

The Learner's Perspective Study¹: Methodology as the Enactment of a Theory of Practice

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Abstract

The theoretical position underpinning the Learner's Perspective Study can be summarised in this fashion: A study of learning in classroom settings would be incomplete without the simultaneous documentation of the social and cultural practices in which the learner participated, the instructional materials, physical configuration of the classroom, and other contextual features with which the learner interacted, the teacher actions that preceded and followed the learning under investigation, and the extent to which the practices of others were reflexively related to the learner's activities and the personal consequences of those activities. Such research requires a methodology that accords value and voice to all participants in the classroom. This theoretical position has immediate methodological entailments and led to the development of the data collection employed in this study.

The primary analysis in the Learner's Perspective Study is undertaken collaboratively by researchers from the nine participating countries. The breadth of expertise within the research team makes possible multiple parallel primary analyses of the very large, very complex data set. In this presentation, examples will be provided with regard to (i) the primary analyses, (ii) the collaborative and negotiative process central to such a research project, and (iii) the methodological anticipation, within the study design, of secondary analyses of the project data.

Introduction

Contemporary emphases on the social situatedness and socio-cultural constitution of learning converge in research into the practices of the classroom and the meanings associated with those practices. Consistent with the significance attached to the social nature of learning, attention in many research studies focussed on the negotiative construction of mathematical meaning (certainly from Erlwanger (1975) onwards). In social constructivism, the emphasis has remained on mathematical meanings and the social nature of their construction (for example, Bauersfeld, 1988). The acknowledgement that social meanings were also under construction in such settings (Brousseau, 1986; Clarke & Helme, 1998) was progressively integrated into a conception of learning that became increasingly socio-cultural in character and increasingly complex. Mathematical and social practice became more central to research into the learning and practice of mathematics as the attention to social meaning was extended to encompass "norms" of

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practice (Yackel & Cobb, 1993; Yackel, Cobb, Wood, Wheatley, & Merton, 1991). The social negotiation of meaning has continued to occupy researchers (for example, Cobb & Bauersfeld, 1995). Recent analyses of classroom data suggest that classroom practice can be usefully characterised as negotiation (Clarke, 2001). That is, those activities that were seen as subordinate to the main business of the classroom are now recognised as constituent elements of that business.

Greeno assists our argument here, by observing that “Methods of instruction are not only instruments for acquiring skills; they also are practices in which students learn to participate” (Greeno, 1997, p. 9). Some classroom practices will resemble those of other communities who habitually make use of skills specific to mathematics (accountants or surveyors, for example), and some practices will be classroom-specific in the sense of relating to the process of learning (asking particular types of questions when in doubt, seeking and offering assistance, and so on). Greeno also makes reference to “patterns of participation” developed by students (Greeno, 1997, p. 9). One of the principal interests motivating the current nine-country *Learner’s Perspective Study* is the consideration of the culturally-grounded character of such patterns of participation.

The *Learner’s Perspective Study* integrates data on patterns of participation in practice with data on the meanings that individuals construct for that practice and from that practice. Importantly, this research is being conducted in ten culturally-diverse educational systems. Inevitably, issues of culture and value will be not just the emergent products of our research but a pervasive influence on the way that research is conducted. In this paper, I aim to, firstly, set out briefly the basic research design for the *Learner’s Perspective Study* and, secondly, to identify the theoretical underpinnings on which the project’s methodology is founded.

The Learner’s Perspective Study – Data Collection in Brief

Elsewhere (Clarke, 2001), I have proposed three basic premises concerning researching practice:

1. The discourse of the classroom (say) acts to position participants in ways that afford and constrain certain practices.
2. The discourse of educational research acts to position participants in ways that afford and constrain certain interpretations.
3. The adoption of a theory of learning in social situations will inevitably find its reflection in the manner in which those situations are researched.

