

WRITTEN ASSESSMENTS: EVIDENCE OF PROFESSIONAL LEARNING

Stephanie Prestage and Pat Perks

School of Education, University of Birmingham

Written assignments are an expected part of any pre-service professional training for teachers, but do such assignments offer evidence for appropriate professional learning? This paper discusses one assignment, a case study of target setting for an individual pupil, from one cohort of 37 students on a Post-Graduate Certificate of Education course. The analysis of the scripts considers evidence for learner-knowledge, practical wisdom and professional traditions, and any interactions between these from student reflections to identify opportunities for professional learning and a developing teacher-knowledge of assessment in mathematics.

Our Post-Graduate Certificate of Education (PGCE) is the one year professional training for teaching mathematics in an 11-18 school following a degree. It is assessed on teaching in schools and written assignments. This paper considers how one assignment offers ways to develop professional learning.

Elsewhere we have discussed the transformation of mathematics subject knowledge (Prestage and Perks, 2001). We have suggested that is useful to consider how learner-knowledge (doing mathematics to pass examinations) is transformed through professional traditions and practical wisdom. The three aspects mould classroom events. But it is only by reflection on the integration of the three that true teacher-knowledge emerges.

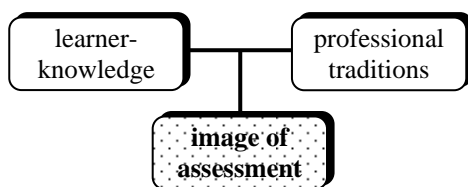


figure 1

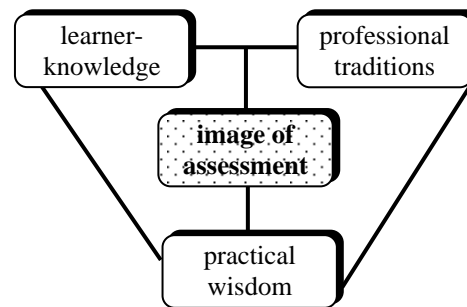


figure 2

The model extends itself to assessment. Our pre-service teachers (PSTs) have a sound knowledge of assessment in the many contexts they experienced as learners. Most would claim that they know how to mark and thus assess. They recognise that this has to be honed by practice, (especially for marking quickly). As successful products of the current system they know the importance of assessment. This is their *learner-knowledge* of assessment. Throughout the PGCE the PSTs gain different knowledge and understandings of *professional traditions*. Some are national, like the National Tests and the external examination system. Some are local traditions gained from particular school settings such as weekly tests or homework marking policies, the ways in which national policies are translated in different contexts. Learner-

knowledge and professional traditions are related together in these first stages to create the type of assessment of students' learning that our PSTs use, figure 1.

During their placements in schools the PSTs have to mark their students' work according to the information they are given. As they work so their *practical wisdom* develops and they begin to reflect upon the professional traditions to which they are adapting their learner knowledge (figure 2). We believe that we need to extend this reflection to explicit review of the integration of these elements, to develop what we consider to be teacher-knowledge, the triangle extends into the third dimension (figure 3). One of the tools we use to encourage such reflections are the formal assignments.

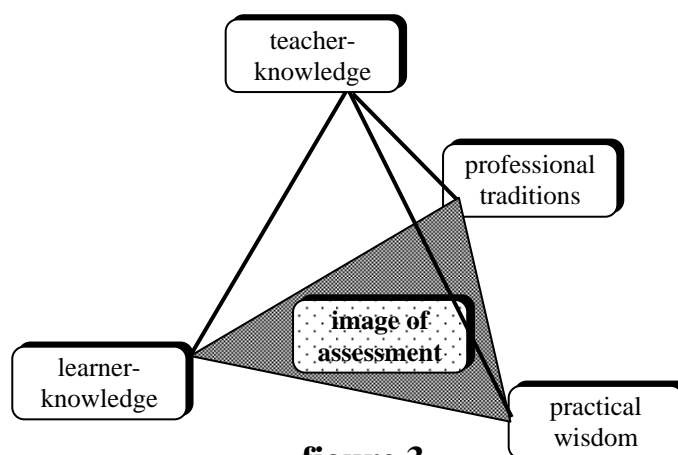


figure 3

METHOD

Any theoretical review of practice needs to prove its value to the PGCE. The assignment considered here is the fourth of four formal assignments. It asks PSTs to gather data during their second teaching placement, 12 weeks in the spring term. PSTs have to identify a student by half-term, giving their reasons and an overview of the student's current attainment. They then set targets for the first two weeks of the second half of term, review these, set targets for the next two weeks and finally review these. Whilst this assignment has come into being as revisions of previous versions, it was felt that its value needed to be considered more formally. Although we mark, assess and discuss scripts, this happens in a short time frame and tends to deal with individuals' learning (or lack of learning) rather than ways in which the assignment serves the group's professional learning.

