



SUBJECT DOMAIN DIFFERENCES IN SECONDARY SCHOOL TEACHERS' ATTITUDES TOWARDS GROUPING PUPILS BY ABILITY

Susan Hallam and Judith Ireson*

Institute for Education, University of London

Abstract. Previous research has revealed that teachers' attitudes to ability grouping are influenced by the type of ability grouping adopted in the school where they teach. This research aimed to compare the attitudes of teachers of different subjects teaching low, high or mixed ability classes in years 7 to 9 in 45 secondary schools. Over 1500 teachers from 45 secondary schools, with a range of subject specialisms completed a questionnaire which elicited their responses to statements of beliefs about ability grouping and its effects. Teachers of mathematics and modern foreign languages were more in favour of structured ability grouping than those teaching English and humanities. Science, arts and PE, and ICT, design and business studies teachers expressed intermediate attitudes. Attitudes were determined in part by conceptions of the nature of the subject but also by the type of ability groupings adopted by the school in which they taught. In taking decisions about the type of ability grouping to adopt consideration needs to be given to the nature of the subject matter to be taught and the attitudes of the teachers who teach that subject.

Keywords: subject domain differences, attitudes towards grouping, secondary school teachers.

Introduction

Historically, in the United Kingdom (UK), the secondary education system has largely been based on ability grouping, either between or within schools. Although the evidence suggests that structured ability grouping, of itself, does not lead to consistently better or worse attainment for any particular group of pupils and can have negative effects on the personal and social outcomes for particular groups of children (for reviews see Hallam, 2002; Ireson & Hallam, 2001; Sukhnandan & Lee, 1998; Harlen & Malcolm, 1997) most secondary schools in the UK adopt some form of structured ability grouping, usually setting, for at least some subjects (Benn & Chitty, 1996). One explanation for this may be the beliefs that teachers hold about

* E-mail: s.hallam@ioe.ac.uk

ability grouping. Studies of teachers' attitudes towards structured ability grouping in the USA (NEA, 1968; McDermott, 1976; Wilson & Schmidts, 1978), Sweden (Husen & Boalt, 1967), the UK (Daniels, 1961a, 1961b; Jackson, 1964; Barker-Lunn, 1970) and Israel (Ministry of Education, 1965; Guttman *et al.*, 1972) have revealed that teachers generally hold positive attitudes towards teaching classes where pupils are grouped by ability, although variations have been reported based on teachers' prior experience and the subject that they teach.

In the UK in the 1970s, when mixed-ability teaching was innovatory, teachers who had direct experience of it tended to hold more favourable attitudes towards it (Newbold, 1977; Reid *et al.*, 1982).

The advantages of mixed ability teaching were seen largely in social terms, while the disadvantage was perceived to be the difficulty of providing appropriate work for pupils of high and low ability in the same class. Those who were critical of mixed-ability teaching suggested that it failed to motivate and increase the achievement of the highly able, although the less able were perceived to benefit. Experienced teachers appeared to be more supportive of mixed ability teaching (Clammer, 1985) but they often found it more difficult to put into practice than those who had been recently trained to adopt such practices (Reid *et al.*, 1982).

Differences in teachers' attitudes towards mixed ability teaching were also reported depending on the subject that they taught. In the early 1980s, when mixed ability teaching was being introduced to replace streaming, Reid *et al.* (1982) explored differences in teachers' attitudes towards ability grouping depending on their subject specialism. Where subjects were structured in such a way that learning built on previous knowledge, for example in mathematics and modern foreign languages, teachers seemed to favour streaming, while the humanities were perceived as particularly suitable for mixed ability teaching. Ninety percent of language teachers were sceptical of the possibility of effective mixed ability teaching. Scientists occupied a middle position perceiving some difficulties. Those subjects where mixed ability teaching was perceived as problematic tended to require correct answers and a grasp of abstract concepts.

In higher education several researchers have attempted to define the nature of knowledge in relation to different subject domains. Pantin (1968) made a distinction between the restricted and unrestricted sciences, the former described as having clearly defined boundaries, often relatively narrow and circumscribed, with a focus on quantitative issues, and a well-developed theoretical structure embracing causal propositions, generalizable findings, and universal laws. In the restricted sciences, knowledge is viewed as cumu-

lative with research findings tending to be linear developments of the existing state of knowledge. Unrestricted scientific knowledge, in contrast, is described as having unclear boundaries. The nature of the problems tackled are broad in scope and loose in definition. There is a relatively unspecific theoretical structure, a concern with the qualitative and particular, and a reiterative pattern of enquiry. Becher (1989) extended these ideas suggesting that subject knowledge could be placed on continua ranging from hard/soft (similar to Pantin's restricted and unrestricted) and pure/applied. Becher also suggested that there were identifiable patterns between knowledge forms and their associated knowledge communities. Communities were described as predominantly rural/urban and convergent/divergent. Urban researchers tended to occupy a narrow area of intellectual territory and to cluster around a limited number of discrete topics which appeared amenable to short-term solutions while rural researchers covered a broader area, across which problems were thinly scattered and within which they were not sharply distinguished. Finding solutions to problems was seen to take time. Becher's findings placed physics, chemistry, pharmacy and mathematics at the 'hard' end of the continuum while history, modern languages, sociology and law fell at the soft end of the scale. Some connections were found between discipline characteristics and the social organisation of the various academic communities but these were far from perfect and were, unfortunately, often influenced by external factors.