It is essential that we interrogate our actions as researchers and reverse engineer our study designs in order to deconstruct the epistemology and the learning theory on which our research is predicated. In my own case: Research guided by a theory of learning that accords significance to both individual subjectivities and to the constraints of setting and community practice must frame its conclusions (and collect its data) accordingly. Such a theory must accommodate complementarity rather than require convergence and accord both subjectivity and agency to individuals not just to participate in social practice but to shape that practice.

Data collection in the *Learner’s Perspective Study* involves a three camera approach (Teacher camera, Student camera, Whole Class camera) that includes the onsite mixing in the classroom of the Teacher and Student camera images into a split-screen video record that is then used to stimulate participant reconstructive accounts of classroom events. These data are collected for sequences of ten consecutive lessons occurring in the “well-taught” eighth grade mathematics classrooms of three teachers in each of the nine participating countries (Australia, Germany, Hong Kong (including Mainland China), Israel, Japan, The Philippines, South Africa,

Sweden and the USA). This combination of countries gives good representation to European and Asian educational traditions, affluent and less affluent school systems, and mono-cultural and multi-cultural societies.

Each participating country uses the same research design to collect videotaped classroom data for at least ten consecutive math lessons and post-lesson video-stimulated interviews with at least twenty students in each of three participating 8th grade classrooms. The three mathematics teachers in each country were identified for their locally-defined 'teaching competence' and for their situation in demographically diverse government schools in major urban settings. The three lesson sequences were spread across the academic year in order to gain maximum diversity of local curricular content. Students interviewed after each lesson, using the split-screen video record as stimulus for their reconstructions of classroom events, were given control of the video replay and asked to identify and comment upon classroom events of personal importance. Each teacher was interviewed at least three times using a similar protocol.

With regard to both classroom videotaping and the post-lesson interviews, the principles governing data collection are the minimization of atypical classroom activity and the maximization of respondent control in the interview context. Each videotaped lesson sequence was preceded by a one week familiarization period in which all aspects of data collection were conducted until the teacher indicated that the class was functioning as normally as might reasonably be expected. The location of control of the video player with the student ensured that the reconstructive accounts focused primarily on the student's parsing of the lesson. Only after the student's selection of significant events had been exhausted did the interviewer ask for reconstructive accounts of other events of interest to the research team. Documentation of the participant's perspective (learner or teacher) remained the priority.

We see the Learner's Perspective Study as complementing large scale survey-style studies such as the *TIMSS* video studies. Consider the 50 Japanese lessons collected in the *TIMSS Video Study* using a one-camera, no interview approach, and the 30 lessons collected in the *Learner's Perspective Study* using a three-camera, post-lesson interview method. The first data set has the capacity to suggest practices and lesson structures frequently employed by Japanese mathematics teachers. The second data set can be utilised to examine the consequences of those teacher actions and the consistency with which a particular teacher makes use of a particular lesson structure. The identification in the *Learner's Perspective Study* of a teacher action that students found to be particularly helpful can prompt an investigation of its prevalence within the *TIMSS Video Study* data. In this sense, the *TIMSS Video Study* and the *Learner's Perspective Study* are complementary and mutually informing.

The Iterative Theorising of Researching (Classroom) Practice

Classrooms are complex social settings, and research that seeks to understand the learning that occurs in such settings must reflect and accommodate that complexity. If we approach social settings (and the situations they frame) as multiply-constructed and open to multiple construal, then the methodology employed in their study must offer a voice to the several participants in these settings and avoid the identification of authority with any one voice (even that of the Researcher). We must avoid the threat of over-simplification of setting or situation; a threat more likely to be realised if we were to commit to a single interpretation. Instead, we need to acknowledge the multiple potential meanings of the situations we are studying by deliberately giving voice to many of these meanings through accounts both from participants and from a variety of "readers" of those situations. The implementation of this approach requires the

rejection of consensus and convergence as options for the synthesis of these accounts, and instead accords the accounts “complementary” status, subject to the requirement that they be consistent with the data from which they are derived, but not necessarily consistent with each other, since no object or situation, when viewed from different perspectives, necessarily appears the same.

