

## Teachers Assessing Coursework: Themes and Tensions

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The data discussed here has arisen from interviews with teachers carried out as part of a study of the discourse of doing and assessing coursework in secondary schools. In a previous BSRLM session (Morgan, 1992) the features of children's coursework texts were examined and the criteria for what might be 'appropriate' ways of writing considered. The meaning of a text does not, however, reside in the text itself but is constructed through the interaction of the text and its reader within a specific context. Where there are multiple readers (or one reader taking multiple positions) there may be different readings. In particular, features of the children's texts may be interpreted in different ways by a group of teachers, lecturers and researchers at a conference and by a teacher trying to assess a piece of coursework. In order to incorporate the teacher's perspective as reader of children's texts, 'discourse-based' interviews (Odell, 1982) were used in which teachers were asked to read a small number of pieces of children's coursework based on the task 'Inner Triangles' (LEAG, 1991), to talk about what they were reading, to place the pieces of work in rank order, and to explain how they were making their judgements. The pieces of work had been chosen to illustrate contrasting styles of writing, the aim being to identify those features of the children's written work that were considered to be significant and to examine the reasons the teachers gave for their judgements.

Two of the themes identified in this data will be considered here. Both themes will be illustrated by extracts from teachers responses to one page of a piece of coursework written by Robert. Robert's text as a whole contains very few words and consists largely of diagrams, tables of results and formulae. The page under discussion here contains: a table of results (but no indication of where the results came from); a single diagram of a trapezium with its dimensions labelled with variable names; and a formula using these labels to relate the dimensions of a trapezium to the number of unit triangles it contains. All the work is correct and arranged neatly on the page. One of the teachers, Alan, taught Robert himself, but the interview took place two years after the coursework had been completed. Alan's recollections of the boy are, therefore, likely to be of a general nature rather than specifically related to his work on this investigation.

### Theme 1: shifting reader positions

Freda's discussion of this page of Robert's work (figure 1) suggests that she does not have a single perspective on his work but reads it from a variety of different points of view.

Several times Freda identifies "problems" with Robert's work. She is reading here in the role of an examiner looking for evidence that the results 'belong' to Robert (lines 1-3), for evidence of "how he's got it" (lines 15-16), and for justification of the results (lines 21-22). Her discomfort in this role, however, is suggested by the use of the word *problem*. There is a tension between the rigour of the examiner, for whom use of the assessment criteria determines .u.n.problematically a decision

about the value of a piece of work, and the wish of a teacher that a pupil should get as high a grade as possible. In this case, Freda reading as teacher/advocate feels that the missing evidence might have been available in the classroom but when she reads as examiner she cannot take account of this possibility. The problems are Robert's problems but they are also Freda's problems in resolving her two roles.

Figure 1

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Freda *This is a major problem because he's got these results but unless one is there in the class and you're a teacher you don't know whether this is his results or somebody else's. He hasn't shown any diagrams of where these results have come from. He hasn't done any drawings as far as I can see. He's come up with a formula which is  $Z$  equals.  $Z$  must be the slant height. Is equal to  $X$  plus  $Y$  equals  $T$ . I assume that's right, I don't know.*

CM Yes, I think that's right

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Freda *That is right is it? Ok . . . but again even that's not, I mean he's given . . . one thing that I think they have to do is when they give a formula they should explain it using quite a few examples and show how it works. The thing that I always look for and I say to the kids is: you write it up as if you're writing it for somebody who's never seen this problem, who's never done that but would be able to understand it if they were to read it. And from this, somebody . . . I don't think it's clear enough for somebody to use it and then work out, I mean he hasn't done even one example of how it works. So I think he's got a major problem here, he hasn't shown how he's got it. If you were in the class, obviously we can award marks when they've done something in class but it's not written down. If you're the teacher in the class and you knew that he's just omitted it by mistake um but also he hasn't included his rough work and that's, when this happens, often you find what you need in the rough work and that can, you know. So none of his results are justified there at all. I think he could have problems with that.*

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This tension is expressed again (line 9) when Freda describes "one thing that I think they have to do"; there is an ambiguity in this phrase which is also present in the intonation used: is this her own opinion of what is appropriate or is it her belief about what is expected by the examination board? When she (as teacher) is uncomfortable with the severity of her judgement of the piece of work, she is able to shift the blame to an anonymous authority that lays down what "they have to do". This shifting of the blame is done more explicitly by another teacher, Dave (see figure 2), who referred repeatedly and negatively during his interview to the expectations of the examination board in explaining how he was making his assessments of pupils' work against his own judgement.

