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## GROUPING PRIMARY STUDENTS BY ACHIEVEMENT FOR LITERACY AND NUMERACY INSTRUCTION: WHO WINS?

### ABSTRACT

*Achievement grouping in the form of streaming was demonstrated to be inequitable on many levels by research conducted in the 1960s and 70s. The practice was demonstrated to produce limited advantages for limited groups of students whilst hindering the academic and social advancement of the majority. Streaming became less common in the ensuing decades. Since that time, achievement grouping has taken different forms in response to these issues, such as setting, tracking and regrouping, with the desired perception being that more equitable strategies have been implemented. Recent research in the United Kingdom and elsewhere has suggested that these grouping methods have similar equity issues to streaming. This paper examines the practice of regrouping Australian primary students into separate classes according to achievement levels for literacy and mathematics lessons. Results from a mixed method study involving two groups of schools (one employing regrouping and one with mixed-achievement classes) are examined. Data collected through interviews with principals and teachers, student surveys, state-wide academic test results and classroom observations are analysed. The results bring the practice of regrouping into question, as it is determined that between-class achievement grouping by subject area is merely a more politically palatable form of streaming.*

### Organisational Aspects of Schooling

Organisational decisions made by schools affect and are affected by multiple aspects of schooling including staff, parents, students and resources (Burns & Mason, 1995, 1998; Dreeben & Barr, 1988; Greenwald, Hedges & Laine, 1996). Hence, whilst improving one aspect of schooling may be the target of a decision to allocate students to classes in a certain way, this decision will certainly impact on more widespread facets of schooling. In this case we are concerned with the way students are allocated to classes. Factors influencing such decisions include educational concerns, and political reasons, and may be influenced by market demands and

parental pressures (Boaler, Wiliam & Brown, 2000; Charlton, Mills, Martino & Beckett, 2007; Wiliam & Bartholomew, 2004). The practice of forming achievement-based classes provides a clear example of this.

The practice of grouping students by achievement level has been common (though specific forms of the practice have varied) since the 1920s (Burns & Mason, 1998; Slavin, 1987), but can be traced back to the 1800s (Otto, 1950 cited in Kulik & Kulik, 1982, p. 415). Whilst copious amounts of research have investigated the topic, beginning in the 1920s (Slavin, 1987), the foci of such studies has varied over the decades. Jackson's (1964) seminal study soundly criticised the practice of streaming on the basis of inequity in a number of aspects. Slavin's (1987) best-evidence synthesis was predominantly concerned with academic outcomes, as were Kulik and Kulik's (1982, 1987) meta-analyses. More recent studies have investigated affective outcomes (for example Hallam & Ireson, 2006; Hallam, Ireson & Davies, 2004b; Ireson & Hallam, 2005; MacIntyre & Ireson, 2002) and teaching practices (Hallam & Ireson, 2005). All of these studies and more, regardless of focus, have reported issues relating to equity for students.

This paper will review the equity aspects noted by previous research into achievement grouping, beginning with Jackson's (1964) study and continuing to that published this decade. These findings will then be discussed in relation to a recent mixed-method study undertaken in Australian primary schools.

## Achievement grouping and equity?

It is useful, at this point, to define various terms related to achievement grouping. Streaming describes the broad grouping of students into "A", "B" or "C" classes where they are allocated on the basis of overall academic achievement. Students remain in their streamed class for all lessons, usually with the same teacher. When students are allocated to separate achievement based classes for individual subject areas such as English or mathematics, the terms "regrouping" or "setting" (in the United Kingdom) are used. "Tracking" is a term often used in the United States and can represent either a streamed or regrouped situation. These are all versions of "between-class" achievement grouping. When teachers form small groups of students with similar needs to work together, this is "within class" achievement grouping. The focus of this paper is between-class achievement grouping, which will

be referred to as “regrouping” in relation to the current study. Regrouping or setting has been seen by some as an acceptable alternative to streamed classes, particularly in the UK where the practice has been encouraged by departmental reports (Hallam et al., 2004a; William & Bartholomew, 2004). This has corresponded with an increase in focus on academic performance in that country (Hallam, Ireson, Lister, Andon Chaudhury & Davies, 2003; Hallam, et al., 2004a, 2004b; McNess, Broadfoot & Osborne, 2003; Troman, 2008) which is similar to that being seen in Australia with the emergence of the National Assessment Program.

