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Annual review

The analysis of classroom talk: Methods and methodologies

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This article describes methods for analysing classroom talk, comparing their strengths and weaknesses. Both quantitative and qualitative methods are described and assessed for their strengths and weaknesses, with a discussion of the mixed use of such methods. It is acknowledged that particular methods are often embedded in particular methodologies, which are based on specific theories of social action, research paradigms, and disciplines; and so a comparison is made of two contemporary methodologies, linguistic ethnography, and sociocultural research. The article concludes with some comments on the current state of development of this field of research and on ways that it might usefully progress.

In this paper, I will describe some methods for analysing the talk and interaction of teachers and students, discussing their various affordances and limitations. One obvious way that methods vary is whether they provide qualitative or quantitative results, and so I will use that distinction as a major organizing principle. In educational research generally, the selection of a method seems often to reflect researchers' attachment to different epistemological theories, disciplinary traditions, and research paradigms. So in the study of classroom talk, different paradigms of enquiry, or methodologies, can be distinguished; and these embody certain tenets or principles about the nature of educational talk and how it can best be studied. For example, two influential approaches to the study of classroom talk in the UK are *linguistic ethnography* and *sociocultural research*. They have arisen from different disciplinary traditions, and those traditions not only influence researchers' methodological choices, but also the framing of their research questions and their conceptions of how educational research should relate to practice. Before describing particular methods, then, I will briefly describe these two rather different approaches.

Linguistic ethnography has a heritage of social anthropology and descriptive linguistics. Studies are typically observational, non-interventional, and qualitative. The essence of this approach is well explained in a paper by some leading exponents

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(Rampton *et al.*, 2004); Creese (2008) and Tusting and Maybin (2007) are also very informative. Illustrative examples of this kind of research are Lefstein (2008), Maybin (2006), and Rampton (2007). Researchers normally employ the ethnographic and sociolinguistic methods I describe later in this article, which involve the close and detailed examination of classroom talk in its social and cultural context. They are unlikely to use any form of experimental method, or to use statistical analysis. Indeed, they are likely to feel quantitative, pre/post analyses of changes in talk or of learning gains are antithetical to a proper exploration and understanding of classroom communication. They have addressed research questions such as the following:

- How does classroom discourse enable, or inhibit, the expression of identities?
- How are the languages/language varieties of different cultures recognized and used in schools?
- Is current educational policy sensitive to the linguistic and cultural reality of school life?

Linguistic ethnographers commonly emphasize that language and social life are mutually shaping; that talk is always referential, interpersonal, emotive, and evaluative; that socialization is a never-ending process, mediated through talk and interaction; that language genres are important features of educational culture; and that children use talk, in classrooms as much as anywhere else, to negotiate and explore their identities. They also often argue that social situations are unique and so generalizations of the kind commonly made by quantitative researchers are of dubious validity.

Sociocultural researchers, on the other hand, are more likely to affiliate to research traditions in social and developmental psychology and pedagogical studies, with strong attachments to the work of Vygotsky (1978; see also Daniels, 2001; Wertsch, 1985). A rationale for using this theoretical frame for studying classroom talk is provided by Alexander (2000) and Mercer and Littleton (2007). Illustrative examples of research are Black (2007), Howe, McWilliam, and Cross (2005), Skidmore (2006), Smith, Hardman, and Mroz (2004), and the collection edited by Mercer and Hodgkinson (2008). Nuthall's distinctive work also has much in common, theoretically and methodologically, with this line of enquiry (Nuthall, 1999, 2007; see also Collins & O'Toole, 2006). Sociocultural studies may be observational, interventional, and/or quasi-experimental. Researchers quite often combine qualitative and quantitative methods (as described under 'Mixed methods' later in the article). They have addressed questions such as:

- How does dialogue promote learning and the development of understanding?
- What types of talk are associated with the best learning outcomes?
- Does collaborative activity help children to learn, or assist their conceptual development?

Sociocultural researchers commonly emphasize that language is a cultural and psychological tool which (in Vygotskian terms) links the *intermental* and *intramental* – so, for example, classroom dialogue could have an important influence on the development of children's reasoning. They also typically emphasize that knowledge and understanding are jointly created, that talk allows reciprocity and mutuality to be developed through the continuing negotiation of meaning, and that education depends upon the creation and maintenance of intersubjectivity or 'common knowledge'. An implication often drawn is that teachers need to guide and scaffold learning, balancing

the control of dialogue between teachers and students (Myhill, Jones, & Hopper, 2005). I would suggest that it is because of the directly 'applied' orientation of many sociocultural researchers that they are positively inclined towards the use of pre/post interventional designs, seeking to measure differential effects of talk on problem solving, learning, and conceptual change.

