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# TEACHER COGNITION AND LANGUAGE EDUCATION

Research and Practice

Simon Borg

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# Teacher Cognition and Language Education

Research and Practice



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# Teacher Cognition and Language Education

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# Introduction

**I**n the past 15 years there has been a surge of interest in the study of language teacher cognition – what language teachers think, know and believe – and of its relationship to teachers' classroom practices. It is timely, therefore, to provide an account of the body of work which now exists in this domain of inquiry and to examine the research methods used in this field. These are the two primary aims of this book. In addressing them, it is also my goal to provide an introduction to the study of language teacher cognition which is both comprehensive and accessible. The material covered here will be particularly relevant to researchers, teacher educators, policy makers and programme and curriculum managers working in first (L1), second (L2) and foreign language (FL) education contexts. I use the term 'language teacher' throughout here to refer to classroom practitioners in each of these contexts.

A key factor driving the increase in research in teacher cognition, not just in language education, but in education more generally, has been the recognition of the fact that teachers are active, thinking decision-makers who play a central role in shaping classroom events. Coupled with insights from the field of psychology which have shown how knowledge and beliefs exert a strong influence on human action, this recognition has suggested that understanding teacher cognition is central to the process of understanding teaching. This is one broad but fundamental assumption which unites the body of work discussed in this book. This perspective on teachers and teaching has provided insights into the processes of teacher education and the nature of teachers' instructional practices. It has also helped policy makers become more sensitive to the key role teachers – and their cognitions – play in the implementation of educational innovations. The study of language teacher cognition, then, though relatively speaking still a young domain of inquiry (especially in L2 and FL contexts), has

demonstrated its potential for deepening our understandings of what it means to become and to be a teacher. I hope that this book will contribute to a greater understanding of language teacher cognition research and stimulate continued research in this field.

## **Structure of the book**

The book has two parts; the first deals with what we know about language teacher cognition while the second examines the research methods through which it has been studied.

In Chapter 1, I place the study of language teacher cognition in its historical context by outlining the origins of teacher cognition research in education more generally. Chapters 2–5 then examine what we know about language teacher cognition by organizing the research available into four themes. The first of these is examined in Chapter 2, which focuses on research conducted in the context of pre-service teacher education. Salient issues which will be examined relate to the nature of the learning processes prospective and new teachers experience and to the impact which pre-service teacher education programmes have on what teachers know, believe and do. Chapter 3 examines teacher cognition research with reference to the work of in-service teachers. Here the focus is less on how teachers learn and more firmly on the cognitions practising teachers hold and on how these influence what the teachers do in the classroom. In Chapters 4 and 5 I consider the two specific curricular domains which have provided a major focus for language teacher cognition research: the teaching of grammar and literacy instruction. While most of the research on teacher cognition in grammar teaching has been conducted in L2 and FL contexts and appeared in the last ten years, literacy instruction, particularly in relation to the teaching of L1 reading, has been the focus of teacher cognition research for many years. In considering the work in literacy, I will also examine what we know about teachers' knowledge, beliefs and practices in relation to the teaching of writing.

In Chapters 6–9, the focus of the discussion switches to methodological issues in the study of language teacher cognition.



A range of research methods have been applied in investigating what language teachers think, know, believe and do, and the aim of these chapters is to illustrate and examine these. Chapter 6 focuses on self-report instruments. Questionnaires, scenario-rating tasks and tests are three such measures which are commonly used in the study of language teacher cognition. Examples of studies using these methods will be discussed and the rationale for the method used in each case will be outlined. The effectiveness of the different methods in uncovering language teacher cognition will also be considered. Chapters 7–9 follow a similar pattern, with a different approach to studying language teacher cognition being analysed in each case. Chapter 7 focuses on the use of verbal commentaries and various strategies for eliciting these commentaries will be considered, including semi-structured interviews, stimulated recall interviews and repertory grids. In Chapter 8 the research method examined is observation. The use of structured and unstructured observation will be illustrated and recommendations made for the effective use of this strategy in the study of language teacher cognition. Chapter 9 considers the use of reflective writing as a means of collecting data on the cognitions of language teachers. The specific strategies which I consider here are journal writing, autobiography, retrospective accounts and concept mapping.