The study undertaken by Jackson (1964) involved 660 primary schools in England. He determined that streaming produced limited advantages for very limited groups of students whilst simultaneously hindering the academic and social advancement of the vast majority. Other specific problems demonstrated were inaccurate allocation of students to groups, inequitable allocation of teachers to classes (with inexperienced teachers often placed with low achievement classes) lack of movement between streams, the tendency of teachers to underestimate the potential of students in the lower groups, and the fact that students could have different achievement levels in different subject areas. Negative effects were found to be greatest for students from disadvantaged backgrounds, with the system reflecting and reinforcing a class hierarchy.

After the publication of Jackson’s (1964) and other similar research, streaming was largely abandoned in the UK and elsewhere. Other forms of achievement grouping evolved, with the perception that the inequities provided by streaming had been overcome. More recent research has demonstrated disconcerting similarities between streaming and some contemporary grouping strategies such as setting or regrouping (William & Bartholomew, 2004; Hallam & Ireson, 2006, 2007; MacIntyre & Ireson, 2002) with similar problems being identified, predominantly in relation to equity for students.

Accurate allocation of students to achievement-based classes remains an issue. Schools may use results from standardised testing, school or class specific assessment, anecdotal records from teachers, or any combination of these in making their decisions (Davies, Hallam & Ireson, 2003) but no such process is flawless. Troman (1988) described the selection process in one school as “desultory, premature, covert, hasty, inequitable and, for the majority of pupils, final” (p. 420). More recently, literature reviews (such as Sukhnandan & Lee, 1998 cited in Davies,

et al., 2003, p. 46) have found that objective measures were still lacking in the grouping processes of some schools, and an Ofsted report in the UK (1998, cited in Davies, et al., 2003, p. 46) stated that few schools adequately documented student allocation criteria for setted classes. Setted classes have been found to contain students with overlapping standardised test scores even between the high and low groups (Ireson, Clark & Hallam, 2002), with students allocated to groups almost arbitrarily according to teacher perceptions (MacIntyre & Ireson, 2000 cited in Davies, et al., 2003, p. 47). Gamoran (1984 cited in Gamoran, 1986, p. 195) found that a student's previous group level influenced subsequent placement decisions, and this may happen regardless of the student's attainment. Behavioural and motivational issues have also been found to cause group placement to be manipulated on the basis of gender (Charlton, et al., 2007). Parents who expect their children to be placed in the top group are generally the ones to support this strategy (Charlton, et al., 2007; Duru-Bellat & Mingat, 1998; Wiliam & Bartholomew, 2004) and if not satisfied, may exert pressure on a school to change their child's group Davies et al. (2003).

Jackson (1964) found that students from disadvantaged backgrounds were over-represented in low streams, and this problem has remained in relation to achievement grouping, whether it be organised between or within-class (Haskins, Walden & Ramey, 1983; Wiliam & Bartholomew, 2004). Students from non-English speaking backgrounds have also been found to be over-represented in low-achieving groups (Davies, et al., 2003). Also disproportionately represented in low streams in Jackson's (1964) study were children who were younger on entering school. An issue arising from this is that, given the lack of movement noted by Jackson between streams during enrolment at a particular school, and the difference in curriculum covered by the different streams, a young or disadvantaged child could be labelled as a "C level" student for their entire school life. Recent studies also show that, despite schools' acknowledgement that movement between groups should be fluid and merit-based, little of this actually occurs (MacIntyre & Ireson, 2002; Hallam & Ireson, 2006; Hallam & Ireson, 2007). Ireson, Clark and Hallam (2002) found that movement between groups was mostly infrequent due to constraints relating to group size and curriculum considerations. The demands of monitoring the groups sufficiently (Davies, et al., 2003) was also an issue, as well as the fact that groups did not follow the same curriculum, so that students moving up a group may have missed important content (Sorinsen & Hallinan, 1986). Schools are likewise reluctant to

move a student to a lower group due to concerns about student self-concept (Liu, Wang & Parkins, 2005).

