The nature of teacher learning: Talk about teaching among video study club participants
Robin Groves
Curtin University of Technology, Perth, Western Australia
John Wallace
Ontario Institute for Studies in Education, The University of Toronto
Paper presented at the annual conference of the Australian Association for Research in Education
27th November 2007, Fremantle, Western Australia
Contact:
Robin Groves
R.Groves@curtin.edu.au
Groves & Wallace (AARE 2007) The nature of teacher learning: Talk about teaching among video club members Page 1

The nature of teacher learning: Talk about teaching among video study club participants

Abstract
This paper reports on a study of the nature of professional learning among a group of twenty experienced secondary school science teachers who participated in a video study group professional development project. The teachers met six times over fifteen months to critically examine video-case recordings of their own teaching, and to explore and share their understandings about accomplished teaching. The data include the classroom video cases, audio recordings of group meetings, audio and written records of each individual’s reflections about the process, and video and audio recordings of interviews with each participant. In our analysis we focus particularly on the nature of teachers’ talk as they examine and critique videos of their own teaching and the teaching of their colleagues. We use this analysis to examine the nature of teachers’ learning and the connection between learning and learning contexts. The paper concludes with a discussion of some theoretical and practical implications for teacher professional development.

Introduction
In this paper we explore how teachers learn more about their teaching. The main focus for the study was a set of professional development interactions among a group of experienced secondary school science teachers participating in the SEATS Project (Sharing Expertise About Teaching Science), regarding the quality of their teaching. The teacher participants met regularly as part of this professional development project and we also interacted with them in their schools. During this project different levels of activity were occurring. The participants were discussing and producing commentaries about science teaching, investigating what is ‘good’ teaching? For this to occur, videotapes were made of participants’ lessons. Video segments were viewed and discussed and commentaries and multimedia cases were prepared and produced. The participants were exploring, learning about, interacting regarding and sharing their understandings of good secondary school science teaching. They were doing this in a way that was research because it helped produce new knowledge and products that could be used with other teachers. These participants changed their own practice, they changed their interactions with other teachers and they took on new leadership roles.

Our own participation in this study was, at a different level, as observers describing the processes and developing understandings about the professional learning occurring. The two main research questions for this study were ‘What are the features of a learning-effective teacher professional development program?’ and ‘What is the nature of teacher learning in a learning-effective teacher professional development program?’

Background
Van Driel et al (2001) establish the case for considering the implementation of educational reforms “as essentially a matter of teacher learning” (p. 140). They discuss professional development in the context of educational reform and argue that many reform efforts have been unsuccessful because they did not take teachers’ existing knowledge, beliefs and attitudes into account.
It is widely agreed that teachers are the most influential factor in educational change (van Driel, Beijaard, & Verloop, 2001). Van Driel et al refer to situations where top-down implementation of teacher development has occurred. The lack of success of an innovative project is often attributed to the failure of teachers to implement the change in the way the developers intended. The assumption behind this approach is that the developers know how the curriculum needs to be changed and the teachers have just to change their teaching practice and classroom behaviours. Van Driel et al describe a different perspective where the developers take account of the teachers, the students and the culture in which the new curriculum is to be embedded. They argue that teachers’ practical knowledge, including teachers’ beliefs, should be analysed and considered as a starting point. As teachers’ practical knowledge is mainly the result of their teaching experience the link between teacher knowledge and teacher practice can be seen to be important.

Acknowledging teachers’ practical knowledge is also a recognition of the complexity of teaching (Doyle, 1990). An underlying claim of the top-down curriculum development approach is that researchers or developers can prescribe what teachers need to know and do in the classroom. Schön (1983) introduced the concepts of ‘the reflective practitioner’ and ‘knowing in action’ in investigating the knowledge that teachers build and use in classrooms. If professional development for teachers is to achieve the lofty ideals required by education reform, reflection-in-action and the teachers’ practical knowledge on which it is based need to be valued and built upon. Some innovators tend to consider teachers’ practical knowledge as essentially conservative and resistant to change (Tom & Valli, 1990). The teachers’ practical knowledge is a legitimate and deeply held expression of what they know and do and it should be an essential source for innovators and leaders of professional development when working with teachers.