The importance of teachers' subject knowledge has been stressed at school level (Shulman, 1987), and there is evidence that content knowledge affects what teachers teach, how they teach it (Grossman, Wilson & Shulman, 1989; Bennett & Carre, 1993), their level of planning and responsiveness to students' needs (Borko *et al.*, 1988), and their capacity to question, select tasks, assess pupil understanding and make curriculum choices (McDiarmid *et al.*, 1989). Stodolsky and Grossman (1995) explored teachers' perceptions of different subject domains providing a framework for considering their conceptions of subject matter. Exhibiting many similarities to the research in higher education, the framework consisted of five subject characteristics, degree of definition, scope, degree of sequence, characterisation of the subject as static or dynamic and its status, compulsory or optional. Mathematics and modern foreign languages, as taught in school, were perceived as well defined, sequential and somewhat static. Social studies, English and science represented subjects at the less well-defined, less sequential and more dynamic end of the spectrum. These perceptions were linked to aspects of teaching including the extent to which teachers had control over the curriculum, the extent of curriculum co-ordination within

the department, the pressures to ensure that pupils covered the same curriculum content, standardisation in relation to examinations, and the extent of collaboration and resistance to change. Mathematics teachers reported less control of curricula content, and more consensus, co-ordination, standardisation, pressure to cover all topics and course rotation than other subjects. Stodolsky and Grossman concluded that mathematic's teachers might be viewed as a prototype of those who work in well-defined and sequential subjects. The study of modern foreign languages was also perceived as well-defined and sequential, with more co-ordination and concern for coverage than teachers of other subjects. However, in contrast to mathematics, teachers reported having considerable curricular autonomy and standardisation of courses was rare, although there was some tendency to develop common examinations. Teachers of social studies, English and science reported relatively high levels of autonomy in relation to what they taught and less standardisation than mathematics teachers, although there was variability in relation to the other factors. At primary level similar differences have been demonstrated between the teaching of different elements of the curriculum. Task direction, explaining/exploring, and formative feedback appear to be the most common teacher activities in both English and mathematics, but in mathematics, task direction predominated while the dominant category in English was explaining/exploring (Alexander *et al.*, 1996). Taking account of these differences in the perceptions of the nature of subject domain knowledge we might expect that teachers of different subjects would hold different attitudes towards ability grouped and mixed ability classes.

There is evidence that teachers prefer to teach high ability groups (Hargreaves, 1967; Lacey, 1970; Findlay & Bryan, 1975; Ball, 1981; Finley, 1984), in some cases competing against each other in order to be able to do so (Finley, 1984). This may be because pupils in lower ability classes tend to have more negative attitudes towards school and often exhibit poor behaviour in the classroom which makes them more difficult to teach (Hargreaves, 1967; Schwartz, 1981; Finley, 1984; Taylor, 1993). Certainly, teachers of high ability groups have tended to be more enthusiastic about teaching (Rosenbaum, 1976) and have reported feeling more efficacious (Raudenbush, Rowan & Cheong, 1992). However, this effect disappeared when the level of pupil engagement was controlled. Perhaps teachers find it difficult to generate interest in learning in pupils in lower ability groups and the resulting lack of engagement undermines their sense of efficacy. Other early research showed that teachers who consistently taught low ability groups tended to become demoralised over a period of time (Hargreaves, 1967; Finley, 1984).

Teachers' attitudes towards teaching low ability groups may have contributed to the alienation of pupils in those groups. Pupils from high ability groups tend to exhibit pro-social behaviour and it is this, rather than their academic achievement, which seems to shape teachers' behaviour towards them (Hargreaves, 1967; Lacey, 1970; Ball, 1981; Finley, 1984). Teachers have also been shown to interact with high ability groups more frequently and positively than they do with low ability groups (Sorenson & Hallinan, 1986; Gamoran & Berends, 1987; Harlen & Malcolm, 1997). However, in some schools, presumably where the ethos is supportive of pupils of all abilities, there is some evidence that teachers of low stream students do view them positively (Burgess, 1983, 1984). In the current UK educational context, where some teachers choose to specialise in teaching those with special educational needs the situation may be different.

Much of the UK research cited above was undertaken when the educational system was highly selective; all pupils were assessed at age 11 and on the basis of their test performance either attended grammar or secondary modern schools. In those schools the most commonly adopted system of pupil grouping was streaming, where pupils were put into classes on the basis of their overall ability. When research demonstrated that selection and streaming had little positive effect on academic performance and could be detrimental to the personal and social educational outcomes of some pupils the 11+ examination was largely abandoned and schools moved towards alternative forms of grouping pupils, banding, setting and mixed ability teaching. The aim of this research is to explore teachers' attitudes towards and beliefs about ability grouping within this changed educational context.