Academic outcomes, often cited as the reason for implementing achievement grouping, also present evidence of inequity. The best-evidence synthesis of numerous studies by Slavin (1987) determined that there was no overall academic benefit for students in the practice. What he did find was that a gain in academic achievement by higher achieving students was offset by losses for low achieving students. Such results have been reflected in numerous other studies including those by Wiliam and Bartholomew (2004) in the UK, Opendakker and Van Damme (2001) in Belgium and Linchevski and Kutscher (1998) in Israel. Suggested reasons for these effects have included teacher expectations (Slavin, 1996; Wiliam & Bartholomew, 2004), different teaching practices and a more restricted curriculum for low groups (Boaler, et al., 2000; Wiliam & Bartholomew, 2004). Such research led one academic to suggest that setting lacked efficiency and impartiality, and that countries which used the most setting had the lowest levels of attainment (Burstein, 1993). Boaler et al. (2000) went further, stating that “between-class ability-grouping .... could be the single most important cause of the low levels of achievement in mathematics in the UK” (p. 646).

Specific teaching practices including high order thinking, differentiation and knowledge integration have been found to be restricted by achievement grouping. In most cases, but not always, it is the students in low-achievement classes who are disadvantaged by such restrictions. For example, the lack of differentiation employed by teachers in such classes may be equally harmful for students placed in high achievement groups. Through analysis of 150 lesson observations in six secondary schools, Wiliam and Bartholomew (2004) described teachers of setted classes as treating the entire class as being of exactly the same level, so that no attempt at individualization or differentiation was made, although most teachers in Hallam and Ireson’s (2005) research did not believe that setting led to teachers ignoring the range of achievement levels in set classes.

High Order Thinking (HOT) is an indicator of intellectual quality which has been shown to be beneficial for all students but especially for students with low prior achievement (Newmann, Bryk & Nagoaka, 2001). The Quality Teaching initiative (NSW DET, 2003), founded on well established research including the Queensland School Reform Longitudinal Study (QSRLS, 2001) and the aforementioned research by Newmann et al. (2001) and designed to improve teaching, advocates the use of

HOT in to improve student academic achievement. A study of secondary teachers found a strong link between the achievement level of tracked (streamed or setted) classes and the emphasis on high order instructional objectives (Raudenbush, Rowan & Cheong, 1993). These results were determined in the teaching of mathematics, science, social studies and English, and were strongest for mathematics and science. Low-achieving students are generally given tasks which focus on basic skills and repetition, with little emphasis on independent thought (Page, 1992 cited in Ansalone & Biafora, 2004, p. 254). Interviews with 40 Israeli junior high and high school teachers showed that almost half the teachers of low achievement classes felt that higher order thinking (HOT) tasks were inappropriate for their students, whilst under a third of teachers from heterogeneous classes claimed to direct HOT questions to higher achieving students (Zohar, Degani & Vaaknin, 2001) .

Curricular integration is seen as desirable because it more closely resembles the broader experiences of life in which areas overlap rather than being neatly compartmentalized as occurs in a separate-subject approach to education (Beane, 1995). Studies have found integrated teaching programs to be more relevant for students (McBride & Silverman, 1991; Venville, Wallace, Rennie & Malone, 2002) as well as being more efficient in an increasingly crowded curriculum. The increased emphasis on achievement on a national scale in the UK saw a reduction in integrated teaching programs in the 1990s (Hallam et al., 2004a). This may be attributed to the increase in setting which followed, as documented earlier (Whitburn, 2001; Hallam, et al., 2004a; Wiliam & Bartholomew, 2004). Opposition to curriculum integration in UK primary schools also came from a Department of Education and Science report (Alexander, Rose & Woodhead, 1992 cited in Lee & Croll, 1995, p. 155), which suggested that specialist teaching would be of more value. Lee and Croll (1995) found that few schools integrated all KLAS, with mathematics the area least often integrated, English taught separately in the majority of schools, and KLAS relating to humanities and science integrated to some extent in over half the schools surveyed. Should Primary students be regrouped for different subjects, an integrated program is very difficult (but not impossible) to organise, due to a teacher being in charge of up to three different groups of children each day.

Opportunities for student social interactions are also affected by achievement grouping, and this impacts on the development of social skills and relationships

(Hallinan & Sorensen, 1985). Peer relationships have also been found to correlate with academic achievement through motivation and engagement (Furrer & Skinner, Wentzel & Caldwell, 1997). The stability of group membership contributes to these effects, with social ties promoted through similarity and enforced proximity (Hallinan & Sorensen, 1985) and this can lead to overrepresentation of students with certain characteristics (racial or socioeconomic) in particular groups. The reduction in class size that often accompanies low achievement classes may affect peer relations, as it has been suggested that these may not be as positive in smaller classes. Students in smaller classes may become over-reliant on the teacher, with pupil-pupil relations suffering as a result (Blatchford, Edmonds & Martin, 2003). Likewise, students in these smaller groups have a smaller cohort from which to draw on for friendships.