In an example of attempting to build teacher professional learning on teachers’ practical knowledge, Lampert (1999) explored “connections between inquiry into practice and teacher education” (p. 167) and concluded:

It is often not possible simply to use knowledge that one brings into the classroom in the face of practical problems. This does not mean that such knowledge is unnecessary, but it does mean that it is not sufficient. Teachers need to be able to manage situations in which new knowledge about what to do must be created on the spot. Teachers thus need to think in ways that enable them to create new knowledge while they work, not only as they plan what they will do beforehand or reflect on it afterward. This means the practitioners are simultaneously studying and doing teaching. (Lampert, 1999, p. 168)

An approach taking an increased interest in teaching as professional action suggests that teachers’ modes of working should have aspects of teachers-as-researchers (Lampert, 1984) as well as reflective practitioners (Schön, 1983), and that seeking and providing feedback should be an essential part of teachers’ professional development. In discussing the teacher-as-researcher, Lampert recognised intuitive knowledge that is “not usually made explicit but is often useful and powerful” (p. 2), and commented on how an appreciation of intuitive knowledge is useful in educational practice. She described a series of practical dilemmas that arise from the distinction between intuitive and formal knowledge.

In the book The intuitive practitioner: On the value of not always knowing what one is doing (Atkinson & Claxton, 2000) the argument for the importance of intuitive knowledge in several contexts was made strongly by different authors.

The creation of a discourse of practice in teaching has long been debated (Lampert, 1999; Lortie, 1975) and yet “not only are most teachers still isolated from one another in their speculations about what and how to teach, but they see the ‘scientific’ parts of their work of teaching, as well as the education of new teachers as someone else’s business” (Lampert, 1999, p. 171). There are examples of successful, sustained interactions between teachers regarding their teaching but such interactions are still by no means the normal practice of most teachers. Lampert (1999) went on to argue for developing a discourse of practice “wherein insiders talk to one another about the new ideas and practices that develop as they do what they do” (p. 170). She argued also for the involvement in the discourse of people outside their own teaching who may bring different perspectives and systems of interpretation to bear on the experiences. The SEATS Project was devised to allow and encourage such a discourse to occur, and this study is an exploration of the teacher talk that took place and the teacher learning that occurred.
In his essay about the complexity of teaching, Kilbourn (1998) introduced principles of teaching as guides for describing and analysing teaching. He suggested four families of principles: subject matter; student enjoyment; technique; and, morality. Three of the Kilbourn principles were particularly relevant to this study because they were used in the SEATS Project. These were ownership, rigour and sincerity. In his account, Kilbourn emphasised that these principles were “not rules to be slavishly followed, but guides for judging suggested courses of action” (p. 37). He argued for the importance of considering the details of teaching but doing this without getting bogged down in them. The principles help us to describe the complexity of teaching and to understand the decisions and actions teachers take when faced with tensions and dilemmas. Teachers’ professional knowledge and practice are characterised by complexity and situatedness, and are difficult to describe adequately. There are interactions between the knowledge and the practice. The main contributor to teachers’ professional knowledge is reflective experience and a major quality of effective teachers is their professional knowledge.

In the past three decades, researchers and educators have changed their views of learning and knowledge (Ball & Cohen, 1999). There have been widespread moves to reform education and teaching in classrooms in many parts of the world including USA, UK and Australia (Curriculum Corporation, 1994a, 1994b; Curriculum Council of Western Australia, 1998; Department for Education and Employment, 1999; National Research Council, 1996). Today the goal of education can be described as “helping students develop the intellectual tools and learning strategies needed to acquire knowledge that allows people to think productively about history, science and technology, social phenomena, mathematics and the arts” (Bransford, Brown, & Cocking, 1999, p. 5). Talbert and McLaughlin (1993) contend that students need to understand the current state of their knowledge, to build on it, to improve it and to make decisions in the face of uncertainty. These reforms encourage school students to be active learners, to be engaged in solving real problems, to be working with other students, to be thinking about what they are learning and to be articulate about what they have learned (Lieberman, 1995).

These recent reform efforts in school systems throughout much of the world have added to the complexity of teaching. The expectations on teachers to provide a greater variety of learning experiences to meet different needs, to help each child to achieve deep understandings, to base the curriculum around real-world problems and to monitor progress on an individual student rather than a group basis have all contributed to increasing demands on teachers and complexity in classrooms (Bransford, Brown, & Cocking, 1999; Lieberman, 1995; Talbert & McLaughlin, 1993).

It is widely agreed that if there is to be a reform in education along these lines, there will need to be considerable teacher professional development and the nature of that professional development will also need to change significantly (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 1995; Lieberman, 1995; Loucks-Horsley, Love, Stiles, Mundry, & Hewson, 2003; Sparks & Hirsch, 1997). Bransford et al (1999) argue: “Much of what constitutes the typical approaches to formal teacher professional development are antithetical to what research findings indicate as promoting effective learning” (p. 192).

