Improving the Effectiveness of Pupil Groupwork: Effects on Pupil-Pupil Interactions, Teacher-Pupil Interactions and Classroom Engagement

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Introduction
Experimental research has demonstrated positive effects on pupil achievement and social climate within classrooms (O'Donnell & King, 1999; Slavin et al., 2000; Webb & Palincsar, 1996). More recent research has extended understanding of specific aspects of working in groups, for example, giving and seeking help (Webb & Farivar, 1994), decision making processes (Howe et al, 2000), and the role of exploratory talk (Mercer, 2000). However, studies are limited by a tendency to concentrate on the effects of a highly structured co-operative framework, experimentally restructure classes into grouped (or non-grouped) situations, and provide a specific mandatory training program for teachers. Such studies are valuable but limited as interventions are typically short term and do not provide teachers with the basis for integrating group-work into everyday classroom activities, where multiple groups and learning tasks are commonly undertaken simultaneously, across the curriculum and the school year.

This gap between much research and everyday classroom experience is important because descriptive research on the use of groups in everyday classrooms has consistently shown that groups are rarely formed on the basis of a strategic educational view of their purpose. The majority of pupils and teachers have little preparation for group-work and have doubts about and difficulties implementing, group-work in classrooms (Baines, Blatchford & Kutnick, 2003; Galton & Williamson, 1992; Webb & Palincsar, 1996).

The main impetus for the SPRinG (Social Pedagogic Research into Group-work) project was to address the wide gap between the potential of group-work to influence learning and working relationships, on the one hand, and the limited use of group-work in schools, on the other. It was driven by the concerns of teachers and pupils, that they were not able to get as much out of group-work as they would like. To overcome this gap we felt a new approach to conceptualizing group-work in classrooms was needed in order to integrate group-work into the fabric of the school day.

We therefore embarked on an ambitious longitudinal project which developed with teachers a program of group-work that could be successfully integrated into school life. The SPRinG program is distinctive in terms of: 1. an inclusive view of classroom groups that recognized the contributions of previous research but sought to put them together in a more general application; 2. its three key principles: a relational approach, the role of teachers, and creating the classroom context ; 3. its developmental basis; 4. the integration of group-work into all class and curricular activities; and 5. an intervention over a longer time frame than many studies, extending over a full school year.

Group-work, teacher-pupil interactions and classroom engagement
Research on groups has tended to concentrate on effects of programs on academic outcomes and cognitive processes likely to account for any cognitive advances resulting from group-work (see O'Donnell & King, 1999). But there is also a need to better understand the interpersonal behaviors that

underpin and affect the impact of group-work (Webb & Palincsar, 1996). Indeed, the nature and quality of pupil-pupil interactions, including the use of high level discussion, and the active involvement of all in the group, are important educational goals and important for encouraging engagement in classroom and school life.

Our background framework built on several key theoretical and research areas, including social psychological and developmental psychology research. The SPRinG approach was designed to raise levels of conceptual understanding and strong effects have been found on academic progress in science, in comparison to alternative pedagogies (Blatchford, Galton, Kutnick & Baines, 2005). But it was also designed to increase effective behavior in groups including: peer discussion involving high level, task related and sustained talk. It also encouraged teachers to shift from direct teaching toward monitoring and scaffolding pupils in groups. This paper describes the SPRinG approach and effects on group-work, teacher-pupil interaction and classroom engagement.

The SPRinG program
The first part of the project was a year long intensive collaboration between the research team and groups of teachers. The resulting SPRinG program was built around three key principles:

1. *A relational approach*, where group-work skills have to be developed: we cannot just put children into groups and expect them to work well together. It is well known that pupils need to have the skills to communicate effectively through listening, explaining and sharing ideas. But pupils also have to learn to trust and respect each other, and they need skills in how to plan, organize and evaluate their group-work. A key aim is the development of pupil independence, and the need to address difficulties between pupils that can inhibit classroom learning.

2. *The role of teachers in group-work.* A major part of the program was the development of strategies with teachers likely to lead to high quality group-work. These strategies need to allow teachers the freedom to adapt grouping practices for different purposes. Adults are encouraged to scaffold, support and guide groups and monitor their progress in ways that encourage independence rather than directly teaching pupils.