## Regrouping Study Method

The research method in this study was designed to investigate any differences arising from the use of the regrouping strategy in primary school contexts. Accordingly, two groups of primary schools (four in each group) from an urban area of NSW were included in the study for comparative purposes. One group of schools regrouped students (at least in Years 3-6) by achievement for literacy and numeracy sessions, and will be referred to as the “regrouping schools”. The other group maintained mixed achievement classes for all subject areas and will be referred to as “non-regrouping schools”.

Schools from similar socioeconomic areas were selected for inclusion in order to reduce variables; as initial schools agreeing to participate in the study served areas with low socioeconomic status, similar schools were selected to complete the sample. Data about socioeconomic status of individual students was not available. Interviews about the regrouping strategy and its effects on teachers, students and teaching practices were conducted with eight principals and eight teachers. Classroom observations were completed in order to confirm information provided by teachers about their practices. Quantitative data from Stage 3 (Years 5 and 6) students were also collected, in the form of Basic Skills Test (BST) growth results and Quality of School Life survey responses. Stage 3 students were selected because their BST growth data would be available and they were deemed old enough to complete the QSL survey by its designers (Ainley & Bourke, 1992).

The two school groups used different strategies to determine the allocation of students to classes. Both school groups gathered assessment data from various school tasks as well as teacher observation. After this point, methods differed. Non-regrouping schools formed classes of heterogeneous achievement (parallel classes), separating disruptive students. These classes stayed together, with the same teacher, for all lessons other than those presented in relief from face-to-face sessions. Regrouping schools formed their home classes in a similar way to non-regrouping schools. Students were in home classes for administrative tasks and for lessons other than literacy and numeracy, such as science, social studies, health and art. For literacy and numeracy lessons, the students were allocated to a high, middle or low achieving class, as determined by student performance on a number of assessment tasks. In this way a student may be working with three different cohorts (including teachers) throughout the school day – one for literacy, a second for numeracy and a third for other subject areas covered in the home class. Regrouping was often not implemented in schools until Stage 2 (Years 3 and 4). Exceptions were occasionally made in the placement of disruptive students who may be placed in a higher group than their performance warranted in an effort to reduce behavioural problems.

All regrouping schools manipulated numbers of students so that low achieving classes were smaller in size than middle and high classes. For three of these schools, this was achieved by utilising additional staff to create three regrouped classes from two home classes, using funding the schools received due to their status as disadvantaged schools. The fourth regrouping school, which did not receive the same funding, made the high and middle level groups larger in order to reduce the size of the low achieving classes.

This paper examines equity issues arising from analysis from all data. BST growth data provided information about students' academic development in literacy and numeracy from years 3 to 5. QSL data provided affective information: student attitudes to aspects of their school life related to scales of "general satisfaction, negative affect, teacher-student relations, social integration, opportunity, achievement, and adventure" (Ainley & Bourke, 1992, p107). Principal interviews provided information relating to the history and processes of the schools' organisation of classes, as well as principals' perceptions of the resultant outcomes. Teacher interviews centred on their views of the school class organisation practice (regrouping or mixed-achievement), perceived advantages/disadvantages of the

arrangement and classroom practices. Classroom observations were used (in those classes where teachers gave permission) to confirm that teacher-reported practices reflected actual practices and to provide an opportunity to ascertain other factors which may affect results in the study.

## Results from Regrouping

### Academic Outcomes

Academic benefits for students were claimed to result from regrouping by all regrouping principals in the interviews. Three of the four claimed that student academic needs were better catered for by regrouping, through either extension or individual learning plans, although this claim was not supported by either teacher interviews or classroom observations. Academic achievement was compared among the different achievement-level groups – that is, low middle or high groups in regrouping schools, and mixed groups in non-regrouping schools. In order to do this, student group placement information was collated. This showed that the majority of students from regrouping schools were effectively in a streamed situation. Of the 78 students from regrouping schools who were surveyed, the majority (56 students or approximately 70 per cent) were in the same achievement group level for English and for mathematics instruction. Seven students were in a higher group for English than mathematics, and eight in a higher group for mathematics. In only one identified case was a student placed in achievement groups which were more than a level apart (that is, the student was in a low group for English and a high group for mathematics). Seven students had incomplete data in this area, meaning that the percentage of students in the same group level for both literacy and mathematics could be greater than 70 per cent. It is important to recognise this, as these students are effectively in a streamed class for most of the school day, which has implications for cognitive and affective results. In particular, additional effects on social relationships may occur for students in low groups for both literacy and mathematics due to the reduction in the number of students with whom they can interact in these classes.

