

Surfing the adult numeracy wave: What can we learn from each other in the UK and Australia?*

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Research and development in adult numeracy/mathematics education is currently enjoying a higher profile than ever before in the UK. This paper presents a range findings and emerging themes from research and development projects in adult numeracy/mathematics education undertaken through the National Research and Development Centre for Adult Literacy and Numeracy (NRDC) in England and Learning Connections, Communities Scotland, and asks what we in the UK can learn from recent experience in Australia, where the adult numeracy 'wave' crested ten years earlier.

Adult numeracy and mathematics education is currently riding high in the United Kingdom. With the publication of the report of Professor Adrian Smith's Inquiry into Post-14 Mathematics Education (Smith, 2004) and other recent government reports on education and training post-14 (DfES, 2005; DfES, DWP & HMT, 2005; Tomlinson 2004), the mathematics education of adults and young people is at last being recognised as important in its own right.

All this contrasts strongly with the situation in recent decades, when adult numeracy education lagged behind adult literacy in policy, research and practice (Coben, forthcoming). In the 1970s and 1980s adult numeracy was largely subsumed within adult literacy or 'adult basic education', emerging as an 'adult basic skill' in England in the 1990s. The 'Moser Report', *A Fresh Start: Improving literacy and numeracy* (DfEE, 1999) followed the UK's poor showing in the International Adult Literacy Survey (IALS) of 1996 (OECD & Statistics Canada, 2000) and led to the inception of the government's *Skills for Life* strategy (DfEE, 2001) to improve adult literacy and numeracy in England. As the title of the strategy suggests, the focus is on literacy and numeracy as (basic) skills to be acquired and utilised by adults in the workplace and elsewhere. The strategy marks a sea change, including, as it does, a range of innovations, including national standards, a core curriculum, national tests for learners and specifications for teacher training. The *Skills for Life* target is for 1.5 million adults to improve their literacy and numeracy skills by 2007 (DfES, 2003a).

This target should be seen against the background of the extent of 'need' in the adult population. The *Skills for Life* Survey commissioned by the government's Department for Education and Skills (DfES) found that nearly one in two adults of working age in England (47%; 15 million adults) was classified at or below the level expected of an average 11 year old in numeracy (DfES, 2003b). At the same time, a dismal picture of adult numeracy education in England began to emerge, with a shortage of experienced teachers and teacher trainers. For example, a report by the inspectorate in 2003 found that: numeracy is taught less frequently than literacy; there is less demand for numeracy despite equivalent levels of need (in fact, greater need, according to the *Skills for Life Survey*); there is a need for greater expertise in teaching numeracy; and numeracy is too often taught by rote learning rather than by developing understanding of numerical concepts (OfSTED & ALI, 2003). The Smith Report acknowledges that the adult numeracy strategy is challenging and demanding for teachers and learners alike. Using exemplars from the English system², the report states that progress could easily be undermined by uncertainties surrounding the teaching and assessment of mathematics; the limited pool of competent and confident teachers of mathematics and numeracy; and the lack of employer engagement in raising the skill base of new employees (Smith, 2004, para. 4.41).

Recently, 'numeracy', 'mathematical literacy' and the plethora of other similar terms have been joined by 'functional mathematics', a term yet to be defined in the UK context, but one which the government's Working Group on 14-19 Reform uses with reference to preparation for adult life "based on a common understanding of what learners need to develop [...] including both knowledge and capacity to apply it" (Tomlinson, 2004, p. 31). Whatever definition of functional mathematics emerges, it is likely to have profound implications for adult numeracy/mathematics (or 'functional mathematics') learners in the UK in future years.

² Although the Smith Report covers the UK as a whole, Professor Smith states "for the most part, my analyses and recommendations refer more directly to England than to Scotland, Northern Ireland and Wales." (Smith 2004:v).

Meanwhile, in the UK's partially devolved system of government³ (UK Forum for Local Government, nd), each of the home nations has developed its own policies in this area. In Wales, a Basic Skills Strategy was launched in February 2002, based on an inclusive vision of education from early childhood through to adulthood (Welsh Assembly, 2001). In Northern Ireland, the 'Essential Skills for Living' strategy was launched in April 2002. It sets out the introduction of a regional curriculum, accreditation for adult learners and improved tutor qualifications, sets targets for building capacity and engaging new adult learners, and suggests ways in which these might be achieved (Department for Employment and Learning, 2002). In Scotland, the Adult Literacy and Numeracy in Scotland (ALNIS) report (Scottish Executive, 2001) led to a strategy based on a social practice model of literacies.