3. *Creating the classroom context for group-work.* Our approach rests on the view that successful group-work comes through careful consideration of classroom organization and management. This includes: classroom seating arrangements; characteristics of groups (size, number, composition and stability over time); and group-work activities, lessons involving group-work, and the curriculum. The teacher has a key role in organizing these in a strategic way in service of effective group-work for learning purposes.

These principles and recommended practices and activities for developing pupils' group-work skills were set out in a 'Handbook' for teachers. These have been widely appreciated, and demand for them in the UK and overseas is growing.

Research approach
This study examined whether pupils and teachers in classrooms where the SPRinG group-work program took place changed their behavior in predicted ways, in comparison with a control group involved in a parallel project but not involved in SPRinG training. The study involved teachers of children of 8-10 years. There were 24 classes and 560 pupils, and 40 classes and 1027 pupils, in the SPRinG and control samples respectively.

Pupil and teacher behavior were systematically described using two forms of observation study: 1. on the spot (OTS) naturalistic observations of pupil behavior across a normal school day and over the school year, based on previous schedules (Blatchford, 2003, Galton et al., 1980) and involving a

predominant category, 20 second time sampling technique; and 2. a detailed analysis of involvement and dialogue in group-work from videotapes of researcher-designed group-work activities undertaken under normal classroom conditions. The OTS analysis, involving 11 mutually exclusive category sets, provided a quantitative template of classroom behavior in SPRinG and control classes, and tested whether involvement in group-work transfers to 'normal' classroom activities. There were 12961 OTS observations in total and an average of 41 per pupil. Video observations were made of 60 groups interacting over the course of 20 minutes and behavior was coded every 20 seconds. Video analysis allowed a more fine-grained description of group-work and talk and tested whether SPRinG and control pupils differed in predicted ways. Inter-observer reliability for both observation systems was good.

A feature of the analysis was that it recognized the hierarchical structure of the data. Observations from pupils within a class will be more similar than observations from pupils in different classes. Similarly, observations of the same pupil are more likely to be similar than observations from different pupils. This means that the observations cannot be regarded as independent of each, and so multilevel logistic regression (Goldstein, 1995) are required to allow for the non-independence of the data and prevent exaggerated probability estimates (Paterson & Goldstein, 1991).

Results and discussion
Note: all results reported here are statistically significant (<0.05)

Learning contexts
Involvement in SPRinG increased the amount of group-work but reduced the amount of time pupils spend working on individual activities. Much more of the SPRinG pupils' interaction with each other was classified as real group-work.

Group interaction
Results on pupil-pupil interactions showed clear results favoring SPRinG involvement. In line with predictions, group interactions were more task related in SPRinG classrooms, amounting to three quarters of all interactions between pupils. Control pupils spent twice as much time in off task interactions.

SPRinG pupils were more likely to fully participate in group-work, while some members in control groups were uninvolved and actively off task. These result are educationally very important. A main concern of teachers is that some pupils fail to get involved inhibiting good group-work and disrupting the class. However, contrary to expectations there was little difference between SPRinG and control groups in the amount of 'group maintenance' (e.g. facilitating others in the group), though the latter were more likely to 'block' group effort.

Pupil-pupil dialogue
SPRinG pupils in the OTS observations were more likely to engage in sustained interactions and make substantial contributions that were on task compared to control pupils. This again offers support for the view that involvement in SPRinG has helped pupil-pupil dialogue in an educationally beneficial way. SPRinG groups were also more likely to maintain the topic under discussion rather than change it. As Slavin et al (2000) argue, elaborated contributions from students are one component of good quality group-work.

A main prediction that group talk would show more signs of collaborative discussion and explicit verbal reasoning was confirmed by the OTS analysis. The video analysis extended these results by showing that SPRinG groups were more likely to engage in 'inferential high level dialogue' (reasoning that goes beyond the available information). There was little sign of a difference between SPRinG and control

groups in the lower level 'text based talk', (involving reasoning based on the available information). A still lower form of talk, observed more often in control groups, involved simply sharing information with little effort to reason or investigate evidence. Taken together, these results suggest that involvement in SPRinG has encouraged pupils to engage in more higher order, inferential forms of reasoning.

