

Creative conversations: Connecting voices of teachers and researchers to rethink assessment*

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Experienced adult numeracy teachers know a lot about learner appropriate teaching and assessment strategies, but seldom have the confidence or opportunity to share their local knowledge with the wider 'community of practice' of adult numeracy teachers. This paper describes a process of creative collaboration between researchers and experienced teachers that resulted in an holistic adult numeracy assessment resource. It is a resource which connects the voices of experienced adult numeracy practitioners, who used the process to share and expand their practical holistic assessment strategies, with researchers, who drew on teachers' practical knowledge to develop a structural, conceptual framework. By telling the story of this one publication, the paper demonstrates how the collaborative action research process evolved from the lessons of an earlier online project, and how it might be adapted in other contexts to build on and expand the existing practical knowledge of teachers.

Background

Looking back I detect two intertwining themes in my own personal work journey: attempts to change the status quo and collaboration (or 'collectivity' as we called it in the 70s). Having learned the strength of combining voices with others to establish women's refuges and feminist publishing cooperatives, it seemed only natural to use that strategy to develop innovative teaching resources. The 'Teaching Maths to Women' project, a collaboration to create the resource 'Mathematics: A New Beginning' (Marr & Helme, 1986) marked the beginning of a series of projects which enabled me to work with other teachers to expand our knowledge and understanding of adult numeracy teaching (and learning) whilst creating resources that shared our ideas with other teachers.

Two theoretical perspectives influence my thinking in relation to teaching and learning. First, constructivist learning theories, focussing on learning as personal meaning making through group activity, discussion and reflection (see for example, Cobb 1995; Cohen, 1994; Kolb, 1984) which influence my teaching resources and professional development and teacher education practices. Secondly, socio-cultural views of learning which see knowledge and skills existing in specific 'communities of practice' and learning taking place through interaction of novices with more experienced members of the community, (for example Rogoff & Gardiner, 1984; Wenger, 2002; Wertsch, 1995). Since these theories contain contradictory elements, I am led to agree with adult education writers such as Fenwick and Tennant (2004) who encourage us to maintain multiple educational perspectives, because each 'may illuminate the learning processes and suggest educative responses in particular pedagogical situations' (p. 56). To them, a theory is only useful if it 'helps to illuminate practice' (p. 69). Both theories have been influential in this paper.

Co-constructing knowledge - The collaborative action enquiry model

Since, as teacher educator and researcher, I am now removed from the everyday practice of adult numeracy teaching, I have had to consider what contribution, if any, I can make to the field. Reflection on the projects described in this paper has shown me the value that researchers can add when, rather than reporting on the status quo, they combine their voices with teachers to focus on creative growth in teaching and assessment practices. This paper describes a model of cooperative collaboration between myself, one of two facilitator/researchers, and a group of practicing adult numeracy teachers used during the 'Holistic Adult Numeracy Assessment Project' which resulted in the resource 'Rethinking Assessment' (Marr, Helme & Tout, 2003).

Broadly described, the method engages a group of interested practitioners for a predetermined number of 6 – 8 meetings. It strives towards Habermas' 'communicative action', a group learning process described by Collins (1991) as 'rational and democratic ... on-going, thoughtful conversation' (p. 12), in which groups of people listen carefully, openly and respectfully to one another's arguments as they explore a problem at hand, expecting all contributions to be seriously considered. Collins asserts that although the ideal is unobtainable, attempts towards it nevertheless contribute to development and 'inter-subjective understanding'. Similar methods have been used by Smith (1998) to

develop 'collective knowledge' with self-study groups of pre-service teachers, and Waterhouse, Sanguinetti and Maunders (2004) to conceptualise the work of teachers in adult community education.