The second half of the present decade is seeing an unprecedented advance in adult numeracy and mathematics education. Work is underway on implementing the Smith Report recommendations, including the introduction of measures designed to raise the profile of mathematics, improve the supply of teachers and support continuing professional development (CPD), while reviewing the curriculum, assessment and qualifications frameworks. It remains to be seen how this will play out throughout the UK.

Recent funded research at King's College London and elsewhere

Alongside the expansion of adult numeracy provision and professional development there has been an unprecedented expansion of research, including funded research, especially in England. Policy makers have invested in the kind of "use-inspired basic research" advocated by the OECD (OECD & CERI, 2002), a development welcomed by those of us who argue that "research must be closely linked with practice in a field where development and improvement in practice have priority status" (FitzSimons, Coben et al., 2003, p. 117). Indeed, if policy makers' investment in research is taken as a measure of the interest accorded to work in this area, then they are certainly taking it seriously.

The largest project of this kind is Maths4Life (www.maths4life.org), a consortium⁴ project of the National Research and Development Centre for Adult Literacy and Numeracy (NRDC, www.nrdc.org.uk), which aims to stimulate a positive approach to teaching and learning in adult numeracy and mathematics, combining research and practice to produce teaching and learning resources and guidance for practitioners. Maths4Life is funded at £2.7 million over 3 years (2004-07).

Other projects funded by NRDC and based at King's College London include several in which work in progress has been reported at previous ALM conferences (Baxter, Leddy et al., 2003; Coben, 2003; Coben, 2005; Rhodes, Swain et al., 2005; Swain, Baker et al., 2003; Swain, Baker et al., 2005; Tomlin, Baxter et al., 2005). Work started with a review of research and related literature on adult numeracy, which produced a report (Coben, Colwell et al., 2003); and an online research database (www.maths4life.org/anr.asp) with over 3000 entries.

Two subsequent projects ran in parallel, ending in August 2004: *Making numeracy teaching meaningful to adult learners*, a study of the relationship between the numeracy in adults' lives and that taught in the classroom or other learning setting, and *Teaching and learning common measures, especially at Entry Level*. In brief, *Making numeracy teaching meaningful to adult learners* found that: learners' motivations for studying numeracy are complex; many do not see their numeracy studies as having a practical application in their everyday lives, they are "coping OK"; many are primarily motivated by a desire to succeed in a subject (mathematics) that has previously defeated them, and that is highly regarded and essential for many areas of further study and training; parents and carers also want to be able to help their children (Swain, Baker et al., 2005). The 'measures' project found that: participants see measurement as - essential for success in examinations; helpful in understanding children's schoolwork, but not as a 'practical' part of the curriculum. Some say they already have the skills they need; some have skills in measurement at levels beyond those covered in the Adult Numeracy Core Curriculum (Baxter, Leddy et al., 2005). The project also produced new learning/teaching materials which are web-based, adaptable, and copyright-free (<http://www.nrdc.org.uk/content.asp?CategoryID=511>).

Both these project teams included teacher-researchers, as does *A study of effective practice in inclusive adult numeracy teaching*. This is a correlational study seeking to identify: a range of naturally occurring variation in teaching numeracy to diverse adult learners in different settings; correlations between different practices and

³ "The devolution settlements across the UK are markedly different. Scotland has a tax-varying, primary legislative parliament [the Scottish Executive] and Wales has an assembly with secondary legislative powers. Northern Ireland has been beset by political difficulties that have to date stifled the development of their own political system." (UK Forum for Local Government nd:2)

⁴ Maths4Life partners include the Institute of Education, University of London, LLU+ at London South Bank University, King's College London, the University of Nottingham, the Learning and Skills Development Agency (LSDA), the National Institute for Adult Continuing Education (NIACE), Cambridge Training and development and the Basic Skills Agency.

learners' progress; implications for teaching, teacher training and CPD. It is part of a larger NRDC study of effective teaching and learning, including reading, writing, English for Speakers of Other Languages (ESOL) and information and communications technology (ICT) as well as numeracy, which is due to report in 2006.