“Complementary Accounts Methodology” has been employed with some success in one major study of mathematics and science classrooms, and is presently providing the structure for a second major study of eighth grade mathematics classes in nine countries. Complementary Accounts Methodology, as my co-workers and I have developed and applied it (Clarke, 1998 and 2001), is distinguished from other approaches to classroom research by:

- the nature of the data collection procedures, leading to the construction of "integrated data sets" combining videotape, interview and other data,
- the inclusion of the reflective voice of participant students and teacher in the data set,
- an analytical approach that utilises a research team with complementary but diverse areas of expertise to carry out a multi-faceted analysis of a common body of classroom data.

The object of our research is the integrated documentation of not just the obvious social events that might be recorded on a videotape, but also the participants’ construal of those events, the memories, feelings, and actions invoked, and the mathematical and social meanings and practices which arose as a consequence. The research procedure was designed explicitly to achieve this integration. The examples used in this paper to illustrate particular points are drawn from analyses of a common body of classroom videotape and interview data published as *Perspectives on Practice and Meaning in Mathematics and Science Classrooms* (Clarke, 2001) and from research currently in progress into “well taught mathematics classes” in Australia, Germany, Hong Kong (including Mainland China), Israel, Japan, The Philippines, South Africa, Sweden and the USA (*The Learner’s Perspective Study*). With regard to the second study, data collection is complete in Australia, Germany, Japan and the USA and reports of some preliminary analyses of these data are provided in another forum (AERA Symposium 37.29: *International Perspectives on Mathematics Classrooms*).

A Practice-Oriented Analysis of Learning

I am convinced of the viability and value of a practice-oriented analysis of learning – in part because it situates mathematical and scientific activity in relation to the social settings in which I am interested, but also because it allows us to interrogate those settings with respect to the practices they afford and constrain. Analyses focusing upon the practices of a system (or setting) offer our best hope of accommodating the complexity of the phenomena we are interested in, but doing so in a manageable fashion.

Bodies of practice are also developed by groups within the class. Most notably in Australian classrooms, instances have been documented of well-developed patterns of dyadic practice between pairs of students (see the discussion of Lauren and Karen in Clarke, 2001, Chapter 3). Such dyadic practice shows all the characteristics of regularity and resilience that might be associated with the practice of larger groups (or communities) such as the participants in a classroom. Similarly, I distinguish the practice of individuals (a teacher’s practice or a learner’s practice) from ‘professional practice’ in the sense of established ‘legal practice’ or ‘medical practice.’ In this regard, I posit the notion of an individual having constructed a body of practice in which s/he engages regularly, but which is subject to refinement, modification,

rejection, and replacement over time. Such individual practice will be a subset of the practices of the various communities of which each individual has membership and will conform to the affordances and constraints of the settings and situations in which those individuals find themselves.

There are differences between this view of learning as emergent individual (or dyadic) practice and the social theory of learning articulated by Wenger (1998). These differences relate to the degree of agency accorded to the individual (i) to choose the nature of their participation in community practice, and (ii) to contribute to and change that practice. Such differences are largely ones of emphasis, with Wenger foregrounding the community into whose practice the learner is being initiated, while I am more interested in the acts of interpretive affiliation whereby the learners align themselves with various communities of practice and construct their participation and ultimately *their* practice through a customizing process in which their inclinations and capabilities are expressed within the constraints and affordances of the social situation and the overlapping communities that compete for the learner's allegiance and participation. In particular, Wenger stresses the multiplicity and overlapping character of communities of practice and the role of the individual in contributing to the practice of a community. In another respect, I am also in significant sympathy with Wenger's perspective.

The kind of social theory of learning I propose is not a replacement for other theories of learning that address different aspects of the problem. But it does have its own set of assumptions and its own focus. Within this context, it does constitute a coherent level of analysis; it does yield a conceptual framework from which to derive a consistent set of general principles and recommendations for understanding and enabling learning (Wenger, 1998, p. 4).

