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INTRODUCTION

Research on teacher thinking, beliefs and knowledge in higher education

Increasingly serious attention is being paid to the quality of learning and teaching in higher education. This is a global concern, associated with calls for greater accountability and efficiency, increases in the size and diversity of the student population and a relative decline in the real value of funds available for higher education. Teaching in higher education is having to become more professional. Agencies are being set up in a number of countries, charged with supporting and/or accrediting the development of teaching competences. (See, for example, the work of the Institute for Learning and Teaching in Higher Education in the United Kingdom.) Faculty are paying greater attention to their teaching and to finding ways of improving the effectiveness and efficiency of the support they provide to students. Universities are shifting budgets towards the improvement of learning and teaching and are strengthening the roles of faculty developers. There is a growing stream of practical books, aimed at guiding both new and experienced university teachers (e.g. Beard & Hartley, 1987; Biggs, 1999; Brown & Atkins, 1988; Brown, Bull & Pendlebury, 1997; Brown & Knight, 1994; Gibbs & Jenkins, 1992; Hativa, 2000; Laurillard, 1993; McKeachie, 1999; Prosser & Trigwell, 1999; Race & Brown, 1993; Ramsden, 1992). These shifts are creating a demand for a better research-based understanding of the nature of teaching in higher education. This research field is still immature, though it is now beginning to develop very rapidly, as a comparison between the early reviews of McKeachie (1963) or Dunkin & Barnes (1986) and the references cited within the chapters of this book will quickly reveal. Our book is intended to stimulate, and act as a central resource for, what we believe will prove to be one of the most exciting and rapidly growing areas of educational research in the next decade.

There is a strong tradition of research on teaching at the *pre-college* level, going back to the 1960s. An important strand in this research is work which concentrates on teachers' thinking, beliefs and knowledge (see for example Peterson & Clark (1978); Calderhead (1984; 1996); Leinhardt & Greeno (1986); Day, Pope & Denicolo (1990) or, in a somewhat different vein, Mitchell & Weber (1999). Our book will extend this research strand into the field of higher education. Research has shown strong, though not necessarily simple, links between these areas of (a) teacher thinking, beliefs and knowledge, (b) teachers' classroom practices and (c) student

learning. The studies collected in this book explore these relationships at the higher education level. They constitute a unique resource for all those interested in research that can improve higher education practice. We have brought together an impressive team of authors from North America, Europe, Australia, and South East Asia. Together they provide a rich international perspective on teaching and learning in higher education.

It is perfectly legitimate to be interested in the ways in which 'knowledge workers' in general carry out their work, or think and talk about their work. Higher education teachers are an intriguing kind of knowledge worker (c.f. Shoenfeld, 1998), with some of the qualities that large corporations and international consultancies say they value highly in recruiting workers for the new millenium, and some qualities which seem to belong exclusively to the Victorian age. The authors in this book are committed to the improvement of education. Understanding and improving teaching is only part of the story. If improvement in student learning is the key goal, then research on teaching has to face a number of challenges. There can sometimes be rather uncertain connections in the paths which link learning outcomes to learning activities to teaching activities to teaching approaches to teachers' thinking, beliefs and knowledge. Improving educational opportunity demands a multi-directional attack. We can work directly with students to help them improve the way they tackle learning tasks (though we will have to do this every year). We can work on the learning environment, trying to ensure that library and ICT resources are adequate and that the physical infrastructure is well planned and well managed. We can work on the funding of study, so that students can focus on learning rather than subsistence. But we can also work on teachers and teaching. This can have two kinds of beneficial, enduring consequences: direct and indirect. We may be able to help teachers improve what they do in their direct interactions with students - giving better lectures, running more inclusive seminars, designing fairer assessment tasks, giving clearer feedback, and so on. But teachers also have a say in how universities are run, in developing strategies for learning and teaching, in course and curriculum design, and in a number of other important ways they give shape to the students' learning experience. Improving teaching can also happen directly and indirectly. Teachers can learn to do things differently by a variety of means, from observation and imitation to deep analysis and reflection on their working practices and pedagogical beliefs. A well-founded programme of support for the improvement of teaching will recognise this variety, and will also be sensitive to the interplay between self-motivated improvement and improvement as a response to external pressures. Within this complex web, attention must surely be given to both action and intention; to behaviour and belief. It would be naïve to say that belief and intention are the bedrock for behaviour or action: the relations are more reflexive than that (c.f. Suchman, 1987; Lave, 1988). Nevertheless, it is in the discourse of beliefs about teaching that we can find some of the opportunities for *radical* change. Similarly, as our understanding of the thought processes entailed in teaching clarifies, so we have a more *realistic* position from which to engage in discussions about how teaching occurs and can occur. We have a firmer grasp of what is possible. The more we know about the knowledge-bases of expert and experienced teachers, the better equipped we are to understand and *explain* their