No support was found in the quantitative data for regrouping principal/teacher stated beliefs that regrouping benefited student academic achievement,

regardless of the group level. Analysis of variance (incorporating Scheffe's *post hoc* test) applied to BST growth data showed no significant difference in results for either mathematics group level or literacy group level for the regrouped and non-regrouped classes. Non-regrouped students are represented as the "mixed" level. Although not significantly different, low-achieving mathematics students produced a lower mean growth in mathematics achievement than did other groups. Likewise, the mean growth for low-achieving literacy students was lower for literacy than other groups. Further research regarding low achievement groups would be worthwhile, as they are only represented here in small numbers. The results generated by this analysis are shown in Tables 1 and 2.

Table 1 Students' growth in academic achievement (BST) by mathematics group level

	Group level	N	Mean	Std Dev	F	Sig.
Literacy growth	Low	6	7.67	4.07	.78	.538
	Middle	15	6.29	2.59		
	High	24	7.76	3.61		
	Mixed	68	6.50	4.49		
Mathematics growth	Low	6	3.35	5.51	1.39	.248
	Middle	16	7.13	4.15		
	High	24	8.40	6.57		
	Mixed	69	7.44	5.25		
Writing growth	Low	3	6.40	2.04	.07	.976
	Middle	12	5.60	3.20		
	High	8	6.20	5.34		
	Mixed	47	5.37	6.35		

Table 2 Students' growth in academic achievement (BST) by literacy group level

	Group level	N	Mean	Std dev.	F	Sig.
Literacy growth	Low	5	4.86	1.68	.94	.424
	Middle	15	7.71	2.99		
	High	25	7.47	3.70		
	Mixed	67	6.53	4.52		
Mathematics growth	Low	5	7.58	4.30	.06	.981
	Middle	16	6.87	3.97		
	High	25	7.52	7.11		
	Mixed	68	7.49	5.28		
Writing	Low	3	5.60	1.22	.14	.935

growth	Middle	9	5.22	2.82		
	High	11	6.57	4.97		
	Mixed	46	5.36	6.42		

### Student Attitudes Towards School

Non-academic benefits for students arising from the school's organisational structure were claimed by all schools in the study. All regrouping principals claimed benefits of their grouping structure for students which were unrelated to academic achievement. Not surprisingly, all non-regrouping principals claimed non-academic benefits for students in mixed ability classes. Most of these claimed benefits from both school groups related to classroom climate.

Three regrouping principals suggested that having a range of teachers working with children was beneficial, with two stating that students presenting behaviour problems were able to be split between teachers during the day. This idea was supported by one non-regrouping principal and three non-regrouping teachers, who suggested that one disadvantage of mixed ability classes was the possibility of teacher/student clash without respite. By contrast, all non-regrouping principals and five non-regrouping teachers claimed that better rapport between students, parents and teachers was facilitated by mixed ability classes. When regrouping teachers were asked about teacher/student relationships in regrouped classes, two claimed that there was a benefit from getting to know more students across the Stage. However, four regrouping teachers indicated that relationships with students suffered under the regrouping system. They claimed it took them longer to get to know their students as they did not see them all for all KLAs.

Mixing with a larger number of peers was stated as being positive for students by two regrouping principals, and two non-regrouping teachers suggested that mixed ability classes limited student interaction. Three regrouping principals stated that the regrouping practice could be unsettling for some students, whilst all non-regrouping principals mentioned stability as a benefit of mixed achievement classes. Two of these particularly stated that regrouping would not suit their clientele for that reason.

Self-esteem of low-achieving students was raised as a concern by two regrouping principals and two regrouping teachers, but one regrouping teacher suggested that students gained confidence by working at the right level. One non-regrouping

teacher suggested that mixed achievement classes avoided labelling of low achievers, but another suggested that students were able to make this distinction regardless, through within-class grouping. Opportunities for students were raised as another issue. One non-regrouping teacher stated that in mixed achievement classes all students were exposed to the same opportunities. One regrouping teacher said that low achievement groups may not cover all Stage 3 work, but felt that this would probably occur in mixed achievement groups also.

