-based grouping is already well established (Benn & Chitty, 1996). In earlier research by the authors, based in primary schools, we provided a detailed description of the range and multidimensional nature of groupings found in primary classrooms. We found little evidence that teachers prepared their pupils to work within groupings and little relationship between type of pupil grouping and classroom pedagogy.

The overall aim of the Nature and Use of Within Class Groupings in Secondary Schools (GRIS) Project was to extend the earlier primary school study by exploring within-class groupings in secondary schools in relation to curriculum and age phases (pre and post GCSE options), based on a planned sequence of three research phases involving, respectively, teacher interviews, a classroom mapping survey, and focused case studies of grouping practices.

Research on within class grouping in secondary schools

Research on grouping in secondary schools has been dominated by the role of children’s ability. Reviews and meta-analyses of the effects of ability grouping find few significant effects on achievement (Kulik & Kulik, 1992; Slavin, 1990), though such grouping may have effects with
regard to: teacher approach to instruction, pupil access to resources and curriculum, and pupil
treatment and attitudes (Hallam & Toutounji, 1996). In contrast to issues of ability grouping, little
empirical research has explored the organisation of pupil groupings within classes in secondary
schools (which is in stark contrast to primary schools - Alexander, Rose & Woodhead, 1992,
Bennett, Desforges, Cockburn & Wilkinson, 1984; Bennett & Dunne, 1992; Galton, Simon & Croll,
1980; Galton & Williamson, 1992). Within-class groupings in secondary schools may be informally
arrived at, and uncritically accepted practices may characterise a curriculum area or school.

Three related areas of research suggest that grouping practices and effective teaching and learning
are related, but also reveal limitations in knowledge about grouping practices in secondary schools:

- Experimental research shows positive effects of co-operative, collaborative and mastery learning
  for small-sized groupings (4-6 children), though these only represent a small set of the various
  classroom groupings possible and certain learning tasks (Creemers, 1994).
- School effectiveness research (e.g. Sammons, Hillman & Mortimore, 1995) identifies
  factors associated with grouping as important for learning; but has not directly addressed
  the strategic deployment of groupings (Barr & Dreeben, 1983; Creemers, 1994; Ofsted,
- Psychological theories of instruction and development (e.g. Vygotsky, 1978) identify
  social and group based factors in cognitive development (Light & Perret-Clermont, 1990;
  Damon & Phelps, 1989), but little attempt has been made to apply these to secondary
  classrooms.

Despite the important role of pupil grouping in teaching and learning, there is surprisingly
little knowledge about the nature and use of pupil groups in secondary school and the GRIS
project was set up to provide a systematic description of grouping practices in secondary
classes.

**Main issues addressed by the GRIS project**

As well as being informed by our previous research of grouping practices in primary schools
(Blatchford, Kutnick & Baines, 1999; Blatchford, Baines, Kutnick and Martin, 2001;
Kutnick, Blatchford and Baines, in press), a further review of the literature identified a
number of ‘core themes’ concerning social pedagogy and teachers’ use of student groupings
for teaching and learning.

1. **Size and Number of Groupings** – (Blatchford, Baines, Kutnick and Martin (2001) and Kutnick, Blatchford & Baines (in press) have shown that group size is an important factor at primary school but little is known about the size of groups in secondary schools and implications for other features such as learning tasks.

2. **Group Composition** – Composition of within-class groupings may be imposed by school level decisions or by teachers and has been found to affect cognitive performance (with regard to friendship, sex, ethnicity, ability, behaviour and personality; Kutnick, 1994). There is no current information at secondary level about the nature of group compositions (e.g., with regard to ability, gender and friendship mix), responsibility for composition of groups and pupils’ responses to these compositions.

3. **Teacher Support** – Teachers role and presence is likely to be crucial to the functioning and purpose of groupings, yet little is known about their views on different kinds of groupings or their involvement in group work. In secondary classrooms teachers are likely to be the only adults present and pupils may be expected to work with greater independence than at primary level.

4. **Group Interaction** – Research at primary level indicates a disjuncture between group seating and work assignment, often leading children off-task (Galton and Williamson, 1992). Experimental research shows that grouping size, interaction and feedback is crucial for effective group work (e.g., Tolmie, Howe, Duchak & Rattray, 1998; Webb & Palincsar, 1996), but there is little evidence concerning actual classroom practice.

5. **Learning Task** – Tasks need to be appropriate to particular types of groupings; neither too complex or too simple (Creemers, 1994; Bossert, Barnett & Filby, 1985). Conceptualisation of classroom tasks has been undertaken for primary schools (Bennett et al, 1985), but there has been little research on how secondary teachers conceive of learning tasks in relation to groupings in their class. A pedagogic use of groups would require relationships between pupil interaction, group size and task type but again there is little information on whether these relationships exist in practice.