Methodology

A sample of 45 mixed gender secondary comprehensive schools was selected for the study, representing a range of grouping practices, intake and location. All schools had received satisfactory inspection reports during the three years before the start of the project. Steps were taken to balance the schools in terms of their size and the social mix of their intake, using free school meals as an indicator of social disadvantage.

The sample. All heads of department and all English, maths and science teachers of pupils in years 7, 8 and 9 and a sample of lower school teachers of other subjects completed a questionnaire. The questionnaire explored teachers' attitudes towards ability grouping. Teachers responded on a five point rating scale to a series of statements about ability grouping and mixed ability teaching. Open questions were also included which enabled teachers to express their beliefs in their own words.

Data were collected from over 1500 secondary school teachers in the 45 secondary comprehensive schools. Twenty-three per cent of the sample were between the ages of 20 to 29.23% between 30 and 39.35% between 40 and 49 and 16% over 50. Just over half of the sample were female (53%). Most of the teachers were educated to degree level, 59% had a PGCE, 21% a Certificate in Education and 13% a higher degree. The teachers were divided into 7 groups of similar size based on their subject specialism's; English (238); maths (234); science (286); humanities (242); modern foreign languages (MFL) (242); arts and PE (245); information and communication technology (ICT), design and business studies (185).

There were differences between the subject domains in the proportions of male and female teachers. The proportions of male teachers for each subject were: English 33%, maths 49%; science 55%; humanities 49%; MFL 19%; arts and PE 36% and ICT, design and business studies 56%.

Results

Subjects considered suitable for mixed ability teaching

Teachers were asked if they thought that their subject was suitable for mixed ability teaching. Eighty six percent of arts and PE teachers agreed that it was; 83% of ICT, design and business teachers; 80% of English teachers; 77% of humanities teachers; 49% of science teachers; 29% of modern languages teachers; and only 18% of maths teachers. Overall, 60% of male and female teachers thought that their subject was suitable for mixed ability teaching.

When asked if they had reservations about the grouping practices adopted in their school most of the teachers were satisfied with the current grouping arrangements or had small reservations (see Table 1). Across all subjects, between 7% and 15% expressed serious reservations or were opposed to the grouping strategies adopted. The mathematics teachers, where setting tended to be the norm in all the schools, were the most satisfied, modern foreign languages the least.

To provide a more detailed account of the perceived appropriateness of mixed ability teaching for different subjects, teachers were asked whether English, mathematics, science, MFL and humanities were suitable for mixed ability teaching in years 7, 8 and 9, years 7 and 8 only, year 7 only, or not at all. Table 2 gives the responses. In all subject areas, a substantial proportion of teachers felt unable to comment. Overall, the trends outlined above were supported.

Table 1

	English X = 48 df = 8 p=.0001	Mathematics X=21, df=8, p=.007	Science NS	Humanities NS	Modern foreign languages NS	Arts and PE NS	ICT, Design and Business studies NS
Mixed ability schools							
I have no reservations about the current practices	62% (49)	40% (30)	37% (34)	48% (31)	30% (17)	46% (34)	65% (35)
I have a few reservations about the current practices	33% (26)	54% (41)	51% (47)	36% (23)	48% (27)	42% (31)	30% (16)
I have quite a lot of reservations about the current practices	3% (2)	5% (4)	10% (9)	3% (8)	13% (7)	5% (4)	6% (3)
I am very opposed to many of the current practices	1% (1)	1% (1)	2% (2)	0%	2% (1)	3% (2)	0%
Partially set schools							
I have no reservations about the current practices	37% (27)	61% (46)	29% (28)	54% (43)	32% (14)	60% (41)	45% (26)
I have a few reservations about the current practices	43% (32)	30% (23)	58% (56)	35% (28)	46% (20)	34% (23)	43% (25)
I have quite a lot of reservations about the current practices	15% (11)	8% (6)	7% (7)	9% (7)	23% (10)	6% (4)	7% (4)
I am very opposed to many of the current practices	5% (4)	0%	3% (3)	3% (2)	0%	0%	3% (2)
Setted schools							
I have no reservations about the current practices	15% (13)	68% (56)	37% (35)	33% (32)	48% (29)	44% (45)	36% (26)
I have a few reservations about the current practices	66% (56)	26% (21)	45% (43)	51% (50)	42% (25)	38% (39)	51% (37)
I have quite a lot of reservations about the current practices	18% (15)	4% (3)	15% (14)	13% (13)	8% (5)	13% (13)	11% (8)
I am very opposed to many of the current practices	1% (1)	2% (2)	2% (2)	2% (2)	2% (1)	5% (5)	3% (2)

Fifty two percent of mathematics teachers felt that mathematics was not suitable for mixed ability teaching, a further 24% agreed it was appropriate in year 7 only. Smaller proportions of teachers of other subjects agreed with these sentiments, 33% stating that mathematics should not be taught in mixed ability groups at all and 18% only in year 7. Twenty six percent felt unable to comment. In humanities and English the pattern was reversed while science and MFL had intermediate positions. MFL teachers expressed a stronger preference for ability grouping after year 7.