Some lessons from an earlier online project

The collaborative model described in this paper combined a collection of strategies to encourage discussion, exploration of issues, sharing aspects of good practice and making links between practice and educational theories. They have evolved, through a process of reflective practitioner research (Zeichner & Noffke, 2001), from an earlier project: *'Adult Numeracy and Maths On Line: An action research project'* which trialled the use of ICT to enable discussion amongst a group of geographically isolated adult numeracy teachers (described in Marr & Johnson, 1999). This extended communication through real-time, online 'chat' sessions, supplemented with email and regular post, allowed us to create a popularly accessed web-site with task descriptions and excerpts of our discussion available to teachers world-wide.

Sharing favourite tasks

Although our conversation during the online discussions ranged over many issues, the strategy of sharing each others' favourite tasks, and building on them through discussion proved to be the project's greatest strength. During the project the seven participating teachers managed to describe 28 activities for the benefit of other teachers; trial these in the classes of other participants and modify them from the feedback received. In addition, through the ongoing interaction, participants generated some exciting new teaching ideas, for example, the concept of 'tendering' or 'doing quotes' was developed as an open-ended task to encourage number and measurement skill development of a diverse range of students.

Learning through reflection

The online project succeeded in many ways beyond merely producing the final product. For me, it re-awakened the pleasure of collaborative creation and re-affirmed the power of bringing teachers together in this way. Participants' evaluative comments indicated their enthusiasm. For example, A: 'First time I've ever used Chat - I'm converted ... inspired to be more creative and relieved that my concerns are common'; B: 'isolation doesn't have to be accepted, professional development can occur in 'real time' via the internet, construction of resources can also occur via the internet'. They asserted that the project broke their sense of isolation from peers and that participation was a confirming experience, validating and extending their current good practice, whilst at the same time raising questions for future consideration. It definitely left them wanting more, C: 'I can't wait to show others and get them involved'.

Of course the project was not without problems. Many difficulties relating to ICT access and continuity were solved through 'reflection *in action*' (Schon, 1983) during the project. However, other ongoing difficulties were brought further into consciousness and analysed whilst writing the project report (Marr & Johnston, 1999). This process, which Schon refers to as 'reflection *on action*' illustrated the notion that reflection turns experience into learning. It led to development of positive strategies which were trialled in the holistic assessment project. I hope the following descriptions of the methods and their evolution through analysis of previous dilemmas will be useful to others in similar situations.

Building continuity - capturing the discussion by recording conversations

During the online project, teething difficulties with early ICT meant that we needed a way to 'replay' the conversation for participants with access problems. Fortunately, because this form of communication allowed me to save the conversation 'script' as a word document, we were able to distribute it to all participants, even to those who were unable to participate at the time.

The unexpected advantage of this recording process was that, as facilitator, I was able to read the session scripts afterwards. This meant that the dangling conversational threads, normal in any lively conversation, but exacerbated by the idiosyncrasies of on-line chat, could be re-visited. None of the conversational 'gems' were lost and good ideas and suggestions were able to be picked up and further developed in later sessions. This aspect of the method was so richly productive that I adapted it in the second project by audio-taping the sessions and transcribing excerpts of the conversation between sessions. It is a technique that captures so much more than written meeting notes could ever do.

As suggested by Miles & Huberman (1984) for 'naturalistic in-situ research', transcripts were initially analysed for topic related insights, emerging themes, contradictions and/or problematic issues. From these, possible focus questions or discussion starters for subsequent sessions were developed. Interesting excerpts of discussion and descriptions of useful practical examples were also saved for potential use in the resource. The results of these

preliminary analyses shaped subsequent sessions, keeping the process responsive to emerging findings, or 'grounded'. It was also very useful for continuity to email the transcribed excerpts, accompanied by an agenda and reflective questions, to other participants between meetings. From the perspective of research methodology, such reference back to participants provides a form of situational validation (Bolster, 1983) to mitigate subjective interpretations of the researcher. As facilitator, I felt that this strategy changed the power balance with participants. It gave them opportunity to review and reflect prior to the next session, and so enabled them to take a greater role in discussion, lessening potential for domination by the facilitator who had continual access to the tapes.