Having focused on the differences between these two methodologies, it is worth noting that they also have some shared principles. Researchers in both groups are thus likely to agree that classroom education cannot be understood without due attention to the nature and functions of talk (and that means there must be a qualitative element to the analysis); that cultural and local norms shape the processes of teaching and learning; and that in the classroom, meanings are continually renegotiated through talk and interaction over variable periods of time. The implication is that one-off, 'snapshot' studies of classroom talk are unlikely to yield as valid results as those which involve continuous and repeated observations, such as over a series of lessons. Both groups of researchers are likely to be critical of forms of classroom research which do not appear to recognize the importance of these principles – for example, through the use of simplistic coding schemes which treat all similar-looking utterances as repeated instances of the same event (at least if used without the correctional influence of a proper qualitative analysis, as discussed in more detail in later sections). They would probably also agree that the careful observation of classroom life commonly reveals much of interest that will not normally have been apparent to the teachers involved.

To some extent, then, it is difficult to completely separate methods from methodologies. Some researchers, indeed, would probably argue that we should not. Nevertheless, in the rest of this article, I will attempt to describe methods which are in common use simply in terms of their procedures and functionalities.

Quantitative methods

Quantitative methods are those which use coding schemes to reduce the data of transcribed talk to counts of a specified set of features. The most well-known is 'systematic observation', but increasingly common is the use of computer-based text analysis to measure relative frequencies of occurrence of particular words or patterns of language use.

Systematic observation

A well-established type of research on classroom interaction is known as 'systematic observation'. It essentially involves allocating observed talk (and sometimes non-verbal activity such as gesture) to a set of previously specified categories. The aim is usually to provide quantitative results which can be subjected to statistical analysis. For example, the observer may record the relative number of 'talk turns' taken by teachers and students, or measure the extent to which they produce types of utterance as defined by the researcher's categories (such as particular types of questions used by teachers). The basic procedure for setting up systematic observation is that researchers use their research questions and initial observations of classroom life to construct a set of categories into which all relevant talk (and any other communicative activity) can be classified. Observers are then trained to identify talk corresponding to each category, so that they can sit in classrooms or work from video-recordings and assign what they see and hear to the

categories. Researchers may develop their own categorizing system, or they may take one 'off the shelf'. An example is Underwood and Underwood (1999) who used Bales' (1950) interaction analysis schedule to analyse the dialogue between children as they negotiated their way through a computer task. Teasley's (1995) work offers an interesting example of the use of this type of method applied to the study of collaborative learning. In her study, the talk of children working in pairs on a problem-solving task was recorded and transcribed and each utterance attributed to 1 of 14 mutually exclusive categories. These categories included such functions as 'prediction' and 'hypothesis'. Transcripts were coded independently by two coders and the level of agreement measured to ensure reliability. A count of categories of talk in different groups was correlated with outcome measures on the problem-solving activity in order to draw conclusions about the kinds of utterances which promote effective collaborative learning.

Many experimental studies of collaborative interactions use statistical techniques to ascertain whether there is any evidence of an association between the relative occurrence of particular features of classroom talk and students' success on task or learning gain. For example, correlation techniques were used by Barbieri and Light (1992) and Howe and Tolmie (1999) to determine whether there was any evidence of an association between particular features of learners' talk while working together on computer-based tasks and their success on task and learning gain. Similarly, regression analyses have enabled researchers such as Underwood and Underwood (1999) to determine which, if any, facets of the paired or group interaction were successful predictors of on-task performance.

As well as allowing an examination of any associations between aspects of collaborative activity and measures of outcome, the use of coding schemes for analysing talk also affords other distinct advantages. A lot of data can be processed fairly quickly. This allows researchers to survey life in a large sample of classrooms without analysing it all in detail, and to move fairly quickly and easily from observations to analysis. Systematic observation has undoubtedly provided interesting and useful findings regarding the nature of interactions amongst children working in pairs or groups (e.g. Bennett & Cass, 1989).