6. **Curriculum Area** – Different instructional groupings may be suitable for different curricula; a point recognised by research on ability grouping (Hallam & Toutounji, 1996) and curriculum subcultures in secondary schools (Goodson & Managan, 1995; Stodolsky & Grossman, 1995).
7. **Pupil Age** – As pupils gain greater skill in interaction, subject knowledge, and self
conduct, new arrangements for grouping sizes, compositions and interactions become
possible; although this has not been studied by classroom research.

8. **Classroom Context** – Within-class groupings are a part of the broader ecological context
of the class (Doyle, 1986). At the secondary level, the contexts of class size, classroom
layout, and whether setted by ability or mixed ability may be related to qualities of
instruction.

**Research Questions**

Classroom learning is undertaken through a variety of learning tasks. For each learning task a
particular group size and composition may enable some groupings to work more (or less)
effectively. The above review shows there are several key factors that are likely to affect
teachers’ decisions concerning the size and composition of groupings, the learning tasks
assigned and the form of interaction encouraged between group members. Teachers are a
source of much information of pedagogic relevance. A feature of this study has been the
exploration of teachers’ rationale for grouping practices across age groups and curriculum
areas in secondary schools, complemented by a systematic survey of actual grouping practices
as used in secondary classrooms, and pupil and teacher perceptions of grouping practices in
their classrooms. The following research questions have been addressed in the three phases of
the project:

**Phase 1**: How do secondary teachers from different curriculum areas think about, plan and
design learning tasks and what grouping sizes, compositions and interactions and support are
utilised in relation to these tasks?

**Phase 2**: How do grouping practices vary across different curriculum areas, year groups and
class compositions (mixed or homogenous ability classes) and how are they constrained by
the social and physical context of the classroom? Are there systematic relationships between
group size and group composition, teacher presence and type of interaction between pupils?

**Phase 3**: What rationale do teachers of different curricula provide for specific grouping
practices with specific year groups and what attitudes do pupils have towards different types
of groupings and their ability to work within them?

The project extended over 22 months. Phase 1 was an exploratory, interview-based study
concerning how teachers think about and construct learning tasks and classroom groups in different curriculum subjects. In Phase 2, a novel, mapping survey captured a comprehensive and multi-dimensional description of grouping practices. In Phase 3, case studies provided a detailed description of the use of groupings within lessons, teachers’ reported rationale for groupings and pupils’ views on these groupings.

**Progress with the Project**

Analyses of each phase has been completed, involving intensive qualitative and quantitative analyses, and has led to conference papers and reports on each phase (see final ESRC report questionnaire). There have been some adjustments to the research design as described in the original ESRC proposal and these are detailed below. The research team continues to examine the data and write up results, as described below in the section on Outputs. *Given the limitations of space, in this report we aim to provide selected results from each phase as well as overall conclusions to date.*

The co-directors have been have been very pleased with the work on the project. The two part-time Research Officers, Helen Clark and Helen MacIntyre, worked together in a successful and productive way and we were able to benefit from the involvement of the Research Officer on the earlier primary grouping project, Dr Ed Baines, who was employed on a parallel research project at the Institute of Education. Insights gained during the GRIS Project, along with those from the earlier Primary Project, have helped prepare the way for the intervention project ‘Improving the Effectiveness of Pupil Groups in Classroom’, funded as part of the ESRC Teaching and Learning Research Programme (TLRP) Phase 2, and co-directed by Professors Blatchford and Kutnick with Professor Maurice Galton. Throughout the project the Advisory Group, set up by the team, and comprising Colin Rogers, Harry Torrance, Michael Totterdell, and Maurice Galton has been very helpful at crucial points in the life of the project, e.g., regarding research design and interpretation of emerging findings.

**Phase 1**

Phase 1 explored teachers’ conceptions of learning tasks in relation to within class grouping, across curriculum areas and age groups. The aim was to provide information of value in its own right but also to inform the design and measures to be used in Phase 2.
Method
Interviews with teachers built an understanding of how learning tasks are conceived and relationships between grouping practices and learning tasks across curriculum areas. The interview schedule was developed after exploratory classroom observations and discussions with teachers in two secondary schools. Interviews were then conducted with 36 teachers from eight curriculum areas (English, Mathematics, Science, French, History, Art, Design and Physical Education) in six schools in London and the Southeast of England. It was decided to conduct fewer Phase 1 interviews than originally proposed as pilot interviews showed the value in providing more depth and detail to teachers’ perspectives. Thus, we changed the two-stage (70 general interviews followed by 14 in-depth interviews) plan to provide a clearer and more thorough interviewing rationale (hence 14 initial interviews followed by 36 in-depth interviews) This adaptation of Phase 1 allowed greater depth and breadth of insight for later stages. This also allowed a more extensive and wide-ranging literature search than pre-planned.

Selected Results from Phase 1 (A paper drawing on results from this phase, and submitted to a Journal for publication, is attached in Appendix 1).