The new collaborative assessment project

The holistic assessment project brought together five experienced Melbourne-based adult numeracy practitioners and two facilitator researchers for six evening meetings, spaced two to three weeks apart. It aimed to use a variety of stimuli to collaboratively explore perceptions of adult numeracy competence and how it could best be assessed, thus to create a resource for other teachers. The following section will discuss the strategies used to facilitate the group, how they developed from the initial on-line project and the results of their implementation.

Strategies for 'theorising': developing general principles

Not all types of discussions had proved effective in the on-line conversations of the first project, particularly those that sought general principles or exploration of complex issues. At the time, the difficulty was attributed to the on-line communication 'tool' (Wertsch, 1995), the medium in which the conversations took place, shaped the conversations significantly.

As one participant put it, 'talking' in a chat session was like being in the middle of a party, often frustrating because of the difficulty of following the threads of different simultaneous conversations. Such fragmentation often worked against the development of deeper meaning or more complex ideas (Marr & Johnston, 1999, p. 29).

However, closer scrutiny of the scripts, in retrospect, indicates that our different frames of reference, motivation and varying familiarities with educational and research discourses may also have been contributing factors.

Since the second project aimed to explore the complexity of holistic assessment, we chose to use face-to-face conversations with a group of local experienced practitioners. In addition, throughout the project we planned strategies aimed at generating discussion of general principles or 'deeper meaning' (Marton & Booth, 1997) from the descriptions of personal experience and practice. As Rogoff and Gardiner (1984) explain, practically acquired knowledge is often 'situated', or seen as intrinsic to the particular context: generalisation and transfer to other situations are not necessarily automatic but require active exploration for similarities to be noticed and generalisation to occur. The strategies we used were developed responsively, session by session, but essentially they fall into two main categories: short discussion papers distributed prior to the meetings and participatory activities to focus our ideas during the meetings.

Discussion papers to stimulate the collaborative process

A suitable starting point on which to focus discussion is needed for this kind of action enquiry project. For the online project a collection of previously published articles about teaching activities was used. However, a dearth of relevant published material on holistic adult numeracy assessment led us to undertake preliminary research (a national conference focus group and interviews) to explore teachers' views on the meaning of competence and how it informed their judgements and assessment procedures. This led to an initial discussion paper describing a draft 'model of holistic numeracy competence' It was distributed to participants prior to the first session along with a request to bring ideas for argument, comment, modification and thoughts on focus questions such as *'How can our knowledge of these features guide the assessment practices of less experienced teachers?'* and *'How do the affective (emotional) features influence the reporting of outcomes?'*

The initial discussion led to several changes of the draft 'model' and laid the groundwork for exploration of particular aspects in subsequent sessions. These aimed at formulating generalisations and illustrative examples of assessment strategies that would follow from such a model.

Summary papers

In some cases short summary papers were written by the facilitators from themes emerging in prior meetings. For example, a paper on 'Open-ended assessment' summarised early discussions. It suggested two key characteristics that seemed from the teacher discussions to be essential for a task to be potentially open-ended: possible divergence of method and possible divergence of outcome. The paper also asserted that:

the degree to which any task is open-ended depends on how it is used in the classroom and how students respond to it. It is the product of the interaction between the task itself, the teacher, and the students. "Unexpected things can happen a lot, even within what seem to be fairly closed activities because people make unexpected jumps and leaps" (Marr, Helme & Tout, 2003, p. 72).

As mentioned above, this distribution of a summary paper allowed for participant validation of the ideas which we had taken from their input, providing further opportunities for clarification or elaboration. They were also able to supply further illustrative examples of the general principles. Other papers distributed to the group included 'Negotiating assessment'; 'Self-awareness' 'Autonomy' and 'To test or not to test?'. These drafts became the foundation of several chapters in the resulting publication.