Results regarding student attitudes towards school demonstrated differences on two of the seven Quality of School Life (QSL) scales. QSL results were analysed using independent *t*-tests (with Levene's test for equality of variances). Statistically significant differences were found between the regrouped and non-regrouped students for the scales of "Teacher" and "Negative Affect" as shown in Table 3. In relation to the "Teacher" scale, the results showed that student satisfaction with their relationship with the class teacher was significantly higher in regrouping schools. It is important to note that students in regrouping schools typically have a number of teachers, whilst non-regrouping students have only one. The "Negative Affect" scale results show that a general sense of negativity with life at school was lower in regrouping schools. As is common convention, individual scales are presented first, followed by general scales.

Table 3 Student attitudes towards school by grouping structure

	Structure	N	Mean	Std dev.	Sig. (2-tailed)
Teacher	Regrouping	50	3.53	.514	.015
	Non-regrouping	78	3.27	.688	
Opportunity	Regrouping	51	3.67	.327	.106
	Non-regrouping	78	3.55	.476	
Achievement	Regrouping	51	3.55	.405	.114
	Non-regrouping	78	3.40	.576	
Social integration	Regrouping	50	3.34	.489	.345
	Non-regrouping	78	3.25	.611	
Adventure	Regrouping	51	2.92	.677	.254

	Non-regrouping	78	2.77	.697	
General satisfaction	Regrouping	50	3.36	.558	.351
	Non-regrouping	78	3.26	.603	
Negative affect	Regrouping	50	1.38	.390	.002
	Non-regrouping	78	1.69	.698	

*Group Level.* Student attitudes towards school were compared to see whether achievement level was a contributing factor. That is, results were compared among students in low, middle, high or mixed groups for each of literacy and numeracy. No significant differences between groups were found, but non-significant differences were shown in lower mean scores for students in low groups. Analysis of variance (incorporating Scheffe's *post hoc* test) performed using the QSL scores, with group levels in mathematics and literacy as variables, produced the results shown in Tables 4.13 and 4.14. The analysis shows that, whilst there is a significant difference between groups overall for the negative affect scale only (non-regrouped classes had a higher sense of negativity), no two groups were significantly different. The small size of some groups will have impacted on this result. Approaching significance are the differences on the teacher (sig. = .077) and social integration (sig. = .078) scales. Mixed and low achievement groups had lower scores on the teacher scale. Low-achieving mathematics students demonstrated had lower satisfaction scores than those in middle or high groups on every scale except for opportunity, and also rated social integration lower than any other groups, but these differences were not statistically significant. The only scale on which students in low achievement groups for both literacy and numeracy demonstrated higher satisfaction than any other groups was related to the level of opportunity they perceived, but again such differences were not significant.

### Teacher Attitudes and Practices

Teachers in regrouping classes tended to see their students as being of the same level, or close to it, and this perception affected teaching practices. Regrouping teachers tended not to differentiate resources or tasks to suit differences in student achievement levels, even in cases where students were allocated to a group for behavioural reasons, and were known to have lower achievement than the group

they were in. Differentiation was also not common in non-regrouping schools. Regrouping prevented most teachers in these schools from integrating KLAs, and those few who did try found it problematic to do so. However, it was also found that few non-regrouping classes integrated KLAs to any substantial degree. Higher order thinking tasks were identified as lacking in some low achievement regrouped classes.

Principals and teachers were generally satisfied with the organisational structure in which they worked, with the exception of one regrouping teacher who felt that other pedagogical practices may better meet student needs. Regrouping was found to make teaching easier.

### Achievement grouping and equity in today's classroom

The current study, whilst showing no definitive detrimental effects for regrouping in terms of either academic outcomes using the BST growth results as a measure, or student attitudes towards school as measured by the QSL instrument likewise found little evidence in its support. It does raise a number of issues related to equity that indicate at the very least a need for further consideration of and research into this area, and at most suggest that the practice should be stopped pending evidence in its support.