Groupings used by teachers within classes
The predominant group sizes described by the teachers were the whole class, small group and individual. Teachers rarely spoke of using pairs as a grouping. Similarities and differences in the grouping practices across the core curriculum areas are displayed in Table 1, which also provides information on relationships between group size and main phases of lessons.

Table 1: Summary of groupings used by teachers at different stages of the lesson by curriculum area. About here.

Learning purposes of groupings
The teachers referred to a wide range of learning purposes for classroom groupings. Table 2 relates learning purposes to lesson phase.
Table 2: Range of learning purposes identified by teachers for their classroom groupings. About here.

These learning purposes provide evidence of differentiation in teachers’ thinking about learning tasks - a substantiation and extension of Norman (1978) - as well as some relations between learning purpose and grouping arrangement. The categories of learning purposes helped inform the categorisation of task types in Phase 2.

Curriculum differences
There were some differences in learning purpose and grouping between curriculum areas. Mathematics teachers, more than other teachers, used whole class contexts because of concerns about classroom control.

Mathematics1
When you are trying to develop an idea you need the whole class to develop it together. It’s almost trying to get them to come up with ideas and strategies… Sometimes you just have to tell them that something is the case… The teaching is very much teacher directed. The teacher decides the pace of the lesson although this obviously depends on whether students are picking up on the concept.

Whole class learning by science teachers also indicated an emphasis on student participation:

Science1
As a result of answers that pupils give, you can explore further the ideas and perhaps correct misconceptions and perhaps build on prior conceptions. And pupils involved in listening to that, I think pick up things from the whole class that they wouldn’t necessarily get if they were just permanently working in a small group.
Teachers from all three curriculum areas used the whole class for assessment and revision of material.

There were differences between curriculum areas in the number of learning purposes associated with groupings. Mathematics teachers attributed many more learning purposes to small group work than other teachers (see Table 3), although the interviews indicated that mathematics teachers used this range of purposes less than English and science teachers.

Table 3: Mathematics teachers’ identified learning purposes for small groups of 3 to 8 students (number of times identified by teachers in brackets). About here.

In contrast, small groupings were the main grouping used by English teachers. They mentioned different ways of organising groupings of this size (such as ‘jigsawing’ or ‘envoying’). However, English teachers attributed only a limited range of learning purposes for small groupings (stimulation of ideas, giving feedback and providing opportunity for (reading) practice).

Other factors influencing teachers’ choices of grouping size.

*Behaviour management* was mentioned most frequently across all curriculum areas as a factor that influenced decisions about grouping. Discussion of size of groupings and behaviour almost always centred on pairs and small groupings. Teachers stated that they employed smaller sized groupings as a control mechanism.

*Length of Lesson:* Three English teachers commented that the length of the lesson affected how many different types of groupings took place, acknowledging that they could use a wider variety of groupings in longer lessons. A mathematics teacher specified that he would undertake more group work if he had a double lesson. And two science teachers were explicit about the length of lesson affecting the use and effectiveness of certain types of grouping.

*Physical layout of teaching space:* Only in mathematics and English classrooms was there a range of lay-outs for seating. These teachers referred to seating arranged in rows or ‘horseshoe’. Science lessons were taught in a variety of laboratories, including those with traditional front facing benches, octagonal pods (benches linked together) and hexagonal
islands of benches. Only a few teachers spoke of moving furniture within a classroom to accommodate the learning purposes for a particular type of grouping.

*Influence of resources:* The availability of equipment for practical work was mentioned by teachers as a determinant in the size of groupings, with the implication that if there were enough resources to go around, practical work would be done individually:

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Science3
That would normally be a group of about four. That’s actually a bit too big but given apparatus – in the old days we could have had groups of maybe two or three but these days we’re up to four.
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**Conclusions to Phase 1**

Teachers’ use of groupings was strongly related to lesson phase. Whole class grouping was found at the beginning and end of lessons, while small grouping and individual groupings were mainly used in the middle of a lesson.

Teachers described an extensive list of learning purposes, which they undertook within their classrooms, but the relationship between group size and pedagogy seemed to serve limited and basic purposes:

- Control of information: didactically directed from teacher to whole class;
- Discussion or mutual exchange of information: often found in small groups or (less frequently) in pairs of students; and
- Practice of information already gained: often undertaken by individuals.

Perhaps the main finding in the interviews was the prevalence of the need for classroom control and maintenance of student attention as main factors in teachers’ approaches to classroom grouping. Even in the case of student to student discussions, teachers chose to use the smallest grouping possible because these provided participation with less disruption.

Teachers had little faith in the use of shared knowledge between students. Most teachers placed great emphasis on directive or didactic teaching within a whole class grouping, where the cognitive interaction was highly controlled by the teacher. The limitations of this were
recognised by teachers as problematic, but there was little confidence in, or knowledge about, alternative strategies. Other influences on grouping of students were dominant attitudes within different curriculum areas, the physical layout of the classroom and age of students.