Teacher-pupil interaction
As predicted, SPRinG teachers engaged in more 'monitoring' than control teachers. Conversely, control teachers engaged in more direct teaching, and of individual pupils in particular. Involvement in the project led to changes in the BALANCE of different kinds of teacher-pupil interactions in class, with a movement from direct teaching to monitoring and assessing pupil contributions. These results reflected the situation over a whole school year rather than during a short lived intervention.

Conclusions

This study found a number of ways in which positive interactive processes are facilitated by involvement in the SPRinG project. Significantly, the OTS results indicate that the benefits of group-work are not just specific to structured group-work tasks but transfer to pupil behavior during normal classroom activities. It seems that the relational approach encourages fundamental forms of interpersonal orientation unlikely to be encouraged by 'motivational' approaches identified by Slavin (1990).

We claim that the study has the potential to make a considerable impact on contemporary educational policy and practice. To our knowledge, this is the first study of group-work, in the UK at least, to show, under normal classroom conditions, positive attainment gains in comparison to other forms of classroom pedagogy. Further, despite common views to the contrary, group-work can be successfully developed in everyday school classrooms, and personal relationships within the class can improve, provided pupils are trained in group-work skills. This has important implications for concerns about school discipline where school managerial solutions designed to control rather than eliminate the problem are the main approach. The role of the peer group in the development of anti-school attitudes is well documented; the SPRinG project suggests that the peer group can also have a privileged role in encouraging school engagement.

Our research shows that group-working can be a productive part of classroom activity. However, performance expectations and grouping arrangements that currently characterize many classrooms are likely to inhibit group-work and its behavioral and learning benefits. It seems to us that we need to rethink current pedagogical theories which favor teacher led and individual work. Group-work is underused and needs to be given a much more central role in educational policy.

References

Baines, E., Blatchford, P. & Kutnick, P. (2003). Changes in grouping practices over primary and secondary school, *International Journal of Educational Research*, 39, 9-34.

Blatchford, P. (2003). A systematic observational study of teachers' and pupils' behaviour in large and small classes. Learning and Instruction, 13(6), 569-595.

Blatchford, P., Galton, M., Kutnick, P., & Baines, E. (2005). Improving the Effectiveness of Pupil Groups in Classrooms. Final Report to ESRC (L139 25 1046)

Galton, M.J., Simon, B. & Croll, P. (1980) *Inside the Primary Classroom*. London: Routledge & Kegan Paul.

Galton, M.J. & Williamson, J. (1992) *Goup Work in the Primary Classroom*. London: Routledge.

Goldstein, H. (1995). *Multilevel Statistical Models*. London: Edward Arnold.

Howe, C., Duchak-Tanner, V. & Tolmie, A. (2000). Co-ordinating support for conceptual and procedural learning in science. In R. Joiner, K. Littleton, D. Faulkner & D. Miell (eds.), *Rethinking Collaborative Learning*. London: Free Association Books.

Mercer, N. (2000). *Words and minds: How we use language to think together*. London: Routledge.

O'Donnell, A. M., & King, A. (Eds.) (1999). *Cognitive perspectives on peer learning*. Mahwah, NJ: Lawrence Erlbaum Associates.

Paterson, L., & Goldstein, H. (1991). New statistical methods for analyzing social structures: An introduction to multilevel models. *British Educational Research Journal,* 17(4), 387-393.

Slavin, R. (1990). Achievement Effects of Ability Grouping in Secondary Schools – A Best Evidence Synthesis. *Review of Educational Research*, Vol. 60 (3), 471-499.

Slavin, R., Hurley, E.A.. & Chamberlain, A. (2000). Cooperative learning and achievement: research and theory. (unpublished manuscript)

Webb, N. M., & Farivar, S. (1994). Promoting helping behavior in cooperative small groups in middle school mathematics. *American Educational Research Journal*, 31, 369–395.

Webb, N. M., & Palincsar, A. S. (1996). Group processes in the classroom. In D. C. Berliner, & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 841–873). New York: Macmillan.