. The use of regrouped or setted classes has been shown to have many problems (prevalent but not inherent) identical to those identified in streaming (Boaler, et al., 2000). Inaccurate and inappropriate allocation of students to groups, lack of flexibility, differentiated learning opportunities and expectations are of no less concern now than they were at the time of Jackson's study, so schools with a serious intention to improve student achievement through regrouping must address these issues. Whilst such problems may be difficult to avoid, they are surely not impossible to overcome, and schools choosing to follow the practice must endeavour to find solutions.

It would seem preferable that educational systems endeavour to find ways to meet the needs of students and teachers which do not involve achievement grouping. The most pronounced differences between regrouping and non-regrouping schools were in the attitudes of teachers. Preservice and inservice teacher education which supports teachers in developing positive classroom relationships and high quality learning experiences which promote success for all students is essential. Recent

promotion of the Quality Teaching model in NSW is an example of this, but may not impact at the level of hierarchy in schools which can adequately influence change.

## References

- Ainley, J. & Bourke, S. (1992). Student views of primary schooling. *Research Papers in Education – policy and practice*, 7, pp. 107-128.
- Ansalone, G. (2002). The impact of tracking on attrition. *The Community College Enterprise*, 8(2), pp. 83-93.
- Barker Lunn, J. C. (1970). *Streaming in the primary school: a longitudinal study of children in streamed and non-streamed junior schools*, Slough: National Foundation for Educational Research.
- Beane, J. A. (1995). Curriculum integration and the disciplines of knowledge. *Phi Delta Kappan* (April), pp. 616-622.
- Blatchford, P., Edmonds, S. & Martin, C. (2003). Class size, pupil attentiveness and peer relations. *British Journal of Educational Psychology*, 73(2), pp. 15-36.
- Boaler, J., Wiliam, D. & Brown, M. (2000). Students' Experiences of Ability Grouping – disaffection, polarisation and the construction of failure. *British Educational Research Journal*, 26(5), pp. 631-648.
- Burns, R.B. & Mason, D. A. (1995). Organisational constraints on the formation of elementary school classes. *American Journal of Education*, 103, pp. 185-212.
- Burns, R. B. & Mason, D. A. (1998). Class formation and composition in elementary schools. *American Educational Research Journal*, 35 (4), pp. 739-772.
- Charlton, E., Mills, M., Martino, W. & Beckett, L. (2007). Sacrificial girls: a case study of the impact of streaming and setting on gender reform. *British Educational Research Journal*, 33(4), pp. 459-478.
- Davies, J., Hallam, S. & Ireson, J. (2003). Ability groupings in the primary school: issues arising from practice. *Research Papers in Education*, 18(1), pp. 45-60.
- Dreeben, R. & Barr, R. (1988). Classroom Composition and the Design of Instruction. *Sociology of Education*, 61(3), pp. 129-142.
- Duru-Bellat, M. & Mingat, A. (1998). Importance of Ability Grouping in French "Colleges" and its Impact upon Pupils' Academic Achievement. *Educational Research and Evaluation*, 4(4), pp. 348-368.
- Furrer, C. & Skinner, E. (2003). Sense of Relatedness as a factor in Children's Academic Engagement and Performance. *Journal of Educational Psychology*, 95(1), pp. 148-162.
- Gamoran, A. (1986). Instructional and Institutional Effects of Ability Grouping. *Sociology of Education*, 59(4), pp. 185-198.
- Greenwald, R., Hedges, L. V. & Laine, R. D. (1996). The effect of school resources on student achievement. *Review of Educational Research*, 66 (3), pp. 361-396.
- Hallam, S. & Ireson, J. (2006). Secondary school pupils' preferences for different types of structured grouping practices. *British Educational Research Journal*, 32 (4), pp. 583-599.
- Hallam, S. & Ireson, J. (2005). Secondary school teachers' pedagogic practices when teaching mixed and structured ability classes. *Research Papers in Education*, 20(1), pp. 3-24.
- Hallam, S. & Ireson, J. (2007). Secondary school pupils' satisfaction with their ability grouping placements. *British Educational Research Journal*, 33 (1), pp. 27-45.
- Hallam, S., Ireson, J. & Davies, J. (2004a). Grouping practices in the primary school: what influences change? *British Educational Research Journal*, 30 (1), pp. 117-140.
- Hallam, S., Ireson, J. & Davies, J. (2004b). Primary Pupils' experiences of different types of grouping in school. *British Educational Research Journal*, 30 (4), pp. 515-533.
- Hallam, S., Ireson, J., Lister, V., Andon Chaudhury, I. & Davies, J. (2003). Ability Grouping Practices in the Primary School: a survey. *Educational Studies*, 29(1), pp. 69-83.