To look at the role of the assignment in depth, all the assignments were photocopied after assessment. They were analysed once the students had completed their PGCE so that there was no interference with the normal assessment process. The 37 scripts were reviewed for the number and types of targets given, styles of assessment and highlighted for statements that could be characterised as learner-knowledge, practical wisdom and professional traditions as well as evidence of reflection on these.

THE DATA

The type of student chosen for the case study necessarily reflects the classes that the PSTs were given to teach. The preponderance of lower school students (table 1) is to be expected. These are the classes where classroom management tends to be less of an issue and the PSTs may find these students easier to relate to when setting targets. The majority of students came from bottom sets (table 2), but this may be due to the constrained choices available. Only six students were stated to have been chosen for

behavioural reasons, rather than attainment in mathematics. Two students were partially sighted and three were diagnosed as being dyslexic (table 3).

Year Group	
7	14
8	10
1	6
10	4
not known	3 all bottom
37	

Table 1

Year Group	
Top	7
Middle	10
Bottom	14
not known	6
37	

Table 2

Particular attributes	
Dyslexic	3 2 set nk, y7,8
Behaviour	4 2 set nk, Y8, Y9 1 Y91top, 1 Y8, 1bottom
Visually Impaired	2 set nk, Y7

Table 3

As our PSTs are expected to work within the traditions of the school context we would expect any assessment information to be related to the professional traditions of the school as well as reflecting the PSTs' learner-knowledge.

ASSESSMENT INFORMATION

The assessment information included by the PSTs in their descriptions of their case study student is given in table 4. A strong category was whether the student was on the Special Needs (SEN) Register. This was asked for in the assignment rubric, as in previous years PSTs had often only become aware of Individual Educational Plans (IEPs) in the last days of their placement. The largest category was the 15 PSTs who only included data from their own class tests/homework, evidence of learner-knowledge rather than the integration of this with professional traditions.

SEN Register	11	2 without IEPs, 1 with class IEP
KS2 results	3	
Levels	5	One with KS2 and level in Y7
Other previous assessment information	3	
Supported by positional information	3	
Own tests/homeworks	15	
Supported by positional information	5	
No information	4	

Table 4

Given that these PSTs are mathematicians, we might expect the learner-knowledge of mathematics to influence their records. Yet, in only seven cases was there evidence of the PSTs realising the value of information other than raw scores. For example, the table of information about five pieces of work set by the PST for 'Kim' does give some sense of position.

topic	test(mock GCSE)	Bar Charts/Pictograms	Pie Charts	Mode/median	Mean/Range
Kim	36%	5 / 10	6 / 10	8 / 10	5 / 10
Class averages	32%	7 / 10	6 / 10	9 / 10	5 / 10

Table 5

Whereas the information for "Jon" (table 6) was accompanied by the statement:

As can be seen from this table he also tries harder when the work is easier for him and gives up easily if he has to work too hard.

Homework	Effort	Attainment	This caused Stephanie to write, "No I can't see this from the table ... help me out a bit ...". There is no sense of the position of the student relative to others and more importantly there is an assumption about the nature of the interpretation of the data.
Classifying 2D shapes	B	1	
finding angles	C	4	
interpreting graphs	B	2	
pie charts	C	3	
rounding and estimation	B	1	
sequences	C	1	

Table 6

Most PSTs assume that assessment is something that they will be able to do. In a previous assignment on marking, one PST had admitted: "I was marking how I remembered being marked when I was a pupil." The evidence from this assignment indicates that many are still favouring their own learner-knowledge.

SETTING TARGETS

Although factors such as tracking and time were considered problematic, the appropriateness of targets was rarely discussed. The PSTs appeared confident to choose targets, perhaps because it was for individuals rather than whole classes. One of our expectations was that the PSTs were be more likely to choose behaviour targets. The types of targets, however, varied from 14 mathematics targets on the first occasion followed by 9 mathematics targets to one behaviour target which was the same on both occasions. Seven PSTs gave only behaviour targets on both occasions (three the same). Seven PSTs gave only mathematics targets on both occasions (three the same). Ten PSTs gave mathematics but no behaviour targets and five gave behaviour but no mathematics targets. At this first target setting there are a majority of the PSTs who are working on the mathematics. Even amongst those who did not there were those who made the reasons for such choice explicit.

The targets I set MP were not maths specific. I wanted MP to be involved in class discussion and have more confidence in her own abilities.

For the second target setting, over a third of the PSTs (14) remained with the same targets. The number was lower but the pattern remained similar.

