

Cite as: Edwards, J-A., & Jones, K. (2001). A co-learning agreement to support classroom research on collaborative peer talk. *Occasional Papers in Science, Technology, Environmental and Mathematics Education* (pp.4-5). Southampton: University of Southampton.

## **A Co-Learning Agreement to Support Classroom Research on Collaborative Peer Talk**

*Julie-Ann Edwards and Keith Jones*

*University of Southampton Centre for Research in Mathematics Education*

### **Collaborative peer talk**

The benefits of small group work in mathematics are recorded in a number of studies. (For an overview, see Davidson and Kroll, 1991). Most of this work has centred on co-operative groups rather than collaborative groups and this distinction is important for the terms of the research study outlined here. Damon (1984) distinguishes the two in the following way:

“In peer collaboration, a pair of relative novices work together to solve challenging learning tasks that neither could do on their own prior to the collaborative engagement ... Unlike cooperative learning, the children at all times work jointly on the same problem rather than individually on separate components of the problem. This creates an engagement rich in mutual discovery, reciprocal feedback, and frequent sharing of ideas. ... Peer collaboration simulates the challenges of discovery learning; but by providing the learner with a partner in discovery it places these challenges in a context of supportive communication and assistance.”

Both Barnes (1975) and Mercer (1995) identify a particular form of talk within small groups which appears to be the main contributor to developing understanding. They use the term ‘exploratory talk’ to identify such talk amongst peers. It is characterised by critical but constructive engagement with each other’s ideas. Challenges are justified and alternatives suggested. Joint agreement in decision-making is the end result.

### **The research**

This research study uses this definition to explore the extent to which ‘exploratory talk’ occurs in collaborative peer groups in secondary mathematics classrooms. Exploratory talk has only been studied in primary classrooms where the contexts are rarely mathematical. The National Numeracy Strategy incorporates small group work as a component of the three-part lesson structure and this is now being utilised as a Strategy for Key Stage 3. There is a minimal research base for such a decision despite recent initiatives to incorporate evidence-based research in educational decision-making.

The research questions for the study include:

Is Mercer’s model for exploratory talk useful in the *secondary* mathematics classroom?

Is it possible to identify exploratory *mathematical* talk?

What features of the classroom encourage exploratory mathematical talk?

Are there any difficulties with applying the model to the mathematics classroom?

The study suggests that ‘exploratory talk’ is evident for significant sections of peer talk in collaborative small groups in secondary mathematics classrooms. The following example is taken from a Year 9 group (13-14 year olds) who are trying to explain why they cannot generate particular numbers in their sequence.

- P** That’s a prime number  
**S** It’s a prime number ... C33 .. no ... 34 ...  
**K** Why not C33?  
**P** It’s odd, no, it’s a multiple of 11, but ...  
**S** We haven’t got 11, so ...  
**K** No, any multiple of a prime number, you cannot find ...because if you haven’t got the base, then you can’t go further than that.  
**S** So C35 is the next one, yeah? I’ve got that, which is ... 530

The researcher in this study is both the classroom teacher and the researcher. A naturalistic study of a classroom implies least disturbance by external influences, so data collection was undertaken by the teacher. This situation raises serious issues about the trustworthiness of data and the reliability and validity of research outcomes. The use of ‘multiple voices’ to triangulate selection of data samples and the subsequent analysis was exemplified in the form of a *co-learning agreement* with an academic colleague. The academic colleague acted as a ‘critical other’ for the teacher researcher at various stages of the research - design, data selection, analysis.

### **A co-learning agreement**

A co-learning agreement challenges more traditional models of educational research. It presupposes an equal contribution to research by each of the participants. This supports recent critiques of educational research by

Tooley (1998) who argues that traditional forms of education research reflect asymmetries of power and knowledge and believes as a consequence that without the active participation of teachers, education research cannot generate findings that are useful to improving schools. Similarly, Delgado-Gaitan (1993) argues from the perspective of a researcher, “to counter our own ignorance and biases as researchers, we must integrate into our research rigorous and systematic joint analysis with our participants.”

Wagner (1997) described the benefits of co-learning agreements for the researcher and the practitioner.

“In co-learning agreements, researchers and practitioners are both participants in processes of education and systems of schooling. Both are engaged in action and reflection. By working together each might learn something more about the world of the other. Of equal importance, however, each may learn something about his or her own world and its connection to institutions of schooling.”

In practice, we found it important that the academic researcher knew the teacher researcher’s classroom well. The time commitment involved for the mutual design of the research and monitoring of data selection and analysis was initially significant but this decreased as a greater trust developed between the co-learning partners. Negotiation in an iterative process formed the basis of the agreement and this has particular expectations of each of the partners.

*The teacher researcher must be prepared to:*

- accept a ‘devil’s advocate’ approach from the co-learning partner
- be confident about asserting a practitioner’s view
- be reflexive about self within the research
- learn new research/interpretative skills

*The academic researcher must be prepared to:*

- challenge aspects of analysis and teacher biases
- be sensitive to and respectful of the experience of the practitioner
- develop new understandings and knowledge of the classroom

Both co-learning partners ascribe specific research benefits to working within an agreement which values equally the contributions brought from different perspectives.

*For the teacher-researcher:*

- confidence maintained about honesty of data selection, analysis and advocacy through ‘multiple voices’ including the ‘critical other’
- being able to engage with research which may not reflect the lived classroom experience
- gaining new research skills and knowledge which provide ‘catalytic validity’

*For the academic researcher:*

- being a partner in developing and working on a research problem which has clear practical, theoretical and policy level aspects
- gaining insider knowledge of classroom approaches through collaborative design of research
- gaining a more insightful understanding of classroom interactions through acting as a ‘critical other’ for analysis

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