There has been an increasing level of recognition among governments and educational administrators concerning the importance of teacher professional development (Sparks & Hirsch, 1997). But, as Loucks-Horsley (1998) comments, there is often a large gap between the policy level and the teacher learning that is occurring. There seems to have been a continuance of many of the practices considered as ineffective. Despite governments acknowledging the importance of teacher professional development and providing financial resources for it, there are many continuing examples of this most common form of top-down professional development activity that has frequently proved ineffective (Ball & Cohen, 1999).

Research and experience have taught us that a new form of professional development is required if we are to achieve widespread, sustained implementation of new practices by teachers in school classrooms. This professional development needs to affect the knowledge, attitudes and practice of individual teachers in positive ways rather than just introducing them to new strategies (Sparks & Hirsch, 1997). Lieberman (1995) points out the ironic shortcomings of traditional methods of professional development:

What everyone appears to want for students - a wide array of learning opportunities that engage students in experiencing, creating and solving real problems using their own experiences, and
Ball and Cohen (1999) agree that professional development will need to take different forms if education is going to undergo reform with significant changes in classroom learning and teaching. They argue that the emphasis needs to be on teachers as serious learners rather than simply accumulating a wider range of strategies and activities and that teachers’ professional learning needs to be continuing, thoughtful inquiry “situated in the sorts of practice that reformers wish to encourage” (p. 6). There is growing consensus about the characteristics of high-quality professional development (Haslam & Seremet, 2001). High-quality teacher professional development challenges participants’ intellect; adds to their skills and knowledge; leads to improvement in their practice; enhances their contribution to their schools; and, most importantly, leads to increased student learning (Corcoran, 1995).

In discussing their conception of teacher learning, Ball and Cohen (1999) indicated that it should be situated in practice, using videotapes of lessons, students’ work or other real classroom artefacts, but not in actual classrooms because the immediacy detracts from learning. It needs to be focused on the investigation of practice, and on the analysis of learning and teaching. This requires the development of a disposition of inquiry among the teachers as well as appropriate skills. It should be a priority to make professional learning a collective endeavour, creating learning communities and reducing the isolation of most practice in which the only material for learning is the teacher’s own practice. Some disequilibrium is needed for professional learning. Teachers’ experience will be broadened and they should be able to puzzle about things together, disagree about aspects of the grounded practice they are debating and reach their own conclusions.

Findings and discussion
In trying to understand the nature of teacher learning occurring as a result of the SEATS Project we focussed on two aspects. The first focus was the teacher professional development program itself, to ascertain what the essential features of a learning-effective program were. The second focus was the nature of the teachers’ learning and how we can understand it better.

A learning-effective teacher professional development program
As contributors to the SEATS Project as well as observers we tried to get under the surface and look at the participants’ reactions to features of the teacher professional development program. What were the characteristics of the SEATS Project that created learner-effective teacher learning? Firstly, the professional development program paid attention to the needs, knowledge and experience of the participants were taken seriously. The participants were involved in a variety of roles during the program and the nature of the individual and collaborative roles varied between expert and peer, contributor, leader and researcher. These varied roles were appreciated by the participants and contributed to their learning. The teacher participants were serious learners whose experience and knowledge were drawn on extensively during the program. The participants engaged with difficult intellectual questions about science teaching and they fashioned new knowledge. The teacher participants were learning through a spirit of inquiry at several levels in the SEATS Project, including addressing issues regarding science teaching, the development of a framework for understanding science teaching and involvement in determining the directions of the research project and the products developed.

This inquiry approach including video pedagogy strategies (Tochon, 1999) which also contributed to the teachers’ learning during the program. Another aspect relating to the participants, which contributed to the teachers’ learning, was the emphasis on collaborating in a community of practice. The strategies and activities used during the SEATS Project built up trust and a sense of ownership of the process and products among the participants. The teacher participants commented on the high level of satisfaction they felt.

The second important priority for the SEATS Project was the use of teaching examples that embedded the learning in the context of the participants’ daily work. It proved important to focus on the specifics of teaching and video segments of lessons taught by the participants were used for this purpose. The participants commented that they never tired of looking at these video segments and using them as the basis for conversations about science teaching. It was important that these video segments represented situations that were familiar and important to the participants. At the same time it was important that the conversations and reflection took place without the pressures of actually being in the classroom. The use of video segments was
successful in addressing the dilemma of focusing on the specifics of complex and fast-moving teaching in ways that enabled reflection and serious conversations to take place (Ball & Cohen, 1999).