In the assignment one of the PSTs quoted this information on targets:

The most effective targets set by or for pupils are often curriculum specific. These are

- associated with a significant but manageable learning objective (eg simplify fractions by cancelling all common factors)
- discussed with pupils and expressed in a form that they can understand
- relatively short-term and subject to regular revision
- retained where they are accessible to pupils. (Ofsted 2003)

Those with large numbers of targets certainly kept them specific. One PST kept the mathematics targets specific and wrote them from the point of view of the student.

- I can measure and label the sides of a triangle
- I can calculate the area of a triangle
- I can tell you the formula for the triangular area.

The assignment itself kept the process relatively short term, but six of the PSTs chose to keep the same targets. This may seem more appropriate for behaviour targets than the mathematics. In considering the following targets, it does seem that a change of mathematics targets might have been suitable after two weeks.

To correctly order fractions using a common denominator

To write a decimal as a percentage, particularly recurring decimals

This was for a year 10 student (set 3/5). The structure of the medium term plans in the National Strategy for years 7-9 might act against this repetition, those who did keep mathematics targets the same had students in year 10 or year 7 low attainers.

PROFESSIONAL TRADITIONS

There are two aspects of professional traditions we consider important, those which come from teachers (or those representing them at policy level) and the implications for practice which comes from research. There was some evidence of the PSTs using the professional traditions from their school. These were, however, in many cases unchallenged, e.g a PST described the Y7 being set on the KS2 test results, with an average level of 4.5, the chosen student having a level of 3.8, with no comment. Only three PSTs wrote about assessment practices, but they tended to consider their effects on learning rather than the styles of assessment.

There was such an emphasis on trying to do SATS style questions from textbooks, ... that this affects the way in which the learning environment is fostered and developed.

Number of References	0	1	2	3	4	7	8
Number of PSTs	21	5	5	2	2	1	1

Table 7

Although the criteria for the assignment did not demand the use of research literature, some PSTs did include references (table 7). Two assignments contained a wide range of references and there is a stronger sense of reflection from these PSTs. In citing Black & Wiliam (1998) on accelerated rates of progress when children set their own targets one stated

Alternatively more positively, motivation could be created by allowing him to set his own individual targets. This way more responsibility is on the student and he would be aiming to achieve something he felt was meaningful and important. I think this was the main contributing reason as to why the target was not achieved.

Without references to research there is nothing in the task as set that necessarily provokes the PSTs to challenge the approaches and thinking that come from their learner-knowledge, or those professional traditions they are being asked to use.

PRACTICAL WISDOM

Practical wisdom denotes those aspects that come from the PSTs' practice. This aspect has allowed some of the PSTs to begin to challenge aspects of assessment. This, we believe, is strengthened by the need to write an assignment. For example: "Children like Sonia become stereotyped as a low achiever because of their

behaviour". The activity heightened the awareness of the different needs of learners, the interconnection between practical wisdom and professional tradition. For example, following a session on visual, auditory and kinaesthetic learners one PST wrote:

I tried to incorporate visual images into explanations to help visual learners, verbal explanations, aural questions, games and role-play. However, I feel that I did not incorporate enough kinaesthetic teaching methods.

The influence of practical wisdom on classroom events, teaching styles and lesson planning is also evident. One PST commented that his student preferred 'learning in an investigative or spatial way' so he included flow diagrams as part of the lesson explanation. It is also important that the PSTs recognise their own learning:

Over the first four weeks of the second half of the term I felt that my planning for this class improved a lot. The main reason for this improvement was the monitoring of J's work as it highlighted the areas needed to be worked on (sic) with J. However, the monitoring didn't only benefit J, but I felt it was beneficial for all the pupils in the class as I had to adapt my plans to accommodate all the attainment levels in the class.

IN CONCLUSION

The assignment offers evidence of PSTs reflecting on target setting and the professional traditions of assessment in their schools, but this is not supported by the use of research evidence which could enhance professional learning. There is a strong tendency for the PSTs to stay with their learner-knowledge. Given the many demands of the PGCE course this may be expected; it allows them to be confident and to take action. There may, however, be ways we could adapt the assignment to encourage more challenge and reflection, or build on the assignment in a session.

For some of the PSTs there is evidence that they are moving up the struts of the tetrahedron, integrating their learner-knowledge, practical wisdom and professional traditions and building on this by reflections to deeper teacher-knowledge of the assessment process in mathematics, further developing their professional learning.

REFERENCES

Black, P and Wiliam, D. (1998) Assessment and classroom learning, *Assessment in Education*, 51, 1, 7-78.

Ofsted (2003), *Good Assessment Practice in Mathematics*, HMI 1477.

Prestage, S. & Perks, P., (2001), Models and super-models: ways of thinking about professional knowledge, in Jones, D.K. & Morgan, C. (eds) *Research in Mathematics Education Volume 3: Papers of the British Society for Research into the Learning of Mathematics*, 101-114