This theoretical position, as stated by Wenger, implies a legitimate complementarity to theories of learning. The criteria for legitimacy are coherence, a domain of applicability, an implicit consistency with empirical evidence within that domain, and the potential to inform our understanding of learning and our promotion of learning in that domain. The legitimacy and utility of complementary analyses follow directly from this position.

Whether we look to the contemporary French use of "didactique", the Japanese "tagushushido", the Dutch "leren" or the Russian "obuchenie", we find that other communities have acknowledged the interdependence of instruction and learning by encompassing both activities within the one process and, most significantly, within the one word. The existence of such a term in English would transform our interpretations of the activities of the classroom and encourage (or compel) us to identify communal practices and the progressive participation in a common discourse as essential features, rather than fragmenting the classroom into teaching and learning activities undertaken by individuals. For the moment, I am using the term "instructed learning" to refer to the body of collaborative practice that occurs in classrooms. Instructed learning, as I have framed it, utilises a process of interpretive affiliation to position individuals in a given social setting. Individual participation in the practices of the social setting is subject to the dual affordances and constraints of the setting and of the individual's capabilities and inclinations.

But co-construction of *practice* and joint participation *in practice* do not connote commonality of purpose among the participants in that (classroom) practice. Among other things, teachers and learners are distinguished by the goals they bring to the classroom situation. For the learner: How best should s/he act (includes "think") in order to benefit from participation

in the activities of the classroom? For the teacher: How best should s/he act (and think) in order to maximise the benefit accruing to the student from their participation in the activities of the classroom? In that sense, both teacher and learner share a common purpose, but they are not positioned identically within that purpose, and their classroom participation will both confirm these positionings and co-construct them.

The conception of learning as a form of incrementally increasing participation in an existing body of social practice (for example, Lave and Wenger, 1991) brings methodological entailments. Such a conception invokes simultaneously the need to document that practice and to relate changed participation in practice to other changes specific to the individual. One challenge for theorists has always been to account for the demonstrable diversity of individuals' knowings within the evident commonalities of action associated with participation in a common social setting. A valuable perspective is offered by consideration of the extent to which features of the social setting constrain or afford particular practices associated with learning and thereby constrain or afford the learning itself. In the current international study of competent mathematics teaching, the cultural basis of these affordances and constraints is of particular interest.

Voice and Text

Our current research, as outlined above, is highly dependent on the recounting of various texts: classroom dialogue ('public' and 'private'); teacher and student written material; and teacher and student interviews. These texts provide the basis from which to consider how the individuals in the classroom are positioned by the discourses in which they participate. It is important, however, to note that the discourse of educational research also acts to position participants in ways that afford and restrict certain interpretations. For example, analyses that attribute characteristics such as interest, motivation or values to individuals require a theory of psychology of the individual, albeit a socially-situated individual, that recognises personal histories and perceptions. Analyses intended to identify patterns of social interaction characteristic of social groups or settings require a theory of social situations in which social events and social structures are the constituent elements, and in which the collection of data on individual subjectivities is subordinated to group behaviours.

A study of learning in classroom settings is incomplete without the simultaneous documentation of the social and cultural practices in which the learner participated, the instructional materials, physical configuration of the classroom, and other contextual features with which the learner interacted, the teacher actions that preceded and followed the learning under investigation, and the extent to which the practices of others were reflexively related to the learner's activities and the personal consequences of those activities. Such research requires a methodology that accords value and voice to all participants in the classroom. Such a methodology must document both the practices in which individuals participate and the meanings that individuals associate with those practices. One participates in social practice as a member of a social group, but this membership is a matter of interpretive affiliation by the participating individual. It is an oversimplification to discuss classroom practice as though it were constituted the same for each individual. The nature of an individual's participation is itself an interpretive act.

To draw the distinction between social and cognitive processes is not to preclude the influence of one upon the other (in either direction). Cobb (1994) framed the relationship as one

of reciprocal contextuality, where the reflexivity between social and cognitive processes can be located in the implicit presence of each theoretical perspective in the other.