Phase 2
The purpose of Phase 2 was to provide a systematic, quantitative, and multi-dimensional description of grouping practices in relation to learning tasks, curriculum areas and year groups across the secondary stage. The five core themes investigated by use of the classroom grouping map technique were the size and number of groups, group composition (e.g., in terms of ability and sex of child), adult presence in groups, the curriculum and task activities in groups, and the type of interaction in groups. Also investigated were aspects of the classroom context such as class size and the classroom layout, teacher experience and training, and pupil training in group work, and whether classes were set or mixed ability.

In this report we provide main results on changes in grouping practices across year groups and according to group size

Method
The research design for Phase 2 was altered to some extent from that in the proposal. Originally it was intended to approach 10 Local Educational Authorities and select eight schools in each. After preliminary work using a postal questionnaire to a national sample of secondary schools it was found that response rates were lower than hoped for. Despite efforts to encourage participation through a number of means including contacting a number of LEAs, schools were less willing to participate in the research than had been expected.

After extensive discussion with a number of parties, we believe this is becoming a major issue for educational research more generally. In response we adopted a different approach which took advantage of established networks of schools already connected to the two Institutions concerned - the Institute of Education, University of London and the University of Brighton. This was efficient in the sense that it allowed us at meetings with partnership schools to explain to senior staff the rationale behind the research and allay fears of what might be involved for teachers. Information was then passed on to other staff in schools and was reinforced through
mailings to schools. We found that this approach worked well. It is our experience that schools are more particular about their involvement in research and that as researchers we have to work harder and in different ways to establish contact and credibility with teachers. Without this, response rates in the case of large sample studies are likely to be poor.

This approach to sampling of schools allowed for the possibility that partnership schools were better informed than other schools. But it also means that results, if they show limitations in preparation for activities such as group work, are likely to be a conservative estimate. The approach also allowed analyses of a large range of lessons and groupings within classes; a large scale random sampling design may be preferable in theory but not if, in reality, response rates are poor.

There were 47 schools involved in Phase 2 of the study. The schools were made up of 38 from the main Institute/Brighton partnership sample, nine from the pilot for Phase 2 schools (used because the grouping instrument was not changed significantly in the main sample), and five schools whose location was not clearly identified on the questionnaires. Of the 47 schools, 36 were mixed sex schools, nine were all-girl schools and two were all-boy schools. For most analyses these were used together, except in cases where the sex mix of groups was important, when only the coeducational schools were used.

There were three main structuring factors in the survey - year group, school subject and phase in the lesson. The two years (7 and 10) were selected to provide a contrast between Key Stage 3 and 4. On the basis of pilot work in Phase 1 it was decided to select teachers from four main school subjects because of the contrast they were likely to provide in grouping practices. The aim was to get equal numbers of questionnaires from teachers in English, mathematics, science and humanities. It was also found in Phase 1 that grouping practices could vary according to the phase of the lesson and that it would be important to systematically control for this in the survey. For this reason, and in order to obtain a representative sample of groupings across a whole lesson, it was decided to sample the beginning, middle and ends of lessons in the proportions 25%, 50% and 25%.

The grouping mapping method was based on that used in the earlier primary survey
(Blatchford, Kutnick and Baines, 1999). It was designed to combine the strengths of a large-scale survey method, and an observational approach. At the assigned sample time in the lesson, teachers were asked to make a quick note (on a map of their classroom) of the location of individual male and female pupils, the grouping that they were part of, and the adults working in the classroom. Later, at a convenient moment, teachers completed a questionnaire on which they were asked for each grouping to give information on its size (number of children), a brief description of the task, the type of interaction, task type, ability of students within the grouping, number of students with SEN within the grouping, number of students with EAL within the grouping, adults present with the group, who in the grouping adults are working with, who composed the grouping, who decided where students should sit within the grouping, social relationship of grouping, and whether roles were allocated to grouping members. For ease of completion, teachers had to select one of several categories for each type of information. Exact details of categories (drawn up on the basis of pilot work and the earlier primary survey) are shown in a copy of the questionnaire and instructions for completion in Appendix 2. Data on each grouping were then entered into SPSS and were the basic unit of statistical analysis.

Information was also collected in the questionnaire on a number of other factors including the size of the class at the time of the mapping survey, whether the class was set and, if so, what ability level (high, middle, low), details of length of teachers’ teaching experience and her training, class and departmental policies on group work, and whether teachers and students had been involved in training for group work.