In Chapter 10, I review the key thematic and methodological issues to emerge from the analyses throughout the book and outline a framework for continued research into language teacher cognition.



# 1

## The origins of teacher cognition research

**L**anguage teacher cognition research draws on a tradition of educational research which stretches back over 30 years. My aim in this chapter is to outline the origins and growth of this tradition. The rapid growth of teacher cognition research since the 1970s has been characterized by a number of perspectives from which teachers' mental lives can be studied. I will highlight these here as they provide the conceptual basis for the research I discuss in Chapters 2–5. I will not attempt to provide a comprehensive review of research on teacher cognition in education generally (there are hundreds of individual studies in this domain, across a wide range of curricular areas), but to outline, chronologically, the emergence of this tradition of inquiry and the key perspectives, concepts and findings it has contributed to the study of teaching. In doing so I will draw on a number of reviews of teacher cognition research which have appeared over the years and which readers may want to turn to for more specific detail on particular research perspectives (a list of these reviews appears at the end of this chapter). I will also postpone a discussion of methodological developments in the study of teacher cognition until later in the book.

## The 1970s: Changing perspectives in the study of teaching

Dunkin and Biddle (1974: 38) presented a model for the study of teaching which reflected the approach to research on classroom teaching predominant in the 1970s. This model posited relationships between what were called *presage* variables (e.g. teachers' personal characteristics and teacher-training experiences), *context* variables (e.g. learners' personal characteristics), *process* variables (defined through interactions between teachers and learners in the classroom) and *product* variables (e.g. learning outcomes). The approach to the study of teaching implied in this model is what is referred to (often disparagingly in contemporary educational debate) as a process-product approach. The aim was to study what happens in classrooms (i.e. processes, defined primarily in terms of observable teacher and learner behaviours) and to link these causatively with what learners achieve or can do. Although the model does acknowledge presage variables which influence teachers' classroom behaviours, it made no reference to the role teachers' cognitive processes might play in the act of teaching itself. This was the dominant conceptual model of teaching in the 1970s. Learning was seen to be a product of teaching, and teaching was conceived of as behaviours performed by teachers in class. The goal of research on teaching was to describe these behaviours, to identify those which were effective and to study links between these behaviours and learning outcomes.

Alternatives to this conception of teaching had already begun appearing in the late 1960s. Three factors are commonly cited to explain the emergence of these alternatives (see Calderhead, 1987, 1996; Carter, 1990). Firstly, developments in cognitive psychology had highlighted the influence of thinking on behaviour. This, therefore, suggested that understanding teachers required an understanding of teachers' mental lives rather than an exclusive focus on observable behaviours. Secondly, there was an increasing recognition of the fact that teachers played a much more active and central role in shaping educational processes than previously acknowledged. Examining the kinds of decisions teachers made and the cognitive basis of these thus also started to emerge as a central area of research

interest. Thirdly, there was growing recognition of the limitations of a concern for quantifying discrete teacher behaviours and the search for generalizable models of teacher effectiveness which had long characterized research on teaching. As an alternative, studies of teaching which examined individual teachers' work and cognitions in a more holistic and qualitative manner began to appear.

Early work reflecting this emerging tradition consisted of rich descriptive and interpretive accounts of classrooms, which illustrated the complexities and the demands of teaching and the manner in which teachers coped with these challenges. Smith and Geoffrey (1968) and Kounin (1970) are representative of such work, though Jackson (1968) is perhaps most often cited as marking a change in the way teaching and teachers could be studied; it was, according to Clark and Peterson (1986: 255), 'one of the first studies that attempted to describe and understand the mental constructs and processes that underlie teaching behaviour'.