At lines 10-11, Freda again expresses a dual role - this time a more comfortable one - as examiner and as teacher/adviser, looking for the specified characteristic of the writing as an assessment criterion and simultaneously advising the pupils of the criterion that is being used. The nature of the criterion she describes, however, forces her to adopt yet another reader position, as an imaginary naive reader "who's never seen this problem, who's never done that but would be able to understand it if they were to read it" (lines 12-14).

Figure 2

5	Dave	With a bright group, I can actually remember a boy doing this and within 20 minutes with a bright group giving me the formula. And he'd worked it out in that time. He'd sussed it out very quickly and so - it actually makes it quite a ponderous kind of activity really cos he'd seen it, he'd got the formula that they're asking for in the generalisation, he knew why it worked, he could explain it and that was all in one at the beginning of the first lesson.
	CM	So where does he go from there?
10	Dave	<i>But he still has to fulfil the criteria on a London piece of work. I mean he was a very amenable lad and he did it but it must have been a bit tedious to say the least.</i>

In this short passage extracted from Freda's interview, she thus adopts a number of reading positions, some of which are potentially contradictory:

- examiner, using externally determined criteria
- examiner, setting and using her own criteria
- teacher/advocate, looking for opportunities to give credit to a pupil
- teacher/adviser, suggesting ways of meeting the criteria
- imaginary naive reader

It is hardly surprising that teachers find the assessment of written reports of investigations difficult. The tension between taking on an examiner role and acting as teacher/advocate is a familiar one for teachers involved in any summative assessment; it is to be expected that one way in which it may be resolved is by appeal to the anonymous authority of the examination board. When the criterion concerned is expressed in terms of suitability for an imaginary audience, however, there is an assumption, not only that the pupil will understand the nature of this hypothetical audience and actually address it, but also that the teacher will successfully adopt the position of the specified audience when reading and judging the pupil's work. Neither of these assumptions are justified (see, for example, Redd-Boyd & Slater, 1989; Gilbert, 1989). Where, as in this case, the teacher is reading as an 'lexpert', judging the mathematical quality, and simultaneously attempting to read as "somebody who's never seen this problem", the tension is less easily resolved. This is particularly the case where the characteristics of the specified imaginary audience are unclear; in Freda's case it appears that "somebody" has some degree of mathematical understanding as they would be able to understand it if they were to read it" and yet they are constructed as needing an example in order to be able to use a simple formula.

#### Theme 2: shifting roles for algebra

Like Freda, Alan (figure 3) comments on the lack of "evidence" in Robert's work but his teacher/advocate position appears dominant over his examiner role (lines 4-5). He ascribes his "confidence" in the work to his more personal knowledge of the boy concerned. This is confidence that the work is Robert's own effort; Alan is still concerned at the lack of evidence of what Robert can do. One of the key pieces of evidence that is identified as being missing in Robert's work is a generalisation expressed in words. Such generalisation, however, appears to play multiple roles. Initially, Alan claims that he wants to see that Robert "can generalise in words" (line

10); he is looking for evidence of a skill. In the next breath he is suggesting that this would also provide evidence of "understanding". The expression that he uses is, however, ambiguous. "It kind of gives the understanding" (line 11) to whom? Is the understanding given as evidence to an examiner or given to the pupil himself. As Alan shifts between an examiner and a teacher/adviser position, the generalisation in words also shifts from being evidence towards assessment of the pupil to being a pedagogic device for helping the pupil to gain understanding. (Note that at the same time he shifts from referring specifically to Robert to using an unspecific "they" (line 13) and ultimately (lines 20-23) to an explicit generalisation about what "we" tell "the children".)

