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## NOVICE AND AWARD-WINNING TEACHERS' CONCEPTS AND BELIEFS ABOUT TEACHING IN HIGHER EDUCATION

*effectiveness, efficacy and evaluation*

**Key words:** University teachers' thinking, teacher efficacy, teacher evaluation, novice university teachers, award-winning university teachers

**Abstract:** After a discussion of the importance and the status of knowledge about teaching in higher education, the author describes a research program at the University of Sydney involving the study of concepts of teaching effectiveness, self-efficacy regarding teaching, and the criteria for self-evaluation as teachers of two groups of novice lecturers, and compares them with a group of award-winning, expert lecturers. Differences were found in the extent of the repertoire of concepts of teaching effectiveness, in self-efficacy regarding teaching, and in the criteria used in self-evaluating teaching. The findings are discussed as evidence of lessons to be learnt in achieving excellence in teaching.

The study of teacher thinking in higher education contexts is much younger and less voluminous than at lower levels of education. For example, in the third edition of the *Handbook of Research on Teaching* (Wittrock, 1986) there was a whole chapter on teachers' thought processes (Clark & Peterson, 1986) in which approximately 50 studies were presented, all concerned with teaching at grade school levels. In the chapter concerned with research on teaching in higher education (Dunkin with Barnes, 1986), however, not a single study of teacher thinking was presented and the authors concluded by recommending that teacher thinking become a focus for future research at that level. In this chapter a series of Australian studies conducted in response to that recommendation is presented and discussed.

## 1. THE STATUS OF KNOWLEDGE ABOUT TEACHING IN HIGHER EDUCATION

Teachers' concepts and beliefs concerning teaching include, among other things, their judgments about the effectiveness of teaching as an intervention, their estimates of personal influence upon student learning, their beliefs about the extent to which they possess teaching competencies, as well as the criteria by which they evaluate their own teaching and themselves as teachers. It is important to note that these are all likely to be subjective assessments based upon personal observations rather than objective assessments based upon applications of scientific method. In Australia and elsewhere, university staff outside Schools of Education rarely have been trained as teachers, although it is not uncommon for them to have had some years of experience at the level of teaching assistants before they secure tenure track positions. This means that, in most cases, what they know about teaching has been learnt informally, by observing teaching from the reciprocal position of student, from observing and communicating with their colleagues, and experientially, that is, by doing it. One could hardly say that the knowledge of teaching these people acquire is scientific knowledge. Nor is it even professional knowledge, for there has rarely been a course or program of study in teaching leading to a qualification, such as a degree, in it. Usually there is no licensing or professional association to which they seek admission and which guards standards. At best, these people acquire what might be called "craft" knowledge.

Indeed, the very term "knowledge" is a difficult one to use when one is referring to complex human social activities such as teaching. There are few if any widely accepted, let alone demonstrated, tested or proven, truths about teaching in higher education, so that when one wonders what university teachers "know" about teaching, one is really wondering what *counts* as knowledge about teaching to them. One way to arrive at what counts as teachers' knowledge in higher education is to compare beliefs about the nature of teaching effectiveness held by novices with those held by "experts".

Differences between experts and novices in fields outside of teaching have been researched in several studies. For example, Chase and Simon (1973) studied chess players and found that after studying a chess board for five seconds an expert player can reconstruct the location of the pieces with an accuracy of between 80 and 90 percent. However, novice chess players were found to be capable of remembering the locations of only a few pieces. Furthermore, expert chess players were found to suffer only a moderate loss in playing strength when required to reduce the time for moves from 180 to 10 seconds.

Studies of differences between expert and novice schoolteachers have found comparable results. Berliner and Carter (1989) found that expert teachers were better able to identify important features of a task than were novices. Expert teachers engaged in "if-then" thinking more and were also more attuned to the subtleties of tasks. Similarly, the expert secondary school mathematics and science teachers in the study by Borko and Livingston (1990) were able to "plan more quickly and efficiently than novices because they are able to combine information from existing

schemata to fit the particulars of a given lesson" (p.490). Carter, Sabers, Cushing, Pinnegar and Berliner (1981) found that expert teachers were more likely to discuss teaching in a principled, analytic way than novices. Leinhardt and Greeno (1986) found striking differences in effectiveness, efficiency and smoothness between expert and novice mathematics teachers and attributed the differences to the experts' presumably more tightly structured schemata. Needels (1991) found that experienced elementary school teachers displayed greater understanding of the interconnectedness of classroom occurrences and discussed different topics from inexperienced teachers when asked to make written comments on a videotaped lesson. The topics used by the experienced teachers showed a greater understanding of the complexity of teaching and greater sensitivity "to how teachers might draw upon students' experiences and backgrounds" (p.278). Peterson and Comeaux (1987) found that "experienced teachers more often discussed problem events in terms of principles of effective teaching" (p.327) indicating that they were effective analysers and problem-solvers as teachers. When Strahan (1989) compared the views of instruction of experienced and novice middle school teachers, he found the experienced teachers to use more complex structures than the novices. Similarly, Swanson, O'Connor and Cooney (1990) found that, with respect to problems relating to classroom discipline, expert teachers were more analytical than novices.