However, it is also important to recognize that methods which use only coded talk data have some inherent limitations. The most serious are the problems of dealing with ambiguity of meanings, the temporal development of meanings, and the fact that utterances with the same surface form can have quite different functions. Coding schemes normally require observers to put together all observed utterances which share the same surface features. So, for example, if a teacher asks a class the 'closed' question 'What is the capital of Peru?', it might seem to be unproblematic in its meaning and function, and so easy to code. But if a teacher asked that question before beginning a unit of work on Latin America, it could be being used to assess what relevant initial knowledge students have brought to this topic. If, on the other hand, it was asked at the end of the unit, it would probably have the very different function of assessing what students had learned from recent lessons. And yet again, the same question could be asked simply to rouse a dozing pupil, without any particular expectation by the teacher that the response would demonstrate learning. Although coding schemes could, in principle, be refined to handle such contextual variations, they rarely have been. There are also difficulties in determining the appropriate size of the unit of analysis to be coded – especially as the phenomenon under study involves a continual, evolutionary process of negotiation and re-negotiation of meaning between participants. For example, is the most meaningful unit a question or question-and-answer? Crook (1994) highlights a further difficulty,

pointing out that a collaboration could be rich in instances of supposedly "productive" talk, in the sense that there is evidence of conflict, predicting, questioning, and so on and yet not lead to any worthwhile outcome. A simple count of such coded language features would not capture the extent to which talk is mobilized towards a particular goal or the creation of shared knowledge. Used in isolation, it would effectively reduce collaborations to atemporal 'inventories of utterances' (Crook, 1994, p. 150).

Studying and understanding the temporal dimensions of collaborative activity amongst students represents a considerable theoretical and practical challenge, and of course no method is perfect. But categorical coding schemes are generally inappropriate tools to use without the complementary use of a qualitative analysis, if there is an interest in studying the processes by which teachers and students build shared understandings. In order to gain a fuller understanding of the processes of collaborative work, researchers need methods which recognize that collaborative experiences are typically more than just brief, time-limited, localized sessions of joint activity. When researchers observe a class or group of students working together, the interaction observed is located within a particular historical, institutional, and cultural context. Students and teachers have relationships with histories, which shape the fluid process of classroom interaction. As Crook (1999) also comments, any productivity of interaction observed within a particular session may arise from circumstances that have previously been established. This point is echoed by Light and Light (1999) and Scott (2007) who note that interactions in any one observed session are likely to have determinants in the histories of individuals, groups, and institutions.

Computer-based text analysis

Research in linguistics, in recent decades, has been revolutionized by the development of computer facilities for analysing large databases of written or spoken (transcribed) language. Software packages known as 'concordancers' enable any text file to be scanned easily for all instances of particular target words. (Commonly used examples are Monoconc, Wordsmith, and Conc 1.71. Recent versions of qualitative data analysis packages such as NVivo offer some similar facilities.) Not only can their frequency of occurrence to be measured, but the analysis can also indicate which words tend to occur together, and so help reveal the way words gather meanings by 'the company that they keep'. The results of such searches can be presented as tabular concordances. One practical application of this method (outside educational research) has been in compiling dictionaries. Lexicographers now can base their definitions on an analysis of how words are actually used in a large databank (or 'corpus') of naturally occurring written and/or spoken language. Concordances can reveal some of the more subtle meanings that words have gathered in use, meanings which are not captured by literal definitions. These methods have more recently been taken up by classroom researchers.

Once recorded talk has been transcribed into a word file, a concordancer allows a researcher to move almost instantly between occurrences of particular words and the whole transcription. This enables particular words of special interest to be 'hunted' in the data, and their relative incidence and form of use in particular contexts to be compared. The basic data for this kind of analysis, throughout, remains the whole transcription. By integrating this method with other methods, the analysis can be both qualitative (targeting particular interactions or extended episodes) and quantitative (comparing the relative incidence of 'key words', or of types of interaction as might a systematic observer). Initial exploratory work on particular short texts (or text extracts)

can be used to generate hypotheses, which can then be tested systematically on a large text or series of related texts. For example, a researcher may want to see if a technical term introduced by a teacher is taken up by students later in a lesson, or in their group-based activity. By locating all instances of the term in the transcription file, the ways it is used by teachers and students can then be considered (see, for example, Mercer, 2000; Monaghan, 1999; Wegerif & Mercer, 1997).

In summary, then, the strengths and weaknesses of quantitative methods are as follows:

Strengths

- An efficient way of handling a lot of data; a researcher can survey a lot of classroom language relatively quickly and analyse a representative sample of events;
- enable numerical comparisons to be made across and within data samples, which can then be subjected to a statistical analysis.