There were 250 questionnaires returned from 128 Y7 and 120 Y10 classes (two were not identifiable) in the 47 schools. Numbers of returned questionnaires were in line with those intended in the research design. There were around the same number of questionnaires returned for the four subject areas: 64, 64, 65 and 57 for English, mathematics, science, and humanities respectively. Percentages of questionnaires designated to teachers relating to the beginning, middle and ends of lessons were: 19%, 52% and 29%, and those returned were in the proportions 20%, 54% 26%, very close in number to those sent out.
**Selected results from Phase 2**

Training in group work: 39% of teachers had not received training in group work while 57% had; a similar result was found with primary teachers (Blatchford, Kutnick and Baines, 1999). Teachers said that training took place in the course of initial training (37%), in subsequent inservice training (10%), with 10% saying both. In answer to a question concerning whether the students had received any training in working in groups (e.g., through specific work on communication or cooperative skills), 64% had not and 31% had.

**Changes with age in grouping practices**

Seating arrangements

As seen in Table 4, there were a wide variety of different arrangements with the most common being rows (29%) and paired seating (28%). This contrasts with classroom arrangements at primary where most children were seated in small groups around tables (59%) or in large groups (25%) (Blatchford, Kutnick and Baines, 1999).

Table 4 Classroom layout x year group (class level data) – about here.

**Group size x year group.**

Frequencies and percentages of each group size category for each year group are presented in Table 5. In this table the equivalent results from the earlier primary grouping project are also presented. There are several different ways of calculating results involving group size. The main problem is that analyses involving raw numbers of groups can underestimate the presence of large groups and overestimate the presence of small groups. This matters in terms of accurately reflecting the experience of an individual child in a class. For example, with a simple counting method in a class with five children working as individuals and the others working as a very large group, each group would get the same weighting even though there are far more children in the large group. In order to more accurately reflect the experience of individual children, prevalence of groups of different sizes were weighted by (i.e., multiplied by) the number of children in the group. In Table 5 and other tables where group size is relevant this weighted method is used.

Table 5. Frequency and Proportion of pupils in groups of different sizes for each year group -
We can see that overall the most common size of grouping was small groups of 4-6 students followed by more than 11 children (mostly whole classes), large groups of 7-10s, dyads, triads, and individuals. There are, however, considerable changes in group sizes across a student's school career. The main differences between school years are:

* a clear decline in the use of small groups of 4-6 pupils at the secondary level compared to the primary stage - from an average of 48%, 52% and 46% at YR, Y2 and Y5 respectively to 24% and 25% at Y7 and Y10.
* a corresponding increase in the use of triads and particularly dyads at secondary level (dyads increased from an average of 6% at primary to 28% at secondary). The use of dyads had already increased by Year 5.
* an increase in the number of children working as individuals by secondary level, though still comprising a small percentage of groupings overall (2% overall)
* the use of larger groups of 7-10 children declines with age over the primary stage and is virtually never seen at secondary. Large groups are most common during the reception year (24% of groups).
* a slight increase by the secondary level in groups of more than eleven children - predominantly whole class sessions

These results show that children at secondary school are less likely to experience learning activity in small groups and more likely to be in dyads.

Group composition by year group

Friendship mix of groups x year group
The secondary survey included an extra category to reflect groups that were made up of friends and non-friends. Table 6 shows a clear increase from primary to secondary in the proportion of groups comprising friends (15% to 32% of all groups at primary and secondary respectively). This comparison probably underestimates the amount of friendship based grouping at secondary because there are also another 21% of groups at secondary that are comprised of a mixture of
friends and non friends.

Table 6. Friendship mix of groups x year group. About here.

Secondary teachers are therefore more likely to allow students to sit next to their friends. By combining this result with results for group size, just presented, we see that overall at secondary level there is more work in dyads and more with friends.

Ability mix of group x year group
About the same percentage of groupings were of mixed ability at Y2, Y5 and Y7 (44%, 44%, and 39% respectively). There were signs this had decreased by Year 10 (19%). In the case of same ability groups, at secondary level there were more high ability groupings, especially by Y10. This no doubt reflects the fact that there by Y10 students are more likely to be set for subjects. The number of same low and medium ability groups tended to be fairly stable over the primary and secondary years.

Who composed groups - teachers or students?
The extent to which students had choice over who was in a group was slightly less than the teacher (37 v. 42% of groups respectively).

Roles allocated to group members?
In almost all cases no specific roles (e.g. scribes, chair) were allocated to students in groups.

Interaction type by year group
The type of interaction between children within groups can be summarised by combining categories to form three main types - 1. working as an individual, 2. working in a group, or 3. working as a whole class or with the teacher. Table 7 shows a clear tendency for more work in a group at secondary school (whatever the size of group). This is accompanied by a clear decrease from primary to secondary in work as an individual. The amount of interaction in whole class contexts does not change with age of child.