In 1975 the National Institute of Education in the United States organized a conference, which had the aim of defining an agenda for research on teaching. Groups of experts in various areas of teaching worked to prepare a plan for research in those areas and one of these groups had as its focus 'Teaching as Clinical Information Processing'. The report of this group argued that:

it is obvious that what teachers do is directed in no small measure by what they think . . . To the extent that observed or intended teaching behaviour is 'thoughtless', it makes no use of the human teacher's most unique attributes. In so doing, it becomes mechanical and might well be done by a machine. If, however, teaching is done and, in all likelihood, will continue to be done by human teachers, the question of relationships between thought and action becomes crucial.

(National Institute of Education, 1975: 1)

This report marked the start of a tradition of research into teacher cognition. It argued that, in order to understand teachers, researchers needed to study the psychological processes through which teachers make sense of their work. This emphasis on cognitive processes marked a major departure from the views of teaching and

teachers dominant at the time; teaching was no longer being viewed solely in terms of behaviours but rather as *thoughtful* behaviour; and teachers were not being viewed as mechanical implementers of external prescriptions, but as active, thinking decision-makers, who processed and made sense of a diverse array of information in the course of their work. As a result of this report, significant research funding for the study of teacher cognition became available to researchers in the USA. Consequently, early thinking in this domain of activity was powerfully shaped by work in North America.

Two key individuals involved in the report just referred to, and whose views at the time on the nature of teaching were influential in promoting a focus on the cognitive dimension of teaching, were Shulman and Elstein. In an early paper (Shulman and Elstein, 1975) they examined psychological studies of problem-solving, judgement and decision-making and considered their relevance to the study of teaching. Both authors had a background in psychology and early work in teacher cognition was in fact primarily psychological in nature, rather than educational (we can contrast this with developments in late 1980s and 1990s, for example, where the study of teacher cognition was aligned more with the field of teacher education rather than with psychology). Reflecting the shift in perspective from teaching behaviours to teacher thinking I have already noted, they commented at the start of their paper that 'research typically slights the problem of how teachers *think about* their pupils and instructional problems; it concentrates instead on how teachers act or perform in the classroom'(p. 3). The aim of their paper was to consider ways in which greater research attention might be focused on teacher thinking; of particular interest was their discussion of teaching as clinical information processing, a metaphor for teaching which dominated early research into teacher thinking (see Kagan, 1988 for an analysis of this analogy). In their words:

The teacher role can be conceptualized like a physician's role – as an active clinical information processor involved in planning, anticipating, judging, diagnosing, prescribing, problem solving. The teacher is expected to function in a task environment containing quantities of different kinds of information that far exceed the capabilities or capacities of any human information processor.

Many of the research strategies [we have] discussed above can be used to understand how teachers cope with that overload while somehow responding, diagnosing, judging, making decisions, and taking actions.

(Shulman and Elstein, 1975: 35)

Research on teaching adopting this perspective was rare at the time, but the position outlined here set the tone for much subsequent work. Teachers' planning, judgements and decision-making were in fact key foci in the emergence of what came to be known as research on *teacher thinking*. An early review of such work is Clark and Yinger (1977).

The introduction to this review reflected the scope of teacher thinking research and the promise it was felt to hold for extending our understandings of teaching:

A relatively new approach to the study of teaching assumes that what teachers do is affected by what they think. This cognitive information processing approach is concerned with teacher judgment, decision making, and planning. The study of the thinking processes of teachers – how teachers gather, organize, interpret, and evaluate information – is expected to lead to understandings of the uniquely human processes that guide and determine teacher behaviour.