Participatory activities

Several short participatory activities were designed and used in the sessions to assist in developing general principles from specific examples. For example, the notion of open-ended tasks had come up repeatedly in our assessment discussions. In order to tease out the descriptors or criteria for 'open-endedness' we devised a short activity which asked participants to write on a piece of paper any task that they had given to students in the last day or so. They then briefly explained the task to the group, and together we discussed how we would arrange them on a continuum from 'closed' to 'open-ended'. The act of comparison and verbalising the thinking process brought out varying ideas and disagreements. Activities like this use Rowntree's (1992) instructional design principle, 'egrul': using specific examples drawn from participants' own teaching circumstances to develop general principles or make links with existing theory. The record of the discussion allowed the facilitator/researchers to create the summary paper described above.

Overcoming the writing hurdle

Although participants of the earlier online project enthusiastically shared their teaching activities in the informal medium of the 'chat', they did not initially respond to the requests to 'write up' the tasks so that they could be shared with other teachers. After some delays it became obvious that they were quite inhibited about writing, and needed some form of assistance. Finally we decided to develop a template of prompts to assist with the writing process.

Using a template for writing in the online project

Since the participants' narrative style was usually informal and in the first person (teacher to teacher) we tried to capture this 'personal' voice in a format of headings and prompts with plenty of blank space between: Purpose - *This is an activity I use to ...* ; Procedure - *I start with this focus question: .. and then I ...* Student action - *The students (do)* . One of the Victorian teachers then helped us fill in several of her activities as examples and these were distributed as models. These templates proved to be a highly successful enabling strategy. From total reticence when first asked for written activities, participants were able to use the templates to describe 28 practical examples of learning tasks which were then edited and formatted in publishable form on a website, which, judging by the number of 'hits', is frequently accessed by other teachers (<http://sunsite.anu.edu.au/language-australia/numeracy/anamol>). Some participants also said that they began using the templates to develop materials beyond the project.

Using a template for assessment tasks

The success of the template method inspired me to develop a similar device for the assessment project. In this case, after listening to one of the teachers describe her process for using open-ended tasks with mixed student groups, I formulated a series of 'generalised' steps and shaped them into a template (Marr, Helme & Tout, 2003, p. 257 – 260). The participants were able to use this template to share eighteen open-ended tasks for publication in the *Rethinking Assessment* resource.

Action research journals for personal meaning making and story telling

Following action research principles (Zeichner & Noffke, 2001), all members of the experienced practitioner group (including the facilitators) were encouraged to select their own related action research topic to contribute to the overall product and discussions. For example, one participant tracked the developing confidence and competence of two students in her class and another experimented with recording observations for her class after each session. One teacher decided to reflect on the indicators which influenced her own judgements about students' competence. This concern, stimulated by the original discussion paper, had caused perturbation for her during the first discussion. Her decision to examine the question further through the journal process illustrates the potential for learning presented by reflection on disorienting dilemmas or moments of perturbation, as described by the constructivist advocates of group learning processes such as Cobb (1995).

As suggested for reflective practice methods, we used journals to record our observations and the thoughts arising from our particular questions. Snippets of these reflections were shared at the beginning of each meeting, often influencing the practices of others and shaping future group conversation and direction. The resulting narratives or 'story-telling', a device advocated by Bass, Anderson-Patton and Allender (2000) as powerful for teaching and learning, also played an important role in our discussions. For instance, one teacher described the day when, just as she had distributed a collection of number cards for a planned activity, she was called from the room. Without knowing what her instructions were going to be, the students went ahead and arranged the cards into their own personally meaningful groupings. 'They got amazing combinations I had never considered – they looked at the person next to them and had a long discussion because different people did it so differently. It told me a lot about their understanding' (Marr, Helme & Tout, 2003, p. 72).

This 'story' captured the imagination of the group, reminding us of the value of open ended tasks in providing our students with a chance to tell us what they understand, and particularly the importance of listening to them. Together we decided on a sufficiently 'open' task instruction and other participants created new number sets, appropriate to their students' levels to see what they would make of them. We also added a second stage, in which students are given some blank cards to create extra numbers that fit their own categories. Thus the collaborative conversation created a new formative assessment activity which has now been greeted enthusiastically by teachers in PD sessions in three Australian states.