Table 7. Interaction type x year group (reduced to individual, group and whole class
The frequencies and percentages of each interaction type that made up the three general categories for each year group are shown in Table 8. It can be seen that the most common individual categories were whole class interaction with the teacher and/or the class (26%), individual work the same as other students but where they are talking about their work (24%), and individual work the same as other children with no interaction (20%). With regard to changes with age, we see that the number of groupings involving individual tasks that are the same as other students (where there is no interaction) declines between primary and secondary, but that the amount of group work (within which children work as a whole group on one task) more than doubles by secondary school (8, 10, 25, and 27% for Years 2, 5, 7 and 10 respectively). There is then a clear tendency for work as a group to increase at the secondary stage while work as an individual declines.

Table 8 Interaction type x year group - about here

**Group size in relation to other core themes**

In this section we examine the relationship between the size of groups and the other core themes. First, though, we look at two class-level variables in relation to group size: whether classes were set or mixed ability, and class size. We found that the prevalence of each group size was similar in classes that were set by ability and mixed ability. There was a significant but weak correlation between class size and group size (r=0.1, p<0.001). The relationship between class size and number of groups in the class was stronger (r=0.22, p<0.001). This means that there tends to be more and larger groups in larger classes – a finding also found in the primary survey (see Blatchford, Baines, Kutnick & Martin, 2001). We have published widely on the effects of class size differences at the primary stage and plan to further explore, on the basis of the secondary school data, connections between classroom contextual features like class size and grouping practices.

We also examined links between group size and phase in the lesson. In brief, group size did not vary much between the beginning, middle and end of lessons, with the exception that whole class groups were, as expected and in line with Phase 1, more likely at the beginning of the
lesson.

Group Size x ability composition of the group
As can be seen in Table 9, same low ability children were more likely to work as individuals, and less likely to work in small groups of 4-6 children, while same high ability children were more likely to work as triads, small groups of 4-6 and larger groups of 7-10 children. It is the high ability children in same ability groups who therefore work more often in groups and low ability children less often.

Table 9. Association between group size and the ability mix of groups. (weighted). About here

Group size x sex mix of groups
The clearest finding was that boys were more likely than girls to work and sit alone. Though numbers of girls and boys in the study were similar, more than twice as many boys – 300 vs. 130 girls - worked alone. This is similar to results in the primary survey and therefore shows a consistent pattern throughout schooling

Group size x friendship composition of group
We have already seen that children are more likely to work with friends at secondary level. Analyses of associations between friendship composition and size of groups showed that this tendency is found in all small group sizes; 63% of dyads, 66% of triads and 41% of small groups of 4-6 children comprised children working with friends, while the comparable percentages in groupings at primary level were 31%, 30% and 13%. (Results based on weighted data, table not shown.) This probably underestimates the degree of working with friends; if the groupings comprising children working with a mixture of friends and non-friends is added then the percentages of dyads, triads and small groups involving friends increases to 84%, 95% and 91%.

Group size x adult present
There was a very clear trend for more adults to be present with individuals and small groups at primary than at secondary (weighted data, table not shown). Percentage of groups of different sizes with teacher present at primary were 12% for individuals, 3% for dyads, 9% for triads,
11% for 4-6s, and 23% for 7-10s, while for secondary schools the equivalent percentages were 4%, 2%, 2%, 4% and 24%.

Group size x who composed group
Only triads were obviously more likely to be student chosen. In the case of dyads, the balance of teacher to student choice of groups is 48% to 39%. Perhaps surprisingly, therefore, students in dyads do not have more choice over whom they sit with than children in larger groups.

Group size x interaction type
Table 10 (weighted) shows the relationship between group size and interaction type here reduced to individual, group and whole class interactions. The extent to which groups of different sizes are working as individuals or as a group is informative. Dyads, triads and small groups of 4-6 are likely to work as individuals, though ostensibly in a group context.

Table 10 Group size x interaction type reduced to individual, group and whole class

Group size and task and curriculum activities
The results revealed relationships between group size and task and curriculum activities (results not shown). Work in mathematics was more likely to be done on an individual basis, small group work was most common in English (in line with Phase 1 results), and science is most likely to be conducted in pairs or triads. Small groupings tended to be used for applying new knowledge, while whole class contexts tend to more be used for introducing new knowledge, and individuals tend to do practice and revision tasks.

Conclusions for Phase 2
Training in group work
In the survey of primary schools we found that one in four teachers said that their pupils received training for group work though on closer inspection we found that this was rarely more than discussion of group work as part of, e.g., Personal, Social and Moral Education. In the secondary survey we were more specific in questions about group work (e.g., through work on communication or co-operative skills) and found that only one third had received training. Moreover, students were rarely given specific roles (e.g. scribes, chair) in groups. Numbers of
teachers in the secondary survey who said they had received some training in the use of group work were similar to the primary survey. For the most part this was in the course of initial training; only 1 in 10 had subsequent in-service training involving group work. Therefore, a sizeable number of pupils and teachers do not appear to have specific preparation in the use of group work. Given what has been said above about the nature of the schools involved in the study, these results probably underestimate the situation in schools more generally. This is of particular concern at secondary level because we found that students are actually more likely to be working as groups (of whatever size).