Weaknesses

- Actual talk, as data, may be lost early in the analysis. A researcher works only with predefined categories, and so new insights which might be gained from repeated considerations of the original data will be missed;
- the use of pre-determined categories or other target items can limit analysts' sensitivity to what actually happens; and
- coding which depends on the decontextualized identification of language features cannot handle the ways that the meaning of any utterance will depend on its history within the observed dialogue and perhaps in previous encounters between participants.

Qualitative methods

These are methods which aim to reveal the nature, patterns, and quality of spoken interactions. They include ethnographic and sociolinguistic methods, and the method known as 'conversation analysis'. In practice, the first two often appear to be combined. The third tends to be kept distinct.

Ethnographic analysis

Ethnographic methods are an adaptation of methods developed by social anthropologists and sociologists in non-educational fields (see e.g. Hammersley, 1982; Woods, 1983, for accounts of this). Ethnographic analysis aims for a rich, detailed description of observed events, through the researchers' continuous and close involvement in the social environment they are studying. A classic example is Heath's (1983) study of children's language and literacy in and out of school in the southern USA. Compared with the use of a quantitative method like systematic observation, this inevitably limits the sheer amount of classroom interaction which can be analysed; and in any case, the aim is for depth of analysis rather than a more superficial analysis of a large data set. It is therefore typical for studies which use ethnographic methods to study life in just a few classrooms. For example, Maybin (2006) used radio microphones to capture all the talk of a set of primary schoolchildren during their schooldays, both in lessons and in break periods, over several months. This data enabled her to show how children took up and developed certain ideas, themes, and ways of accounting for experience together as they interacted, and to discern the influence of past experience

and of adults and parents in this meaning-making. Some researchers using ethnographic methods have only taken field notes of what was said and done, but nowadays it is common practice to tape-record talk, to transcribe those recordings, and to report the analysis by including short illustrative extracts from transcriptions. Today, ethnographic methods are increasingly merged with the sociolinguistic methods described below.

Sociolinguistic discourse analysis

Some methods for researching talk in educational contexts have their roots in linguistics or, more precisely, sociolinguistics. Sociolinguistics is concerned, broadly, with the relationship between the forms and structures of language and its uses in society. (See Swann, Mesthrie, Duemert, & Leap, 2000, for a general introduction to this field.) Sociolinguistic research is normally qualitative, and often resembles ethnographic research; but it can also incorporate the methods of descriptive linguistics – such as the identification of distinctive sound patterns (phonology), grammatical constructions, or vocabulary items. Moreover, quantitative methods may also sometimes be employed. For example, sociolinguists have compared the extent to which girls and boys dominate classroom interactions (French & French, 1988; Swann, 2007), and recorded the incidence of switches from one language to another in the course of educational events (Edwards & Sienkewicz, 1990). The style of sociolinguistic discourse analysis which has become most popular in the USA is well represented by the work of Gee and Green (1998), and by the collection of articles edited by Hicks (1996).

It is worth noting that the term 'discourse analysis' has no precise meaning; it is used to refer to several different approaches to analysing language (both spoken and written) and hence to some quite different methods. Within linguistics, it sometimes indicates an interest in the way language is organized in units longer than sentences. Educational research following this approach has focused on the structural organization of classroom talk. The classic investigation of Sinclair and Coulthard (1975) showed that in teacher-led lessons the language has characteristics which mark it out as a distinct, situated language variety, and one which assigns particular roles to speakers (see also Stubbs, 1983; Willes, 1983). They devised a method for categorizing all talk in a lesson into a hierarchical system of 'acts', 'moves', and 'exchanges' and 'transactions'. The basic unit of teacher–pupil communication in this system is the 'IRF exchange', in which a teacher Initiates an interaction (typically by asking a question), the student Responds (usually by providing an answer), and the teacher then provides some Follow-up or feedback (for example, by confirming that the answer was correct). The IRF exchange was also identified at about the same time by Mehan (1979), who called it an 'IRE' (with 'E' standing for 'evaluation'). This 'triadic unit' has since been used by many classroom researchers, although few employ the whole of Sinclair and Coulthard's rather complex hierarchical system. A somewhat different method for analysing talk is based on *systemic functional grammar* (SFG), the creation of the linguist Halliday (1993). As the name implies, an SFG-based approach to analysing classroom language allows a researcher to consider how the special educational functions of classroom language relate to its grammatical structure and its textual organization (for example, Gibbons, 1998; Iedema, 1996).