The outcome of the collaborative holistic assessment project

Together, the group of five participants and two facilitators worked through the processes described above to finalise the model of holistic competence shown in Figure 1 and to explore the implications for formative and summative assessment tasks that would flow from it.

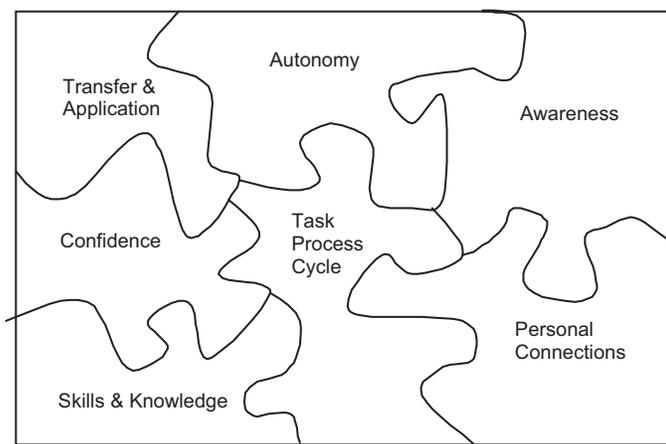


Fig 1: Model of Holistic Numeracy Competence

The model consists of seven interlocking or interdependent components, interacting in a two way relationship with a central component of *confidence*. All components, both cognitive and affective, were seen as integral to a shift towards an *identity* as a more numerate individual: a change from an 'I can't ..' to an 'I can ..' type of person. Holistic assessment then, take into account all of these aspects of the person's development.

The contents of the teaching resource *Rethinking Assessment: Holistic adult numeracy assessment* derive directly from the discussions, the drafting and modification of the summary papers, the journal entries and stories contributed by participants during the meetings and the example tasks written using the templates described above. It also includes samples of student responses of practitioner trials of the tasks. The resource has received favourable reviews from Australia and overseas as 'a new and exciting book ... (which) breaks ground in assessing learning in adult basic education' (Ciancone, Hood & Lehman, 2004).

Participants' comments regarding the individual action research within the project indicate the benefits derived from formulating their own questions and power if the reflective journal. For example:

I'm so aware that assessments you make, not in terms of what someone is doing, but in terms of stuff that isn't available on paper, and all the cues that I use.

Just by making notes, it's amazing how much I would have forgotten if I hadn't been keeping a diary. Even just writing it down has locked it in my memory.

I am so much more aware of each student in the class's progress and development than in the other class.

Concluding remarks

As Wenger (2002) describes, most 'communities of practice', have a long and powerful history, but they are not static. They both shape, and are shaped by their members, in an ongoing evolutionary process. New members are shaped by their acquisition of the language, skills, knowledge and cultures of the 'field' (Bourdieu, 1990). However, according to Wenger, they can also contribute to expansion of the knowledge or to changes of practice within it. Unfortunately, owing to the practical nature of their working knowledge, teachers are often unused to drawing general principles from their activity, and lack time and to write about their ideas in order to make them accessible to the wider profession or field. In the current culture of rapid change, centralised curriculum frameworks and 'quality' auditing systems, it is important that individual teachers feel their experience and expertise is still valued.

Collaborative effort by a facilitator and a small group of practitioners, as described in this paper, allows for variety of input and expertise drawn from many perspectives within the common 'field' of interest – adult numeracy teaching. As Rogoff and Gardiner (1984) suggest, drawing generalisations from particular, situated, knowledge and experience often requires active exploration. Using this model, the facilitator provides input from a research-based perspective and facilitates meaningful connection for participants through guided reading, structured activity and discussion. Participant input comes from a practice-based perspective allowing for the sharing of multiple experiences, journal reflections and findings from participants' workplaces. Together the whole group attempts to expand their collective understanding or create generalisations from their varied experiences. Any frameworks or models resulting from the process are grounded in practice, illustrated by realistic exemplars and described using the teacher 'voice'. Hopefully this combination of voices means that resulting products have the potential to 'speak' to several audiences, and so expand the knowledge of all interested members of the wider field of practice.

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