Learning as acculturation via guided participation implicitly assumes an actively constructing child . . . Learning as cognitive self-organization implicitly assumes that the child is participating in cultural practices (Cobb, 1994, p.17)

In the *Learner's Perspective Study*, the study design sought to juxtapose the observable practices of the classroom (documented through videotape and written product) and the meanings attributed to those practices by individual participants (documented through video-stimulated post-lesson interviews and questionnaires).

The 'Instructed Learner' and the 'Epistemic Student'

Differences between the documented practices recorded on videotape and the participants' discrepant accounts of those practices only emerged through the juxtaposition of video and interview data. Williams and Clarke (2002) have explored some of the issues related to the interpretation of video and interview data, particularly in situations where the two data sources suggest discrepant interpretations. Williams and Clarke (2002) used data from the *Learner's Perspective Study* to develop independent accounts of one student's classroom practice and associated learning during a single lesson using video and interview data separately. The resultant accounts were inconsistent in several places, but some convergence of interpretation was possible through their juxtaposition. On the other hand, some differences were irreconcilable on the basis of one lesson's data, but could be resolved with recourse to the lessons preceding and following the incidents in question.

At the heart of the synthesis of data-level accounts are the questions, "Whose perspective is being documented?" and "Whose practice do we seek to understand?" In the current analysis of the Australian data from the *Learner's Perspective Study*, such analyses are being employed to construct distinct Learner Prototypes: 'positions' occupied and 'forms of practice' constructed by learners in the classrooms being researched. Such Learner Prototypes will provide detail on learner perspective and practice alternatives available to students. Data from classrooms in other countries can then be examined for similar or different Learner Prototypes. The conjecture driving this analysis is that available Learner Prototypes will be culturally derived.

Les Steffe posited 'the epistemic student' as the principle object of learning research (Steffe, 1996). In one aspect of our research, we seek to identify 'the instructed learner' by reverse engineering those student behaviours constrained and afforded by the teacher's actions and by the configuration of the classroom. In particular, we can ask the question, "What is the entity/construct maximised by the teacher's actions in this classroom?" That is, what is the "utility function" of this classroom. The answer to this question might be "student learning" or it might be "teacher control" or it might be "student enjoyment" or some combination of these. In the same way that the biologist, von Uexhull, in the 1940s could propose that the spider's web was the spider's model of the fly, I suggest that the classroom and its characteristic practices enact the teacher's model of the student (the 'instructed learner').

By studying students, the practices they engage in, and the learning that results, we can empirically characterise the epistemic student, and then make comparison with the instructed learner that is implicit in the configuration of the classroom and its practices, with the goal of minimising any differences between these two. It is quite possible that any correspondence

between the epistemic student and the instructed learner is culturally idiosyncratic. The *Learner's Perspective Study* is uniquely placed to identify both the epistemic student and the instructed learner in culturally-specific terms.

Cultural Authorship

The coding of data in both the first *TIMSS Video Study* and the *TIMSS-R Video Study* anticipate statistical analyses and conform to the cultural values and aspirations of the researchers directing the study. A report such as that produced by Stigler and Hiebert (1999) is inevitably reflective of the curricular interests and priorities and the cultural values of the authoring culture. It seems reasonable to suppose that an analysis reported by a German or Japanese research team would highlight different aspects of classroom practice and draw different conclusions. This is not a criticism of the methodological rigor of the *TIMSS Video Study* or the legitimacy of the published analyses of its data. My purpose is to raise the issue of cultural authorship and to suggest that international studies in education must facilitate the undertaking of analyses that reflect different cultural perspectives.

The analyses now emerging from the *Learner's Perspective Study* reflect the interests and priorities of the various research groups participating in the project. Some interests, such as the characterization of the Learner's contribution to Classroom Practice, are shared by all contributing research groups. Other emphases are specific to a particular group of researchers and may reflect the curricular priorities of that country or the value attached by the researcher's culture to learner autonomy or collaborative activity, for example. One of the distinguishing features of the *Learner's Perspective Study* is the anticipation that value will accrue from research reports with different cultural authorship.

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