Conversation analysis

Conversation analysis (commonly abbreviated to CA) really deserves to be described as a methodology, rather than just a method. Its roots are in a radical sociology called ethnomethodology, which emerged during the 1960s through a dissatisfaction with the

focus of the then dominant sociology on the structural organization of society on a grand scale (Garfinkel, 1967; Sacks, Schegloff, & Jefferson, 1974). Ethnomethodology aimed instead to explain how the social world operates through people's actions, by focusing on how social interaction is achieved, minute by minute, through everyday talk and non-verbal communication, and how people 'account for' their social experiences. CA is a demanding methodology, because it uses a very detailed and laborious style of analysis and sets very strict criteria for the kinds of interpretations which an analyst can make from the data of recorded talk; and it also involves the use of a very specific and detailed method of transcription (as explained in Drew & Heritage, 1992). Widely used in the analysis of talk in work-related settings (see, for example, Drew & Heritage, 1992), CA has still to be applied to any great extent in classroom research (but see Baker, 1997; Markee, 2000; Stokoe, 2000).

In summary, then, the strengths and weaknesses of qualitative methods are as follows:

Strengths

- Any transcribed talk remains throughout the analysis (rather than being reduced to categories at an early stage) and so the researcher does not have to make initial judgments about meanings which cannot be revised;
- any categories emerging are generated by the analysis, not by codings based on prior assumptions;
- in research reports, examples of talk and interaction can be used to show concrete illustrations of your analysis: researchers do not ask readers to take on trust the validity of abstracted categorizations;
- the development of joint understanding, or the persistence of apparent misunderstandings or different points of view, can be pursued through the continuous data of recorded/transcribed talk; and
- because the analytic scheme is not established *a priori*, the analysis can be expanded to include consideration of any new aspects of communication that emerge in the data.

Weaknesses

- It is difficult to use these methods to handle large sets of data, because they are so time consuming. It is commonly estimated that transcribing and analysing 1 h of talk using such methods will take between 5 and 12 h of research time;
- it can be difficult to use such analyses to make convincing generalizations, because only specific illustrative examples can be offered; and
- researchers are open to charges of selecting particular examples to support their arguments.

Mixed methods

The combined use of quantitative and qualitative methods has become more common in educational research, as in related fields like social psychology and sociolinguistics. In part, this seems to reflect a developing realization amongst researchers that each type of approach has its virtues, and that the integrity of the research enterprise need not involve making an ideological commitment to one or the other. But so far as I am aware, there is only one 'mixed methods' approach which has been given a specific name: sociocultural discourse analysis.

Sociocultural discourse analysis

'Sociocultural' discourse analysis differs from 'linguistic' discourse analysis in being less concerned with the organizational structure of spoken language, and more with its content, function, and the ways shared understanding is developed, in social context, over time (as described in more detail in Mercer, 2005, 2008). As with ethnography and CA, reports of such research are usually illustrated by selected extracts of transcribed talk, to which the analyst provides a commentary. The basic data thus remains throughout the whole process, as with most qualitative methods. But this qualitative analysis is then integrated with quantitative analysis. This might involve using a concordancer to assess the relative incidence of 'key words' or collocations of words in the data (as described under 'sociolinguistic discourse analysis' above). Qualitative analyses of particular interactions can also be used to generate hypotheses which can then be tested systematically, and quantitatively, on a large text or series of related texts. For example, a researcher may want to see if a technical term introduced by a teacher is taken up by students later in their group-based activity. And by locating all instances and collocations of a term in the transcription file, the way it is used by teachers and students in relation to their joint activity can then be considered (see, for example, Mercer, 2000: Chapter 3; Wegerif & Mercer, 1997). A sociocultural method has been used to analyse and evaluate the talk of children working together in pairs or groups (Lyle, 1993, 1996; Mercer & Littleton, 2007), sometimes on computer-based activities (Kumpulainen & Mutanen, 1999; Wegerif & Scrimshaw, 1997).

Conclusions

The analysis of classroom talk brings with it many challenges for researchers, and no method (or methodology) devised so far is without its limitations. But new entrants to this field of research can take advantage of the considerable amount of work, over some decades, that researchers of several disciplines have put into the development of methods for analysing interaction. There is no virtue in re-inventing wheels, or in ignoring the methodological problems with which others have grappled (and which they have at least partly overcome).