- Haskins, R., Walden, T. & Ramey, C. T. (1983). Teacher and Student Behaviour in High- and Low-Ability Groups. *Journal of Educational Psychology*, 75(6), pp. 865-876.
- Ireson, J., Clark, H. & Hallam, S. (2002). Constructing Ability Groups in the Secondary School: issues in practice. *School Leadership & Management*, 22(2), pp. 163-176.
- Ireson, J. & Hallam, S. (2005). Pupils' liking for school: Ability grouping, self-concept and perceptions of teaching. *British Journal of Educational Psychology*, 75(2), pp. 297-311.
- Lee, J. & Croll, P. (1995). Streaming and subject specialism at Key Stage 2: A survey in two local authorities. *Educational Studies*, 21(2), pp. 155-165.
- Jackson, B. (1964). *Streaming. An Education System in Miniature*. London: Routledge & Kegan Paul Ltd.
- Kulik, J. A. & Kulik, C.-L. C. (1982). Effects of Ability Grouping on Secondary School Students: A Meta-analysis of Evaluation Findings. *American Educational Research Journal*, 19(3), pp. 415-428.
- Kulik, J. A. & Kulik, C.-L. C. (1987). Effects of ability grouping on student achievement. *Equity and Excellence*, 23(1-2), pp. 22-30.
- Linchevski, L. & Kutscher, B. (1998). Tell Me with Whom You're Learning, and I'll Tell You How Much You've Learned. *Journal for Research in Mathematics Education*, 29(5), pp. 533-554.
- Liu, W. C., Wang, C. K. J. & Parkins, E. J. (2005). A longitudinal study of students' academic self-concept in a streamed setting: The Singapore context. *British Journal of Educational Psychology*, 75(4), pp. 567-586.
- MacIntyre, H. & Ireson, J. (2002). Within-class Ability Grouping: placement of pupils in groups and self-concept. *British Educational Research Journal*, 28(2), pp. 249-263.
- McBride, J. & Silverman, F. (1991). Integrating elementary/middle school science and mathematics. *School Science and Mathematics*, 91(7), pp. 285-292.
- Newmann, F. M., Bryk, A. S. & Nagaoka, J. (2001). *Authentic intellectual work and standardized tests: Conflict or coexistence*. Chicago: Consortium on Chicago School Research.
- NSW Department of Education & Training (2003). *Quality teaching in NSW public schools. Discussion Paper*. Ryde: NSW Department of Education and Training Professional Support and Curriculum Directorate.
- Opendakker, M. & Van Damme, J. (2001). Relationship between School Composition and Characteristics of School Process and Their Effect on Mathematics Achievement. *British Educational Research Journal*, 27(4), pp. 407-432.
- Raudenbush, S. W., Rowan, B. & Cheong, Y. F. (1993). Higher Order Instructional Goals in Secondary Schools: Class, Teacher and School Influence. *American Educational Research Journal*, 30(3), pp. 523-553.
- Slavin, R. E. (1987). Ability grouping and student achievement in elementary schools: A best-evidence synthesis. *Review of Educational Research*, 57, (3), pp. 293-336.
- Sorensen, A. B. & Hallinan, M. T. (1986). Effects of Ability Grouping on Growth in Academic Achievement. *American Educational Research Journal*, 23(4), pp. 519-542.
- Troman, G. (1988). Getting It Right: Selection and Setting in a 9-13 Years Middle School. *British Journal of Sociology of Education*, 9(4), pp. 403-422.
- Venville, G. J., Wallace, J., Rennie, L. J. & Malone, J. A. (2002). Curriculum integration: Eroding the high ground of science as a school subject? *Studies in Science Education*, 37, pp. 43-84.
- Whitburn, J. (2001). Effective Classroom Organisation in Primary Schools: mathematics. *Oxford Review of Education*, 27(3), pp. 411-428.
- William, D. & Bartholomew, H. (2004.) It's not which school but which set you're in that matters: the influence of ability grouping practices on student progress in mathematics. *British Educational Research Journal*, 30 (2), pp. 279-293.
- Zohar, A., Degani, A. & Vaaknin, E. (2001). Teachers' beliefs about low-achieving students and higher order thinking. *Teaching and Teacher Education*, 17(4), pp. 469-485.