teaching to novice teachers. Knowing more about how teachers do what they do is also a key to making educational research more relevant to their practice. Much of the current talk about 'evidence-based practice' overestimates the pedagogical sophistication and decision-making processes of practitioners (Yinger & Hendricks-Lee, 1993). It is our contention that a well-founded account of the relations between knowledge, beliefs, thinking, intention and action in teaching is necessary to an evidence-based programme of improvement in the practices of higher education. We hope that this book will play a useful role in outlining such an account, and we will attempt, in the final chapter, to assess how far we have come and where next researchers need to go.

1. OVERVIEW OF THE CONTENTS OF THE BOOK

In Chapter 1, Noel Entwistle and Paul Walker characterise the evolution of increasingly sophisticated conceptions of teaching and draw to our attention the ideas of 'expanded awareness' and 'strategic alertness'. The development of more sophisticated conceptions of teaching entails an expanded awareness of the nature of the discipline, the teaching of the discipline, and of students' learning – as well as a richer awareness of the relationships between these three. There are intriguing parallels between the development of students' beliefs about learning and the development of teachers' beliefs about teaching. Entwistle and Walker make the point that the more sophisticated conceptions of teaching evolve from, and include, the earlier and less sophisticated conceptions. Within a more sophisticated approach to teaching, in which the focus of attention shifts away from content *per se*, Entwistle and Walker detect the appearance of a kind of principled opportunism or 'strategic alertness' that enables the skilled teacher to capitalise on chance classroom events and exploit key 'teachable moments'.

Entwistle and Walker's chapter is unusual in its methodology, drawing on Paul Walker's own narrative account of his development as a university teacher. This account is data, first-order interpretation *and* illustration. It deserves to be taken seriously as data for others' research but it also paints a 'recognisable reality' – 'detailed, contextualised and personal' – for other practitioners. It illustrates the interplay between knowledge, experience and feelings which is missing from more abstracted or analytic accounts of teaching.

Mick Dunkin's chapter (Chapter 2) is also concerned with the development of concepts and beliefs about teaching in higher education. Rather than trace an individual's evolution through time, Dunkin contrasts evidence drawn from interviews with sets of novice and award-winning teachers. Dunkin's work has some roots in the cognitive science paradigm of expert:novice comparisons (see e.g. Chi et al, 1988; Ericsson & Smith, 1991) and more specifically in studies of teaching expertise by Gaea Leinhardt, Hilda Borko, David Berliner and their co-workers (see e.g. Leinhardt & Greeno, 1986; Berliner & Carter, 1989; Goodyear, 1991). Findings from this diverse literature display a remarkable convergence on the attributes of expertise. They can be taken to *suggest* that expert teachers in higher education will display a greater capacity to analyse teaching and learning situations (c.f.

grandmasters' 'reading' of a chess board), be more aware of the complexity of teaching and learning, and have an enriched conceptual repertoire for thinking and talking about teaching and learning, when compared with novice teachers.

Dunkin's methodology differs from that employed in classic expert:novice comparison studies. He used interviews to get teachers to articulate their beliefs about teaching, whereas the classic form of expert:novice comparison study involves the observation of task performance (and usually the elicitation of a concurrent or retrospective verbal account or 'think aloud' protocol). It can be argued that talking about teaching is an authentic teaching task. For example it may play an important role in self-evaluation, reflection and personal development as a teacher. It may also play an important role in collaborative teaching activities, such as course design. Nevertheless, important aspects of teaching are missed if we focus only on what can be derived through interviews.