With their various strengths and weaknesses, it may seem logical to use two or more methods of analysing talk in a complementary way. In doing so, however, it is important to recall a point made earlier in this paper – that different methods may embody different conceptions of the nature of talk and what counts as a valid analysis. As Snyder (1995) argues on the basis of her studies of children's computer literacy, the successful combination of different methods depends on research being underpinned by a 'sensitive, flexible theoretical framework' for understanding the complexity of real-life events. Given such a framework, I believe there are ways of combining at least some methods which will satisfy most reasonable concerns about validity and methodological consistency. While underlying conceptions of what constitutes a valid course of enquiry are bound to be influential, and rightly so, my own view is that some choices of method – such as whether to use qualitative or quantitative methods, or to use an experimental design or naturalistic observations – should not be too easily determined by ideological commitments. I find arguments that only qualitative research can deal with the human reality of school life, or that only quantitative research amounts to real science, equally unconvincing. Instead, researchers should accept that various methods – and methodologies – have their distinctive strengths and weaknesses, and that by asking

'What do I need to do to answer my research questions?' an open-minded researcher may avoid simplistic choices. From this stance, the most effective forms of enquiry may involve the complementary use of more than one type of method, so that weaknesses are counterbalanced and evidence of more than one kind is generated. An increasing number of researchers seem to share this point of view.

It is worth noting that more researchers also seem to be involving teachers as co-researchers in the analysis of classroom talk and interaction, usually with the aim of helping teachers gain new insights into their everyday experiences and practice (see, for example, Armstrong & Curran, 2006; Hennessy & Deaney, 2009). More classroom researchers also use specially designed software, such as AtlasTI, NVivo, and ObserverXT to organize and annotate their digitally recorded data. (Though as one sometimes has to remind students, any such software is just an organizational tool; it does not come with an in-built methodology and does not do the analysis for you!) But beyond these contemporary developments, how might this field of study most usefully develop, in methodological terms? Some might say that researchers should not just focus on talk itself, but instead make 'multimodal' analyses which treat talk as one of several communicative modes (along with gaze, gesture, written texts, pictures, video, and so on) as only in that way can the richness of classroom interaction be properly appreciated (see, for example, Jewitt, Kress, Ogborn, & Tsartsarelis, 2004). I have engaged in some multimodal analysis myself, when studying how teachers use interactive whiteboards, and have some sympathy with that argument (Gillen, Kleine Staarman, Littleton, Mercer, & Twiner, 2007). But language remains for me the prime cultural tool of the classroom. Spoken language enables, in unique ways, the development of relationships amongst teachers and learners and the development of children's reasoning and understanding; so I would not subscribe to an analytic approach which diluted its significance to that of just one of several modes.

I believe the toughest methodological challenge we face is to properly recognize that talk functions in a temporal context (as explained in more detail in Mercer, 2008). Classroom education is normally a continuing, cumulative experience for the participants, an experience which even researchers involved in longitudinal observational studies can only sample, only partly share. Participants draw on their shared history all the time when they communicate. Moreover, as a leading pioneer of research into classroom talk reminded us recently, 'Most learning does not happen suddenly' (Barnes, 2008, p. 4). If we want to understand how it happens through talk in classrooms, we need to operate on a suitable timescale – and of course use appropriate methods for collecting and analysing data. Approaches which rely only on brief encounters with classroom life, or on the atemporal coding of utterance types and content references, can never do justice to what teachers and learners achieve, or fail to achieve, every working day.

Regarding what we might most usefully use available methods to do, a pressing need is to provide more strong empirical evidence of how involvement in talk affects educational outcomes. There is evidence – some of which has been available for a while – that teachers' use of certain interactional strategies with students has beneficial effects on their curriculum learning and skills in comprehending texts (Brown & Palincsar, 1989; Chinn, Anderson, & Waggoner, 2001; Kyriacou & Issitt, 2008; Rojas-Drummond, Mercer, & Dabrowski, 2001; Wolf, Crosson, & Resnick, 2006). It has also been shown that certain features of discussion amongst students are associated with the development of their individual reasoning and understanding of curriculum topics (Howe *et al.*, 2005; Mercer & Littleton, 2007). We also know that the ways teachers use

talk in the classroom have a significant effect on how their students evaluate talk and use it as a tool for their own learning (Fisher & Larkin, 2008; Webb, Nemer, & Ing, 2006). But if this line of educational research is to have a major impact on educational policy and the training of teachers, we need more large scale studies which use a combination of qualitative analysis and quantitative assessments to consolidate and extend that evidence base and to show more clearly how talk can enable classroom education to be successful.

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