Table 2: Subjects teachers' perceptions of subjects suitable for mixed ability teaching in different year groups

		Years 7, 8 and 9	Only in years 7&8	Only in year 7	No	Don't feel able to comment
English						
Mixed ability schools	English teachers	83% (64)	10% (8)	5% (4)	1% (1)	0%
	All teachers					
Type 2 schools	English teachers	52% (38)	11% (8)	15% (11)	19% (14)	3% (2)
	All teachers					
Type 3 schools	English teachers	32% (27)	27% (23)	19% (16)	20% (17)	1% (1)
	All teachers					
Maths						
Type 1 schools	Maths teachers	18% (14)	18% (14)	33% (25)	28% (21)	0%
	All teachers					
Type 2 schools	Maths teachers	7% (5)	0%	19% (14)	67% (49)	7% (5)
	All teachers					
Type 3 schools	Maths teachers	9% (7)	5% (4)	22% (18)	62% (51)	2% (2)
	All teachers					
Science						
Type 1 schools	Science teachers	47% (42)	21% (19)	26% (23)	4% (4)	1% (1)
	All teachers					
Type 2 schools	Science teachers	14% (13)	12% (11)	45% (43)	30% (28)	0%
	All teachers					
Type 3 schools	Science teachers	18% (17)	12% (11)	34% (32)	33% (31)	3% (3)
	All teachers					
Modern foreign languages						
Type 1 schools	MFL teachers	25% (14)	20% (11)	48% (27)	7% (4)	0%
	All teachers					
Type 2 schools	MFL teachers	12% (5)	2% (1)	65% (28)	16% (7)	5% (2)
	All teachers					
Type 3 schools	MFL teachers	5% (3)	5% (3)	37% (21)	49% (28)	4% (2)
	All teachers					
Humanities						
Type 1 schools	Humanities teachers	78% (49)	3% (2)	13% (8)	5% (3)	2% (1)
	All teachers					
Type 2 schools	Humanities teachers	65% (49)	11% (8)	9% (7)	8% (6)	6% (5)
	All teachers					
Type 3 schools	Humanities teachers	41% (40)	9% (9)	19% (18)	25% (24)	6% (6)
	All teachers					

Attitudes towards and beliefs about ability grouping

Mean scores of teachers' responses to a range of statements about ability grouping were calculated for each subject area. Table 3 outlines responses to statements regarding the effects of mixed ability and setting on children whose attainment was above average. Strong agreement with a statement was indicated by a score of 5. The strongest support for setting in all cases came from the teachers of MFL and mathematics, the weakest from English and humanities. These differences were statistically significant (see Table 3 for details).

Table 3: Subject teachers' beliefs about the effects of ability grouping on able pupils (means and standard deviations)

Statements	English	Maths	Science	Humanities	MFL	Arts and PE	ICT, design and business	F	Df	Sig
Bright children are neglected or held back in mixed ability classes	1.88 (1.19) n = 233	2.53 (1.19) n = 232	2.41 (1.07) n = 283	2.01 (1.15) n = 240	2.56 (1.1) n = 156	2.03 (1.15) n = 244	2.22 (1.1) n = 184	12.56	6, 1566	.0001
Setting ensures that brighter children make maximum progress	2.43 (1.16) n = 237	3.05 (.9) n = 233	2.79 (1.01) n = 285	2.52 (1.07) n = 242	3.05 (.84) n = 160	2.7 (.94) n = 243	2.73 (1.08) n = 183	11.85	6, 1576	.0001
Setting prevents brighter children being inhibited by negative peer pressure	2.25 (1.18) n = 232	2.66 (.99) n = 232	2.54 (1.04) n = 285	2.27 (1.09) n = 241	2.73 (.94) n = 159	2.46 (.99) n = 239	2.46 (1.06) n = 185	6.28	6, 1566	.0001

When the focus of the statements was the personal and social development of pupils the pattern was similar (see Table 4 for details). The English teachers consistently responded to statements which were more in favour of mixed ability teaching than teachers in any other subject area. The highest responses supporting setting, in the majority of cases, came from the mathematics teachers although for two statements teachers of MFL gave slightly stronger responses. These differences were statistically significant. Table 4 gives the means, standard deviations and the numbers of responses in each group.

Table 5 illustrates the responses given in relation to the equity of opportunity afforded different groups of children within different grouping structures. English teachers followed by humanities teachers gave the strongest agreement to statements that setting benefited the more able pupils at the expense of the less able; that mixed ability classes provided the less able with positive models of achievement and that mixed ability grouping gave every child a fair chance. The maths teachers disagreed most strongly

with these statements followed by MFL teachers. They gave the strongest support to the statement that mixed ability teaching in reality only benefited the average child, followed by the science and maths teachers. The lowest support for this statement came from the humanities teachers. The MFL teachers also most strongly agreed that mixed ability teaching benefited the less able pupils at the expense of the more able, followed by science and maths teachers. English and arts and PE teachers most strongly opposed this statement.