The third important priority in the SEATS Project was the emphasis on teaching principles in focusing the learning and in providing a framework. This framework of teaching principles was developed as the program proceeded. In initial discussions of video segments an open approach was taken where participants made any comments they wished. From this, the group developed principles over the course of the first three professional development days spread over several months. The principles of ownership, rigour and sincerity (Kilbourn, 1998) were agreed upon as guiding principles. The participants also found a ‘tensions’ framework useful, where it was acknowledged that teachers make many decisions in classroom teaching that respond to tensions between competing demands where there are no absolute right or wrong responses. In many cases teachers make these decisions intuitively. The tensions framework and the principles of ownership, rigour and sincerity assisted the teacher participants in observing the video segments more effectively, which created rich conversations about science teaching and enabled them to apply new understandings to their own teaching.

The interactions of the participants themselves, the teaching examples in the form of video segments of participants’ lessons, and the principles and tensions framework have proved to be successful in creating a learning-effective teacher professional development program. Rich engaging conversations have occurred, new understandings have been constructed and teachers’ practices have changed as a result of the experience.

**The nature of the teachers’ learning**

We have tried to understand what motivated the teacher participants to continue trying to improve, in what ways they were similar in approaching learning and what were differences. The framework of greyative tensions arose from the tensions and principles that were a part of the SEATS Project.

There are tensions associated with teachers’ learning in the same way as there are tensions associated with teaching science in secondary schools. We have argued that it is useful to consider simultaneously the competing priorities and the specific circumstances surrounding the learning. Thus it is not appropriate to take an ‘either/or’ approach when considering teachers’ learning, or indeed any learning. This study involved experienced science teachers’, including ourseves, engaged in a professional development program where we were developing new understandings about science teaching. The content and context of the learning were clear and specific although the processes for engaging, interacting and learning were open and shaped by the participants themselves. The greyative tensions framework of the teachers’ learning being simple and complex, planned and spontaneous, active and reflective, individual and communal, specialised and general, practical and theoretical, and formal and informal proved useful in describing and analyzing the teachers’ learning.

The greyative tensions idea is useful at two levels. Firstly, the framework where tensions are evident, but an either/or approach is not useful, is an important step in understanding the nature of teachers’ learning. It recognises the complexity of teachers’ learning and provides a framework that assists in describing it. At the second level the seven greyative tensions arising from the findings in the study, while not intended to be a complete set, provide detailed and typical examples of greyative tensions. The construct of greyative tensions and the examples developed have proved useful in understanding the nature of teachers’ learning.

**Implications from the study**

There are two converging issues that make learning-effective teacher professional development a major priority at this time. The first is that increasingly governments, employers and society expect that outcomes for school students will be improved. At the same time it is increasingly recognised that teachers are the single most influential factor in educational change and in improving outcomes for students (van Driel, Beijaard, & Verloop, 2001). These two issues combine to increase the demands on teachers and the complexity in classrooms during a time of reform efforts in school systems in many parts of the world (Bransford, Brown, & Cocking, 1999; Lieberman, 1995; Talbert & McLaughlin, 1993). There are implications from this study for the design and implementation of teachers’ professional development programs. The SEATS Project can be considered as a learning-effective
professional development program on at least three grounds. Firstly, the voluntary participation of the teachers was prolonged and substantial. The majority of the teachers who commenced the project were involved throughout the 15-month period and those who dropped out had reasons such as moving overseas, medical conditions or promotion to new school roles. At the conclusion of the project several of the participants expressed regret that the program would not continue. The second yardstick is the favourable comments of the participants regarding their participation in the project and what they gained from it. These comments support the first point insofar as, without favourable reactions, as a voluntary program the teachers would not have continued to attend and participate. The final, and most important, measure is the evidence that the teachers changed their teaching practice as a result of participating in the SEATS Project. In terms of the imperative for schools to improve student outcomes, teachers changing their practice will increasingly become the measure for effective teacher professional development.

That the experienced teachers participating in the SEATS Project did change their practice is, in itself, significant. Commonly experienced teachers do not want to risk modifying practice that is based in their practical knowledge and works well for them (van Driel, Beijaard, & Verloop, 2001; Wallace, 2003).

Van Driel, Beijard & Verloop (2001) caution us about lack of effectiveness of a top-down perspective applied to teacher professional development, where outside experts decide what is best for the teachers and provide it to them. The features of the SEATS Project identified in this study provide a framework to consider when designing and implementing teacher professional developmental programs. The framework, which recognises the three aspects of the participants, the specifics of teaching and a framework of teaching principles and the interactions between these three aspects, is useful.

This study also points to some considerations regarding the expectation that teachers develop new knowledge and skills. The study confirms that expecting teachers to learn and to change their practice just by being told what they should do is unrealistic. The complexity of teachers’ learning has been fully demonstrated by the findings, and the use of a greyatve tensions framework has proved useful in understanding the nature of this learning.

References
Groves & Wallace (AARE 2007) The nature of teacher learning: Talk about teaching among video club members Page 7