Dunkin's comparisons of the espoused beliefs of his (relatively) novice and experienced, award-winning teachers tend to confirm these suppositions. His novice teachers tended to describe teaching in terms of one of four dimensions. All of the expert teachers mentioned at least two of these four dimensions, giving at least the appearance of greater cognitive complexity. A second area of novice:expert difference is concerned with explanations of self-efficacy. It would not be surprising if award-winning teachers revealed a higher self-efficacy than novice teachers. The interesting thing is that the award-winning teachers' accounts of their efficacy were complex and couched in qualified terms, and that the areas of expertise to which they most readily laid claim drew on pedagogical skills rather than up to the minute discipline knowledge. Finally, in relation to self-evaluation, the expert teachers typically drew on a wider range of information sources in coming to a judgment about whether they had given a good lecture or were teaching well. All this points to expert teachers having a richer conceptual repertoire with respect to teaching and learning. It is *suggestive* of ways in which staff development programmes might help novice teachers enrich their ways of thinking about teaching. What we still need, however, are good accounts of how the novice:expert transition is made, and can best be supported.

Lynn McAlpine and Cynthia Weston offer us one such account. Like Dunkin, they use the notion of expertise in teaching. Their empirical study focuses on six teachers in higher education for whom strong claims for expertise in teaching could be made. They videotaped a series of classes taught by the six teachers, interviewed them before each class and interviewed them again after the class using the playback of the videotape to stimulate recall. McAlpine and Weston focus on *reflection* as a mechanism – or metacognitive process – for turning experience into knowledge about teaching, arguing that reflection has the capacity to improve teaching insofar as it allows teachers to be more intentional and deliberate in their work. As a metacognitive process, reflection both creates and is sharpened by teaching knowledge.

How then does reflection act as a mechanism for the construction of teaching knowledge from experience of teaching? Classic accounts of the explicit knowledge upon which teaching draws, such as that of Lee Shulman (1986), refer to knowledge *domains*: content knowledge, general pedagogical knowledge, pedagogical content

knowledge, knowledge of learners, etc. McAlpine and Weston suggest adding a further domain: experiential knowledge. Whether to consider this a further *domain* of knowledge, or a *type* or *quality* of knowledge is a matter for debate. ('Domain' implies that what is important is the content. 'Type' or 'quality' might be used to distinguish the genesis of the knowledge or its representational form. See for example de Jong & Fergusson-Hessler, 1996.) But what is at stake for McAlpine and Weston is that experiential knowledge is used explicitly to provide rationales for monitoring and decision-making in teaching and that it is not *yet* principled knowledge. In addition to this explicit experiential knowledge, McAlpine and Weston's teachers also drew on forms of *tacit* knowledge. They suggest that intentional reflection is a way of turning patterned experiential and tacit knowledge into explicit principled knowledge. This may be a necessary, but cannot be a sufficient, condition for improvement in teaching. There are too many forces at work that can frustrate productive reflection and deflect teachers from using reflection in improving their teaching practices and the learning opportunities available to their students.

Peter Goodyear picks up the theme of experiential teaching knowledge in a study of the rapidly growing area of 'online' teaching. Goodyear's study is unusual in that it focuses on the work of one very experienced online teacher – a university lecturer who had ten years experience of online teaching, though no formal training in this methodology. The study is also unusual in that the teaching takes place within a postgraduate programme of continuing professional development, rather than in an undergraduate teaching programme. The fact that, at least in this study setting, students and teachers are separated in space and time means that online teaching can be examined using a mix of research techniques not normally available to researchers of teaching. For example, the teacher can be asked to engage in concurrent verbalisation ('thinking aloud') *while* they are teaching – something which is virtually impossible in the normal classroom situation. They can also be interviewed *during* a teaching session. For example, the work of the tutor studied for this chapter consisted of a sequence of reading and replying to electronic messages. It was possible to interview the tutor after they had worked on each such message. It was also possible to (re-) display messages on the computer screen and replay a recording of the teacher's utterances, as ways of stimulating recall and/or grounding their accounts of their thinking and action. Goodyear makes the point that research in this sub-field of university teaching is still in its infancy and so it is useful to identify some of the 'main contours' of the field and some important research challenges. Among these, he singles out shifts in the teacher's focus of attention; the extent and sources of the teacher's knowledge of their students; processes implicated in the articulation of tacit pedagogical knowledge and beliefs; the handling of conflicting or competing pedagogical goals; the relative importance of routine and deliberate courses of action and aspects of the 'presentation of self' in online educational spaces.

In Chapter Five, Elaine Martin and her colleagues argue that what teachers intend may be more important than 'how much they know' in determining what their students learn. From this perspective, improvement in teaching is not so much the repair of pedagogical skill deficiencies (or updating in subject matter

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