In response to statements relating to discipline, maths and MFL teachers agreed most strongly that there were more discipline problems in mixed ability classes. The strongest disagreement came from English teachers. Where statements suggested that behaviour, attendance and exclusions were greater in the lower sets, English teachers showed the strongest agreement followed by humanities and science teachers. The strongest disagreement came from the maths teachers. These differences were statistically significant (see Table 6).

When teachers were asked to agree or disagree with statements relating to the ease of teaching in ability grouped classes, the most positive support came from the maths, science and MFL teachers. The science teachers agreed most that only very good teachers can teach mixed ability classes successfully; that teaching is easier in set classes; and that in mixed ability classes teachers tend to teach to the average child. The most disagreement came from English, arts and PE teachers (see Table 7).

Overall attitudes to ability grouping

An overall attitude to setting scale was created by summing responses to the attitudinal statements described above. Where necessary numerical responses were reversed so that all responses were in a similar direction. A high score indicated a positive attitude towards setting. There were statistically significant differences between the subject specialisms in their overall attitude to ability grouping ($F = 26.11$; $df = 6.1308$; $p = .0001$). The most positive attitudes to ability grouping were exhibited by the maths teachers followed by the modern foreign languages teachers. Those with the least positive attitudes were the English teachers followed by humanities. The greatest variability in responses was found between the English teachers, the smallest between the mathematics teachers (see table 8).

Table 4: Subject teachers beliefs about the effects of ability grouping on pupils personal and social educational outcomes (means and standard deviations)

Statements	English	Maths	Science	Humanities	MFL	Arts and PE	ICT, design and business	F	Df	Sig
Pupil self-esteem is unaffected by ability grouping	1.21 (1.04) n = 234	1.55 (.91) n = 231	1.29 (.83) n = 284	1.34 (.97) n = 241	1.35 (.88) n = 158	1.31 (.92) n = 240	1.41 (.95) n = 184	3.23	6, 1565	.004
Setting has a damaging effect on the self-esteem of those in lower sets	2.59 (1.16) n = 235	1.72 (1.05) n = 233	2.31 (1.04) n = 284	2.62 (1.1) n = 240	2.94 (1.1) n = 160	2.61 (1.07) n = 239	2.74 (1.04) n = 184	15.38	6, 1568	.0001
Setting children stigmatises those perceived as less able	2.77 (1.16) n = 235	1.82 (1.15) 233	2.41 (1.1) n = 281	2.44 (1.14) n = 156	2.09 (1.14) n = 156	2.49 (1.09) 242	2.57 (1.05) n = 184	17.69	6, 1563	.0001
In mixed ability classes the less able pupils are more aware of what they are unable to do. They are aware that other pupils are doing different work	1.89 (1.21) n = 233	2.49 (1) n = 233	2.26 (1.04) n = 281	1.95 (1.09) n = 237	2.31 (1.11) n = 157	2.06 (1.11) n = 241	1.91 (1.08) n = 184	9.95	6, 1559	.0001
Less able children compare themselves unfavourably to more able children in mixed ability classes	1.99 (1.04) n = 233	2.41 (.85) n = 234	2.23 (.95) n = 283	2.01 (.96) n = 240	2.45 (.95) n = 155	2.1 (.99) n = 242	2.09 (.96) n = 185	7.82	6, 1565	.0001
Mixed ability grouping leads to better social adjustment for the less able pupils	2.74 (1.05) n = 238	2.01 (.93) n = 232	2.45 (.86) n = 282	2.65 (.89) n = 241	2.19 (.92) n = 158	2.61 (.88) n = 241	2.37 (1) n = 184	17.5	6, 1569	.0001
Mixed ability grouping leads to better social adjustment of all pupils	2.74 (1.01) n = 235	1.96 (.94) n = 229	2.42 (.83) n = 281	2.63 (.87) n = 240	2.2 (.95) n = 158	2.5 (.93) n = 242	2.54 (.88) n = 181	19.01	6, 1559	.0001
Overall motivation is higher when pupils are in mixed ability classes	2.17 (1.09) n = 238	1.34 (.86) n = 232	1.75 (.93) n = 280	2.03 (1.02) n = 240	1.45 (1.05) n = 157	1.91 (.95) n = 242	1.94 (.99) n = 184	20.49	6, 1566	.0001
Knowing they are in a low set leads to pupils giving up	2.34 (1.2) n = 234	1.51 (1.04) n = 232	2 (1.12) n = 285	2.15 (1.1) n = 241	1.73 (1.05) n = 159	2.16 (1.09) n = 236	2.05 (1.04) n = 185	14.66	6, 1565	.0001