A further NRDC project has looked at 'The provision and accreditation of financial literacy education' in the education, community and private/commercial sectors in England at *Skills for Life* levels (Coben, Dawes et al., 2005). The project team found that: there is considerable diversity in financial literacy education provision in the public and private sectors; in the education and community sectors provision and accreditation are patchy and piecemeal; in the commercial/private sector there is little formal personal financial education for employees; overall, it is likely that many people do not have sufficient information, education or guidance to make well-informed decisions on issues with financial consequences.

In partnership with EdExcel, the qualification-awarding body, King's is also undertaking a project funded by the Qualifications and Curriculum Authority (QCA), on *Developing curriculum pathways in mathematics* in England (2005-06).

Meanwhile in Scotland, following the ALNIS report, research commissioned by Learning Connections, Communities Scotland, part of the Scottish Executive, started with the *Shifting the Focus* report (Coben, 2005). This was followed by *Using ICT in adult numeracy teaching in Scotland*, an action research and staff development project undertaken by a team from the University of London (King's College London and the Institute of Education), and the University of Edinburgh (Coben, Stevenson et al., 2005) (see also Pullen, Coben et al, this volume).

In all these projects, key features of our approach include: a broad focus on numeracy and mathematics education in different settings, geared to the interests of adults with various purposes for learning; an integrated approach to numeracy and mathematics education provision, both discrete and embedded in other subjects; teacher researchers fully integrated into research teams; and last but by no means least, an international perspective via ALM. Our aim is to create new knowledge, while maximising the possibility of opportunity and progression for adult learners and development for practitioners and researchers. At present we are able to do this in a policy climate that supports evidence-based practice and is funding research and development in adult numeracy.

Adult numeracy education in England and Australia

So those of us working in adult numeracy in the UK could be said to be riding the crest of a wave. Can we learn anything from the recent experience of colleagues in Australia? A brief comparative sketch of the trajectory of policy, research and practice in Australia in recent years may be instructive.

Australia's adult numeracy 'wave' swelled and then crested a decade earlier than in the UK. The Language and Literacy Policy of 1991 led to an unprecedented expansion of provision and professional development in the early to mid-1990s (Cumming, 1996). The adult numeracy education landscape at that time was informed by ideas of constructivism, critical numeracy and the principles of lifelong learning and practitioners and researchers had a key role in developing these ideas and shaping practice (Johnston, 2002). The view of numeracy and mathematics that developed saw numeracy as making meaning of mathematics and mathematics as a tool to be used efficiently and critically (Marr & Tout, 1997), in contrast to the skills-based approach of *Skills for Life*. One area in which Australia was particularly strong is teacher training and professional development and the situation in Australia in the 1990s was compared favourably with that in England at that time (Coben & Chanda, 2000).

However, according to the Australian Council for Adult Literacy (ACAL), this expansion was not sustained. The political climate changed with the election of a series of administrations led by Prime Minister John Howard of the Liberal Party in 1996, 1998, 2001 and 2004.

Writing in 2001, ACAL stated that:

Ten years ago Australia was at the forefront of adult literacy and numeracy teaching, learning and research. Now, we do not even have a national policy and we are going backwards (ACAL, 2001).

Since 2003, numeracy, literacy and language education have been incorporated into vocational education and training (VET).

A recent report on *Building Sustainable Adult Literacy Provision: A review of international trends in adult literacy policy and programs* summarises the results of an extensive study of policies and practices in adult literacy and adult

basic education in Canada, the Republic of Ireland, New Zealand, the USA, the UK⁵ and Australia. The study concludes as follows in relation to the current position of adult literacy (including numeracy) provision and policy in Australia:

Australia has achieved considerable success in the integration of literacy with vocational education and training (VET) which operates within national qualifications and quality assurance frameworks. It also has a strong base for developing national policy settings and putting in place an effective national reporting system on the outcomes of literacy provision.