Emerging from this body of research is considerable evidence that expert teachers differ from their less experienced colleagues in the complexity and sophistication of their thoughts about teaching. Experts seem to be more analytical, more aware of complexity and to have more enriched conceptual repertoires regarding teaching than novices. While none of the research cited above was conducted in higher education contexts, it is reasonable to expect that similar differences exist between expert and novice teachers in higher education and that the exploration of teachers' thinking in that context would be just as rewarding as elsewhere. Indeed, Berliner (1994), after reviewing research on novice-expert differences across many fields of endeavour concluded:

Generalizing from studies in this domain should be difficult, but remarkably, that has not been the case...As has been made clear in this review ... propositions [from studies of expertise across disparate fields] are highly compatible with the ones we derived from studies of teaching. (p. 184)

Through such investigations the nature of excellence in teaching in higher education might become better understood and, therefore, more available for use in programs of professional development. In the research reported in the rest of this chapter, particular attention is paid to comparisons between novice and expert teachers.

## 2. THE RESEARCH PROGRAM

The series of studies reported here addressed three main substantive issues concerning teachers' concepts and beliefs in higher education:

1. Teachers' beliefs about the nature of effective teaching, defined as their beliefs about approaches they thought were most important in enhancing their students' learning.
2. Teachers' beliefs about their self-efficacy within the context of teaching in higher education; that is, their perceptions of the power of teaching to influence student learning and of their possession of the competencies required to actualise that power.
3. The criteria teachers said they applied in reaching judgments about the effectiveness of their teaching and of themselves as teachers.

The research program began with interviews with a group of 55 recently appointed tenure-track lecturers and an exploration of their experiences while being inducted into the university (Dunkin, 1990). The 55 were representative of all new lecturers joining the staff of the university in tenured and tenurable positions during the years 1981-1984, inclusive, and had had an average of 5.15 years of teaching experience in more junior positions. Part of the interview in which each new lecturer participated involved questions concerning his or her thoughts about the three issues specified above. It should be made clear at this point that the purpose of this research was not to evaluate teaching effectiveness but to map thoughts about teaching.

Corresponding data were also used from a second group, this time of 32 novice lecturers who had arrived at the university after 1984 and who were recruited according to a sampling design requiring matching of males and females within cognate fields of study, and who were, therefore, not representative (Dunkin, 1991a). On average, these lecturers had had 7.30 years teaching experience, again, in more junior positions..

Subsequently, the interviews were repeated with 12 experienced teachers at the same university, all of whom had won awards for excellence in teaching (Dunkin & Precians, 1992) and who had had an average of 23.3 years experience. These interview data were compared with the data from the two groups of novice lecturers in the expectation that there would be differences and that they might indicate lessons to be learned in advancing from the status of relatively inexperienced university teachers to the status of experienced and even award-winning ones.

### 2.1 Teachers' beliefs about the nature of effective teaching

Of course, in the final analysis, it is likely that teaching effectiveness is more a matter of what teachers do than what they believe. However, these two - knowing and doing - are certainly related to each other. The "knowing" part of teaching extends well beyond the classroom into such areas as teachers' knowledge of their subject, of their students, of the institutional, social and cultural contexts in which they work, of teaching methods, of resources to support their teaching, of techniques

for assessing student achievement, and so on. These are all matters of what teachers possess cognitively: of what they know, understand, believe and think about teaching and learning. The depth and breadth of this cognitive repertoire empowers teachers to make good decisions and judgments at the planning, implementation, evaluation, and follow-up stages of the teaching-learning process. As teaching is clearly an extremely complex process, there can be no disagreement that the size and quality of the repertoire of knowledge and thought that teachers possess and have at their disposal is crucial in determining the quality of their actions and, therefore, their effectiveness. There seems little or no need to argue that the study of teachers' cognitions regarding teaching effectiveness is an important thing to be doing. Research by Prosser and Trigwell (Trigwell & Prosser, 1993; Prosser & Trigwell, 1992), employing their Approaches to Teaching Inventory, and by Ramsden and Moses (1992) provides ample testimony of the value of the study of university teachers' strategies and intentions.

The responses made by the first group of novices (Dunkin, 1990) to the question, "What are the most important ways in which you can enhance your students' learning?" were recorded and subsequently analysed into categories arrived at intuitively on the basis of the author's long experience in the field of research on teaching. At the end of this process four categories were found capable of accommodating the variety of responses made. First, there were responses in which the lecturers argued that to enhance student learning they would have to *structure* their teaching very carefully. They would have to be very well organised, and thoroughly prepared, with student work carefully laid out and assessed. To some, the structuring had to be so thorough as to make it almost impossible for students to fail. Next, they considered that success in teaching depended on *motivating* students. The chief task for some was to arouse interest, enthusiasm and love for the subject so that students would be almost seduced into learning, even against their wills. Then there were those who saw effective teaching to consist of making the students *active and independent* learners. They seemed to be particularly concerned to give their students hands on experiences, to have them solve problems and to become self-sufficient scholars. Finally, there were those who saw effective teaching primarily as a *social relationship* in which students were made to feel secure, to see their teachers as approachable, nurturant people on whom they could rely for help.

Thus, these new staff together tended to see effective teaching to have four main dimensions:

1. Teaching as structuring learning;
2. Teaching as motivating learning;
3. Teaching as encouraging activity and independence in learning; and
4. Teaching as establishing interpersonal relationships conducive to learning.<sup>1</sup>

These same four categories were found also to accommodate the responses of the other two samples (Dunkin, 1991a; Dunkin & Precians, 1992).

Table 1 contains the quantitative data that permit comparisons among the three samples. It shows that structuring and motivating were the most frequently

<sup>1</sup> Dunkin et al. (1994) reported the following coefficients of inter-observer agreement for these categories: structuring .88; activity .74; motivating .73; relationships .86; total .82.

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