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Figure 3

5	Alan	He jumps straight into a table of results which . . . although there's no evidence for it, that is interesting because I know the way this boy worked, the work was very disorganised, he'd work on pieces of paper thrown everywhere . . . <i>I'm very confident that although there's no evidence of it what he's produced is right and he's done it.</i> It definitely wouldn't be a copy. He was very [..], didn't like working in groups and I am confident that he's produced that table by himself. That's interesting, that can only be a teacher's inside knowledge. Somebody marking that coldly wouldn't be able to state that. He's produced some algebra and the algebra's correct. He's indicated on a diagram what the variables stand for and that's fine. <i>Again I would like to see that he can generalise in words first of all. It kind of gives the understanding, I think, putting it into words the patterns which they see. Then I think it underpins the algebra which they produce later. But nevertheless I'm confident that that's his work, and that he's produced that off his own bat.</i>
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15	CM	But if that were a child that you didn't know, would you have doubts about it?
20	Alan	I think you'd have to. When we moderate, we usually do it as a group in the same room usually working in different corners on the scripts that we're moderating and frequently we ask across the room to the teacher concerned where did this come from is that alright and the [..] knowledge, on we go. But there's usually a check of that kind. <i>We try very hard to tell the children generalise in words first of all and we say if you know a pattern, can you tell us about it, tell your friend about it. When they can explain the pattern in words and they write those words down then they're ready to produce the algebra.</i>

Alan appears to be using a criterion (unwritten) that any algebraic generalisation appearing in a piece of coursework should be preceded by a verbal statement of the same generalisation. Stated like this, it is a simple matter to judge whether or not a pupil has fulfilled the criterion. The justification for using this criterion, however, is not so simple; it takes a number of forms:

- it is evidence that the pupil can give a verbal generalisation
- it shows that the pupil understands the algebra
- it proves that the formula 'belongs' to the pupil
- it helps the pupil to understand the pattern
- it prepares the pupil to "produce the algebra"

The discourses of assessment and of pedagogy are intertwined here - perhaps an inevitable consequence of the teacher's role. The suggestion that describing a generalisation in words is a first step towards using algebraic symbols is a common

pedagogic strategy. It seems, however, to have been transformed into a prescriptive algorithm for 'doing investigations'. It may well be that doing a large number of examples helps many children (and adults) to reach a generalisation and that expressing this in words, either spoken or written, helps many to construct a formal algebraic expression. Is this, however, a justification for insisting that those who do not need this help should nevertheless act as if they do?

### **Implications**

In describing the multiple, and in some cases contradictory, positions taken by these teachers in the course of reading and assessing coursework texts, I am not suggesting that the teachers are confused or incompetent. All those quoted here are experienced, thoughtful teachers who have been involved with doing and assessing coursework since GCSE was introduced. The contradictions arise from the nature of the tasks that the teachers are doing and from the multiple discourses within which they are situated. As examiners for a national, summative examination they must be concerned with validity and consistent application of standards. As professionals concerned for the welfare of their pupils and for their own standing as successful teachers they wish to ensure that each pupil's performance is judged as highly as possible. As teachers they are concerned to provide their pupils with pedagogic support and advice that will help them both to learn mathematics and to perform better in assessment tasks. A further possibility that must not be ruled out in looking at these interviews is that the teachers are also positioned as 'interviewees' talking to an interviewer who they know to be working in Higher Education and who had previously worked with some of them in the role of advisory teacher. Alan's decision to describe his general procedures for assessment and pedagogy (figure 3, lines 16-23) suggests such a position.

This analysis leads me to question the practice of teacher assessment of coursework within external examinations in two ways. Firstly, is it possible to resolve the tensions between looking for evidence as an examiner concerned with validity and consistency and as a teacher/advocate concerned with justice for the individual candidate? While moderation processes may go some way towards resolving this, it is clear from Freda's interview that even a teacher who has no connection with the individual pupil whose work is being assessed may take on the teacher/advocate role. Secondly, it appears that assessment criteria related to the formation of generalisations may distort and be distorted by pedagogic practices originally intended to help pupils to develop algebraic thinking. The shift from a pedagogic device to a requirement to express a generalisation in words before expressing it using algebraic notation, like the proliferation of "train spotting" investigations (Hewitt, 1992), is symptomatic of a need to standardise the form of pupils' investigative work in order to make it amenable to formal examination. Traditional timed written examinations clearly constrained the mathematical experiences of pupils. Coursework examination, greeted by many as a liberation, has introduced its own set of constraints.

## **References**

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