Table 5: Subject teachers' beliefs about the equity of ability grouping (means and standard deviations)

Statements	English	Maths	Science	Humanities	MFL	Arts and PE	ICT, design and business	F	Df	Sig
Setting benefits the more able pupils at the expense of the less able	2 (1.25) n = 234	1.02 (1.08) n = 234	1.56 (1.22) n = 284	1.87 (1.25) n = 240	1.33 (1.2) n = 159	1.64 (1.18) n = 241	1.8 (1.24) n = 183	17.6	6, 1568	.0001
Mixed ability grouping gives each child a fair chance	2.1 (1.18) n = 238	1.24 (1.04) n = 230	1.59 (1.1) n = 281	2.08 (1.16) n = 239	1.4 (1.15) n = 159	1.86 (1.04) n = 242	1.85 (1.17) n = 182	19.49	6, 1564	.0001
Mixed ability teaching in reality only benefits the average child	1.47 (1.07) n = 236	1.75 (1.05) n = 233	1.81 (.97) n = 283	1.44 (1.02) n = 239	1.91 (1.03) n = 158	1.59 (1.05) n = 240	1.55 (1.01) n = 184	6.58	6, 1566	.0001
Mixed ability classes provide the less able pupils with positive models of achievement	2.82 (.92) n = 238	2.09 (.93) n = 234	2.39 (.88) n = 285	2.65 (.88) n = 242	2.25 (.98) n = 155	2.55 (.9) n = 242	2.56 (.96) n = 184	16.35	6, 1573	.0001
Mixed ability teaching benefits the less able pupils academically at the expense of the more able	1.54 (.97) n = 235	1.76 (.94) n = 213	1.78 (.93) n = 283	1.65 (.91) n = 242	1.87 (.99) n = 156	1.59 (.95) n = 241	1.75 (.97) n = 184	3.16	6, 1565	.004

Table 6: Subject teachers' beliefs about pupils' behaviour in different grouping structures (means and standard deviations)

Statements	English	Maths	Science	Humanities	MFL	Arts and PE	ICT, design and business	F	Df	Sig
In general there are more discipline problems in mixed ability classes	1.37 (1.09) n = 230	2.06 (1.07) n = 227	1.82 (1.14) n = 280	1.46 (1.13) n = 237	2.18 (1.15) n = 155	1.85 (1.2) n = 240	1.9 (1.22) n = 183	13.96	6, 1545	.0001
Where classes are set there are more discipline problems in the lower ability classes	2.8 (1.67) n = 236	2.32 (1.1) n = 233	2.65 (1.08) n = 284	2.8 (1.07) n = 234	2.48 (1.12) n = 159	2.48 (1.15) n = 238	2.42 (1.13) n = 183	5.59	6, 1560	.0001
Where classes are set there is more truancy from pupils in the lower sets	2.15 (1) n = 229	1.75 (1.02) n = 228	2 (.94) n = 278	2.02 (.95) n = 225	1.9 (1.01) n = 153	1.9 (.84) n = 230	1.83 (.86) n = 174	4.5	6, 1510	.0001
Where classes are set there are more exclusions of pupils in the lower sets	2.33 (.88) n = 227	1.95 (.96) n = 230	2.17 (.88) n = 275	2.14 (.93) n = 222	2.1 (.94) n = 154	2.05 (.85) n = 226	2 (.8) n = 172	4.3	6, 1499	.0001

Table 7: Subject teachers' beliefs about the effects of different grouping structures on teaching (means and standard deviations)

Statements	English	Maths	Science	Humanities	MFL	Arts and PE	ICT, design and business	F	Df	Sig
Setting leads to teachers ignoring the fact that a class always contains a range of abilities	1.91 (1.25) n = 235	1.22 (1.11) n = 234	1.86 (1.12) n = 285	2 (1.09) n = 239	1.3 (1.02) n = 159	1.72 (1.02) n = 239	1.75 (1.03) n = 183	16.33	6, 1567	.0001
Only very good teachers can teach mixed ability classes successfully	2.17 (1.17) n = 233	2.19 (1.11) n = 232	2.28 (1.03) n = 283	1.96 (1.12) n = 238	2.13 (1.13) n = 157	1.82 (1.13) n = 242	1.89 (1.11) n = 183	5.86	6, 1561	.0001
Teaching is easier for the teacher when classes are set	2.31 (1.09) n = 236	2.33 (1.08) n = 236	2.61 (1) n = 286	2.4 (1.05) n = 240	2.62 (.95) n = 159	2.36 (1) n = 241	2.39 (1.14) n = 184	3.19	6, 1572	.004
In mixed ability classes teachers tend to teach to the average child	1.97 (1.11) n = 232	2.33 (.93) n = 233	2.42 (.9) n = 284	2.22 (.98) n = 242	2.35 (1.01) n = 156	2 (1.01) n = 243	2.22 (1) n = 185	7.27	6, 1568	.0001
Developing the appropriate teaching skills necessary to teach a mixed ability class benefits all pupils in the class	3.18 (.87) n = 232	2.66 (.8) n = 229	2.98 (.78) n = 283	3.02 (.86) n = 242	2.75 (.98) n = 155	2.97 (.82) n = 244	2.97 (.83) n = 184	9.29	6, 1562	.0001
Setting makes classroom management easier	2.2 (1.07) n = 235	2.74 (.81) n = 232	2.63 (.95) n = 286	2.32 (1.07) n = 238	2.66 (.93) n = 160	2.48 (.96) n = 240	2.59 (1.01) n = 181	9.02	6, 1565	.0001
Setting enables pupils' curriculum needs to be better matched	2.38 (1.18) n = 233	3.17 (.79) n = 232	2.92 (.88) n = 285	2.47 (1.04) n = 241	3.07 (.89) n = 160	2.59 (.93) n = 242	2.53 (1.03) n = 183	22.63	6, 1570	.0001