Australia has not refreshed its literacy policy since 1996, unlike the other countries studied, to take into account the new dimensions and approaches to literacy that have emerged in recent times. It is also unclear how these literacies relate to other recognised generic skills.

Australia needs to pay closer attention to literacy teaching workforce issues and build the capability of the existing workforce in the light of an expanding range of teaching methods, new technologies, emerging new literacies (such as effective use of technology) and the diverse range of contexts for delivery. In fact, it appears that in Australia opportunities for professional development are decreasing. Improving certification to enhance professionalism might also be needed to aid the replacement of practitioners who are leaving or about to leave due to age.

Efforts are needed to develop a better understanding of current literacy provision - in all its forms - and rates of success compared with apparent levels of literacy need. The best documented programs are those offered through the VET sector as accredited stand-alone courses, while Australia's provision through informal non-accredited courses is not documented. In addition, the effectiveness of literacy teaching that is integrated within VET skills programs is not currently measured (McKenna, FitzPatrick et al., 2004 P. 4).

The report states that "Australia exhibits some of the characteristics of the American and British regimes" (p. 23), although the examples that follow this statement all relate to the USA and Canada, rather than the United Kingdom. Overall, the report paints a picture of a field that has been redirected towards VET and away from other forms of provision of adult literacy and numeracy education. The tone of the report is businesslike; a long way from the optimism of Australian writing on adult numeracy in the early 1990s.

However, is the shift to VET in Australia as thorough-going as it appears? If funded research is a bellwether, it may be useful to look at the list of projects in progress with the word 'numeracy' in their title on the National Centre for Vocational Education Research (NCVER) website (www.ncver.edu.au/teaching/21008.html), to see which issues are currently deemed researchable (and fundable). NCVER is a not-for-profit company owned by the state, territory and federal ministers responsible for VET, so it might be expected to serve as a vehicle for the promulgation of the shift to VET in adult numeracy (and literacy) policy in Australia. Nevertheless, the project titles seem to indicate that the VET agenda is being interpreted fairly broadly; they are:

- Current and future professional development needs of the language, literacy and numeracy workforce.
- Economic returns to education and training for adults with low numeracy skills.
- Learning numeracy on the job: A case study of chemical handling and spraying.
- Moving forward - understanding benefits, counting costs: literacy and numeracy across domains of social life.
- Reframing adult literacy and numeracy program outcomes: a social capital perspective.

It seems that adult numeracy is regarded seriously in both countries, though with policy directions (VET in Australia and *Skills for Life* in England, for example), criticised as narrow and restrictive of adults' purposes in learning by some of those active in the field at the ALM12 conference and elsewhere. Investment by policy makers in research is currently considerably greater in England than Australia, and, as the *Building Sustainable Adult Literacy Provision* report shows, Australia has not 'refreshed' its literacy policy since 1996, while, as we have seen, a range of policies has been developed in England, Scotland, Wales and Northern Ireland since 2001. The expansion and development of adult numeracy education in the UK appears to be following a similar trajectory to that in Australia ten years earlier, with an influx of public money going into a previously neglected area.

As yet it is too early to say how the pattern will play out in the UK. The wave may already have crested, since, for example, the NRDC has been a major funder of work in this area and its funding is due to end in 2007. If the Australian experience were to be replicated in the UK, expansion would be followed by contraction and a shift away

⁵ No distinction is made in the report between England and the UK as a whole, with the *Skills for Life* strategy ascribed to 'Britain' or 'the United Kingdom' rather than England.

from the encouragement of broad-based adult numeracy education (although it is debatable to what extent *Skills for Life* really does this – arguably it has introduced a highly bureaucratic system which restricts both learner choice and teacher autonomy) towards a narrow focus on VET. However, it seems that some more broad-based research is still being funded in Australia, indicating that even a tightly-focussed policy may still be interpreted loosely in some respects in an area where so much basic research remains to be done and where experienced researchers can make a good case to government.

Practitioners and researchers in the UK may have much to learn from our Australian colleagues about surviving dramatic shifts in policy with associated redirection or reduction of funding for provision and research. The lessons seem to be: ride the wave while you can and create some new, critical and useful knowledge for adults learning mathematics along the way; be prepared for the wave to recede, as it surely will; later waves may be smaller, but they may still be worth surfing.

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