Seating arrangements and group size
A main difference between primary and secondary stages is the seating arrangements within classrooms. At primary level, seating is usually in groups around tables while at secondary level seating is in rows or in pairs. Seating arrangement seems to be related in a systematic way to the types of group working arrangements in the classrooms. By secondary school, there is more work in dyads and triads and less in small groups (4-6) and large groups (7-10). (There was an interesting contrast with Phase 1 where dyads were rarely mentioned by teachers, suggesting their occurrence at secondary school is not the result of pedagogical considerations but more an incidental outcome of other factors.) There is more work as a group (whatever the size). It appears that seating arrangements affect group formation and working in groups is therefore to a degree an adaptation to classroom layout.

Group composition
There were some obvious changes between primary and secondary years in aspects of group composition. There was a clear increase from primary to secondary in the proportion of groups comprising friends. Secondary teachers appeared happier for children to sit with their friends. This was found in all small group sizes - dyads, triads and small groups of 4-6 children. So overall there is more work in groups and more with friends. This result is interesting given recent experimental evidence on the productive role that friends can play as co-learners (Zajac & Hartup, 1997).

These results when taken together portray an interesting development in groupings for learning. It seems that friend based and therefore informal peer group contexts involving small groups of
friends become more common with age. However, these are constrained in terms of children being more likely to be of similar ability and in terms of still being more teacher than student chosen, even in the case of dyads.

It is the high ability children in same ability groups who most often get to work as groups and low ability children least often. If small group work is seen to be a influential context for learning then it tends to be only the children already of higher academic ability who get most experience of it. We also found that boys were more likely than girls to work as individuals. This finding continues but accentuates a trend evident at primary level (Blatchford, Kutnick & Baines, 1999), and shows a consistent pattern over the school years.

Adult role
There was also very clear trend for more adults to be present with individuals and small groups at primary than at secondary. We explored further the nature of teacher’s involvement with groups in Phase 3.

**Phase 3**
The case studies were designed to add to our knowledge on the pedagogical rationale for groupings in different curriculum areas and year groups, and the attitudes of pupils towards different types of groupings and their ability to work within them.

Method
Case studies were undertaken in one pilot and two further comprehensive secondary schools. The schools were roughly similar in size, academic achievement, social class of intake, and catchment area. In each school four children were selected from each of Years 7 and 10 (2 boys and 2 girls, one high and one low ability of each sex) for detailed observation in 2 lessons in three subjects (English, mathematics and science). Observation data was collected via semi-structured event sampling (based on core themes) and field notes. Interviews with students and teachers were semi-structured and undertaken as soon as possible after one observation. Interviews focused on the lesson observed (for content) and reflected on that lesson with regard to the core themes. It was found that this helped give substance and particularity to the interviews – a device we found particularly useful in the case of students who do not always
find general questions about classroom experience easy to answer. We have no check for this but we felt that building interviews on classroom observations also added to the validity of the information provided.

Method
We observed in 42 lessons, and 24 teachers and 22 students were interviewed (combining the pilot and two further case schools). This sample size compares well with the proposal. It was decided to concentrate on just three schools in the case studies in order to provide more depth to the field work, and provide an analysis of grouping practices and teacher and pupil perspectives that would be internally coherent and detailed, and grounded on classroom practice. We also wanted to maximize the ability of Phase 1 and 3 to complement and mutually inform each other.

There is not space here to present in any detail results from Phase 3. A summary of main findings, along with illustrative quotes from teacher and pupil interviews, is given in Appendix 3. The attached summary concentrates on student and teacher perceptions of group size, talk as a form of interaction, teacher presence, training for group work, and group composition.

Main conclusions from Phase 3 are as follows:

- Classrooms generally maintained a sequence of whole class, individual, whole class working arrangements across the lesson.
- Individual work was the grouping students most frequently disliked, but teachers used this as the main grouping for learning.
- Paired work was the grouping students least disliked, whether assigned to work as a pair or within informal discussion while undertaking individual tasks.
- Teachers disliked large groups, which threatened a loss of classroom control. Students maintained similar dislikes.
- The majority of teachers allowed students to talk when undertaking individual work, but this was unrelated, pedagogically, to learning tasks.
- The majority of teachers said they had not received any training in group work themselves. No students reported training for group work.
• The majority of students said they preferred or were indifferent to working in mixed gender groups.

General Conclusions
Each phase has been analysed and reports written, and several publications have been submitted to journals or are in preparation for submission. We have presented the results from the secondary project, along with the earlier primary survey, extensively in discussions with teachers (e.g., in development work for our current group work initiative, see below). We are now further exploring the implications of findings, for example, with regard to the wider theoretical implications for a social pedagogy of classroom learning and classroom control, and with regard to connections between classroom contextual features like class size and grouping practices. We are also working on the implications of long-term changes in grouping practices between primary and secondary stages for a special edition of an international educational research journal.