Table 8: Subject teachers' overall attitudes to ability grouping

Subject	Number of teachers	Mean	SD	Minimum	Maximum
English	198	79.46	16.26	32	120
Mathematics	197	93.29	10.86	60	117
Science	245	87.76	12.31	52	129
Humanities	196	81.68	14.84	42	118
Modern foreign languages	130	92.48	13.73	56	121
Arts and PE	194	84.74	13.1	49	116
ICT design and business studies	155	84.79	14.44	36	116
Total	1315	86.1	14.44	32	129

Why teachers perceive some subjects as more appropriate for mixed ability teaching than others

In response to the open questions, the teachers gave a range of reasons for believing that particular subjects were more appropriate for mixed ability teaching than others. Some concerned the nature of the subject. Those subjects where progression is not linear are more suitable. (French teacher, set school.)

Mathematics is always difficult to differentiate by outcome and the range of ability widens as children get older. With some sort of grouping by ability appropriate whole class work can be followed. Even within a 'streamed' group material needs to be differentiated but there is a common language and topics. (Mathematics teacher, partially set school.)

Mathematical concepts and science concepts are very hard to teach to mixed ability due to the range of knowledge pupils need to know. (Science teacher, mixed ability school.)

Whether the subject was able to be taught with a common starting point and differentiated through learning outcomes was a major factor.

It depends on whether pupils are allowed to have differentiated outcomes. In English say, access to material should be the same, but the response can be different. (German teacher, mixed ability school.)

English and humanities are suitable for mixed ability teaching because it is easier to use starting point material in some subjects which can be used as a launch point for all, being accessible to all, and then allow differentiated work to develop from it. (English teacher, set school.)

Subjects that supply neutral stimuli and assess predominantly by outcome are more suited to mixed ability teaching. (Science teacher, mixed ability school.)

Some teachers believed that all subjects could be taught in mixed ability classes providing that the teacher approached the task with a positive attitude and there were appropriate resources.

I think that the range of material covered in languages does make mixed ability teaching hard... but it can be done if the classes are small enough and the teacher well prepared and resourced. (English teacher, mixed ability school.)

Some subjects thrive on mixed ability teaching e.g. Personal and Social Education, music, basically the arts. I do think that mixed ability teaching is possible in all subjects but the problem lies with the teacher's attitudes towards it. If they are not in favour of it they are not motivated to implement it. (Religious Education teacher, set school.)

Some teachers pointed out that ability in one subject may not be related to ability in others and that this could create difficulties in allocating pupils to ability groups in their subjects.

Ability in music does not always correlate with general ability in say core subjects. (Music teacher, mixed ability school.)

Ability in drama is not necessarily related to literacy and numeracy skills... or cognitive ability... so what meaning of ability would be appropriate. (Drama teacher, mixed ability school.)

The introduction of tiering in examinations was reported by a number of teachers as creating difficulties in teaching mixed ability classes.

Tiered SATs in mathematics makes it difficult to teach mixed ability. (Mathematics teacher, mixed ability school.)

Recently we've come up against the problem of GCSE tiering and have come in certain curriculum areas to group students by tiers, particularly in maths and science. They're the two faculties at the moment that are most interested in pursuing that. (Head teacher, mixed ability school.)

These responses indicate that the nature of the subject domain itself, the curriculum, types of learning outcome, examination preparation and available resources all contribute to the extent to which teachers believe that they can successfully teach pupils in mixed ability classes.

Discussion

The findings reported here suggest that there are different attitudes and beliefs about the effectiveness of mixed ability teaching among teachers of different subjects. Whatever the nature of the grouping practices adopted, teachers beliefs about the nature of their subject influence the way that they teach. Where school grouping practices do not fit well with their beliefs

about pedagogy, they may compensate within the classroom, e.g. greater within class ability grouping in mathematics than other subjects. In planning grouping structures, school managers may find it productive to acknowledge and take account of these subject differences, facilitating the pedagogy which teachers believe to be most appropriate.