(Clark and Yinger, 1977: 1)

Four topics were identified here which had been studied from the perspective of teacher thinking: teacher planning, teacher judgement, teacher interactive decision-making (i.e. decisions made during teaching), and teachers' implicit theories or perspectives. The study of planning in teaching was at the time dominated by a prescriptive model in which objectives were the basic initial unit in the planning process followed by the selection of learning activities, decisions about their organization and about their evaluation. Early studies of planning from a teacher thinking point of view, however, suggested that teachers did not follow this rational model and that learning activities and a concern for the content to be taught were the starting points in planning. This kind of finding immediately highlighted

the capacity of teacher cognition research to develop theories of teaching grounded in an understanding of teachers' actual thinking and practices. This kind of work also began to reveal the complexity of teaching, indicating that linear, rational models of teachers' work were inadequate. Early teacher thinking research on planning also highlighted teachers' use of instructional routines, developed as a result of experience, and defined as 'methods used to reduce the complexity and increase the predictability of classroom activities, thus increasing flexibility and effectiveness' (Clark and Yinger, 1977: 284). In contrast to this work on planning, the research on teachers' judgements, interactive decision-making and implicit theories available at the time did not suggest many clear conclusions. In each case, the number of studies was small, diverse and conducted in very specific contexts. One interesting point which did emerge from the study of teachers' implicit theories, though, was that teachers' thinking and behaviours are guided by a set of organized beliefs and that these often operate unconsciously. This is a point we take for granted in contemporary research on teaching, but 30 years ago the study of teachers' beliefs and their impact on what teachers do was just emerging. In fact, in all four areas of teaching reviewed by Clark and Yinger, more questions than answers were generated, another reflection of the emergent status of this perspective on the study of teaching in the late 1970s.

## **The 1980s: Decision-making and teacher knowledge**

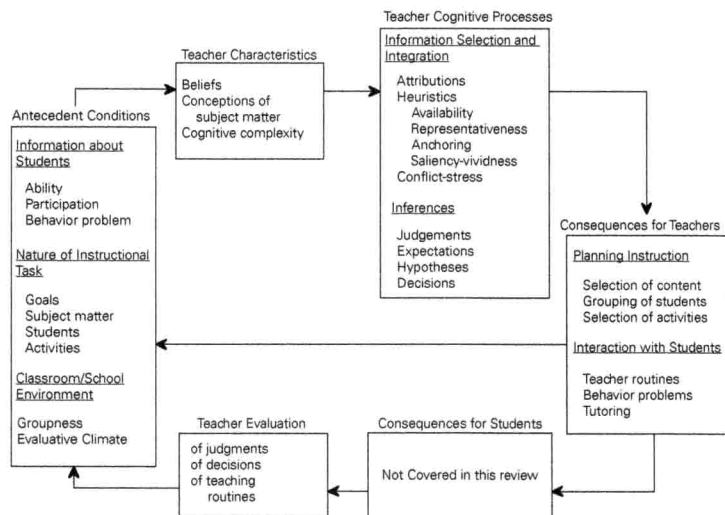
Building on the bases established late in the previous decade, the 1980s witnessed a rapid expansion in the volume of research conducted into the study of the cognitive basis of teaching.

Shavelson and Stern (1981) provided a review of research on teachers' pedagogical thoughts, judgements and decisions published since 1976. They highlighted two justifications for examining teachers' mental activities. The first was that a behavioural model of teaching, by not accounting for teachers' cognitions, is conceptually incomplete. The second justification posited was that research linking intentions



and behaviour can inform teacher education and the implementation of educational innovation. The connections between teacher cognition research and teacher education signalled here were to emerge strongly later in the decade. However, also implied here was the prevailing view at the time that the goal of research on teaching was to provide the basis, somewhat normatively, of more effective teacher preparation and development. For example, in studying teacher planning, there was an interest in identifying effective planning practices and promoting these among teachers generally.

Their diagrammatic overview of teacher thinking research (see Figure 1.1) is indicative of developments in the way the relationship between teacher cognitions and classroom practices were being conceptualized. The various elements in the diagram were organized not linearly (as in the model of teaching by Dunkin and Biddle, 1974, referred to earlier), but as a cycle. The authors explained that ‘the figure is circular in order to show that the conditions that inform a decision will, in all likelihood, be changed somewhat by the consequent behavior of the teacher’ (p. 460). A recognition of this two-way interaction between



**FIGURE 1.1** Overview of research on teachers' judgements, decisions and behaviour

(Shavelson and Stern, 1981: 461)