We end this report with several general conclusions from our work so far.

Within class groupings in secondary classrooms were strongly influenced by three factors:

1. A main factor was teachers’ concerns about classroom control and maintaining student attention. This affected all aspects of grouping practices including group size, composition and the teachers’ presence with regard to groups. This concern also affected teaching methods in that there was an emphasis on student concentration and whole class presentations. Day to day teacher decisions about group size were more likely to be related to classroom control and discipline than to learning task or intention.

2. Groupings were also strongly affected by classroom layout. This was revealed in the contrast in grouping arrangements between the secondary and earlier primary survey. At primary level, seating is usually in groups around tables while at secondary level seating is in rows or in pairs, which in itself can be a response to teachers’ concern with classroom control. The type of seating arrangement is therefore related in a systematic way to the types of group working arrangements in the classrooms.
Taking these two points together shows that teachers’ approaches to group work are an adaptation to the demands of maintaining student attention and classroom control, and to classroom layout. Obviously teachers will have to adapt to the classroom layouts they have to work within, and particular curriculum demands (e.g., science labs have a distinctive layout) will reduce the flexibility of group arrangements. And obviously teachers’ have to be concerned with classroom control. But the prime role of these two factors reinforce the need for a social pedagogical perspective within which decisions about social structures and learning activities are also informed by pedagogical concerns. We develop this point more fully in Baines, Blatchford and Kutnick (in preparation), and Kutnick, Blatchford and Baines (in press).

3. Groupings were also influenced by the teachers’ focus on the individual ‘learner’. Teachers showed little awareness of the social pedagogic potential of various grouping methods. Also, teachers showed little awareness of the socially interactive nature of cognitive development found in current psychological theories of development.

Current grouping practices may lead to undesired effects on learning and social development. Two examples help to clarify this point: a) Without actively considering seating/group working arrangements, students appeared to be given license to sit close to friends, often in pairs. Friendships can be strongly stereotypical in nature (by gender, ethnicity, ability) and classroom behaviour may reinforce these stereotypes and provide examples of differentiation between children that complement classic sociological studies of Lacey and Hargreaves. We plan to develop this point more fully in a future paper. b) Low attaining children were the least likely to work in groups. Also boys, who may also be low attainers, were more likely to work as individuals. Both of these results are likely to stem from classroom control concerns, but both may limit the social conditions for cognitive development of these children.

An overall conclusion was that teachers had little faith in student’s ability to work in groups. This was revealed in teacher’s interview comments and in their behaviour in classrooms in relation to groupings. This attitude is mutually reinforcing in that students had little opportunity to work effectively in groups and were not prepared for it, for example, by being trained in group work or assigned roles to aid cooperation. Working in groups was not validated by teachers, e.g., in terms of feedback to students. Students’ attitudes to group work
are predictably consistent with teachers’ fears about group work. Students themselves preferred working in pairs and were worried about working in groups.

In Phase 2 and Phase 3 there was a clear message about training for group work. There was little or none undertaken, and, tellingly, students were unable to recall any school-based training that would help in their participation in groupwork. It was also found that teachers’ training for group working was limited, e.g., to their initial teacher education.

These results need to be set alongside two further points:

1. There is a huge potential for group work in terms of raising student participation in learning and their achievements. We have shown in the proposal for this study and elsewhere (e.g., Kutnick, Blatchford & Baines, in press) the theoretical basis to group based learning.

2. The Phase 2 grouping survey showed that students WILL be involved in group work anyway, whatever the views of teachers and students themselves and whether the work in groups is effective or not.

For both these reasons it seems clear to us that a major shift in expectations about student group work is required. Many students do not work well in groups and do not enjoy working in groups. Many teachers are uncomfortable about group work and unclear how to organize groups for effective learning. It is clear that simply setting up groups and hoping they will be productive is not viable. Ineffective work is only to be expected given the lack of preparation and any clear idea of how students can work together. We call for a major drive, at both primary and secondary level, to increase awareness of the benefits of group work and a major effort to help students work in groups. Although the present study was not designed to examine outcomes of group work it is our belief it can have a distinctive contribution to academic and social functioning. The work conducted in the present secondary study and the earlier Primary school survey have been important in informing the design of a large scale current ESRC project which is systematically testing this belief. In this study – ‘Improving the Effectiveness of Pupil Groups in Classrooms’ (Blatchford, Galton & Kutnick, 2000, part of the Phase 2 ESRC TLRP) - we are designing with teachers a group work initiative for use in everyday classroom contexts, and then testing its effectiveness. We feel the present and earlier
primary project have been vital in showing the need for such a study, and informative about the nature of within class groupings across the whole school system.
References


Routledge & Kegan Paul.


Developmental Section Conference, Lancaster University.


Appendix 1
Appendix 2
Appendix 3