Previous research undertaken by Reid *et al.* (1982), when mixed ability teaching was still relatively new, found the most negative attitudes towards it from teachers of MFL. In the evidence reported here, the strongest responses emerged from teachers of mathematics. This may reflect changing curriculum demands and pressures on teachers. Mathematics is the subject most likely to be taken a year early at GCSE by able students, is a core curriculum subject and forms part of international comparison studies. Modern foreign languages are not subject to these additional pressures. The introduction of more focused literacy and numeracy strategies in secondary schools will further increase the pressure on mathematics teachers and may change the nature of English teaching such that more structured ability grouping is adopted. It will be interesting to see how, if at all, these changes impact on the attitudes of English teachers. While the qualitative responses indicated that teachers preferences for different class structures were influenced by the perceived structure of the subject matter that they were teaching, the extent to which it built on previous learning and abstract concepts and whether differentiation could be managed by outcome, teachers were also pragmatic about the need to work within current systems, e.g. tiered entry for examinations. The recent radical changes in the UK education system have forced teachers to change many of their practices. The psychological literature suggests that changing practice is the most effective way of changing attitudes (Hogg & Vaughan, 1998). The fact that mathematics and not modern foreign language teachers are the strongest supporters of setting, contrasting with the earlier research, suggests that pressure to raise attainment has led to increased setting in mathematics (Hallam *et al.*, submitted) and a subsequent change in teachers' beliefs.

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Suzan Halam i Džudit Ajrson
 PREDMETNO SPECIFIČNE RAZLIKE U STAVOVIMA SREDNJOŠKOLSKIH
 NASTAVNIKA PREMA GRUPISANJU UČENIKA
 U SKLADU SA SPOSOBNOSTIMA
Apstrakt

Ranija istraživanja pokazala su da na stavove nastavnika prema grupisanju učenika u skladu sa sposobnostima utiče tip grupisanja prema sposobnostima koji primenjuje škola u kojoj predaju. Cilj ovog istraživanja je poređenje stavova nastavnika različitih predmeta koji predaju u odeljenjima niskih, visokih ili mešovitih sposobnosti od

7. do 9. razreda u 45 srednjih škola. Preko 1.500 nastavnika iz 45 srednjih škola, sa velikim rasponom predmeta koje predaju, popunilo je upitnik kojim su dobijeni njihovi odgovori na tvrdnje kojima su izražena uverenja o grupisanju u skladu sa sposobnostima i efektima koje ono proizvodi. Nastavnici matematike i modernih stranih jezika više su se zalagali za strukturisano grupisanje prema sposobnostima nego oni koji predaju engleski i društvene nauke. Nastavnici prirodnih nauka, umetnosti i fizičke kulture, informatike i komunikacionih tehnologija, dizajna i ekonomije imali su stavove koji se nalaze negde između. Stavovi su delimično bili uslovljeni koncepcijama o prirodi predmeta, kao i tipom grupisanja prema sposobnostima prihvaćenim u školi u kojoj predaju. U odlučivanju koju vrstu grupisanja prema sposobnostima treba prihvatiti potrebno je uzeti u obzir prirodu gradiva koje se predaje i stavove nastavnika koji predaju taj predmet.

Ključne reči: predmetno specifične razlike, stavovi prema grupisanju, srednjoškolski nastavnici.

Сузан Халам и Джудит Айрсон
ПРЕДМЕТНО СПЕЦИФИЧЕСКИЕ ОТЛИЧИЯ ВО МНЕНИЯХ УЧИТЕЛЕЙ
СРЕДНИХ ШКОЛ ПО ОТНОШЕНИЮ К ГРУППИРОВКЕ УЧАЩИХСЯ
В СООТВЕТСТВИИ С ИХ СПОСОБНОСТЯМИ

Резюме

В предыдущих исследованиях доказано, что на позиции учителей по вопросу о группировке учащихся в соответствии с их способностями воздействует тип группировки, который находит применение в их школе. Цель данного исследования – сопоставить мнения учителей разных предметов, которые преподают в классах с учащимися низких, высоких или смешанных способностей в 44 средних школах (с 7 по 9 класс). Свыше 1500 учителей из 45 средних школ, с большим регистром предметов, по которым ведут обучение, заполнили вопросник, на основании которого были получены их ответы на утверждения, выражающие мнения о группировке учащихся на основании их способностей и об эффектах, к которым она приводит. Учителя математики и современных иностранных языков проявили большую заинтересованность в структурированной группировке, чем учителя английского языка и гуманитарных предметов. Среднюю позицию заняли мнения учителей естественных наук, искусств, физической культуры, информатики и коммуникационных технологий, художественного оформления и экономики. Мнения учителей отчасти были обусловлены концепциями о природе каждого конкретного предмета, а также типом группировки по способностям, которая применяется в каждой конкретной школе. В принятии решений о том, какой вид группировки по способностям следует применять, необходимо учитывать природу преподаваемого материала, а также мнения учителей каждого конкретного предмета.

Ключевые слова: предметно специфические отличия, мнения о группировке учащихся, учителя средних школ.