

# Access and equal opportunities: Is it sufficient for maths and social justice?

## Response to Keiko Yasukawa's paper

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To contextualise this paper I will first provide an introduction to me as a person and professional. I was raised in South Africa with its attendant problems of racism and issues of inequity and social injustice. My academic background is in mathematics. My professional background is in maths teaching in UK and abroad then teacher education in maths, professional development etc. More recently I have worked with radical approaches to teaching literacies and this, combined with my background, led to the development of a theory of maths as social practice and associated research. All this means that my knowledge and positions are derived from my experiences in South Africa, mathematics, education, and research in the UK and abroad. I have not had substantial experience of adult numeracy. But, I am suggesting that my work coming out of the "Social Turn" in Maths Education, (Lerman 2000), with children, parents and students, has given me a potentially rich perspective in educational arenas such as adult numeracy and family education. Such a perspective includes the notion of access to powerful ideas but suggests that it may be necessary to go beyond an access agenda in order to tackle intractable issues of social justice in maths education.

This paper is a response to Keiko's on the Australian ALM scene. First I will draw out some of the points in the paper and then relate these to the parallel scene in England. I intend then to attempt to extend Keiko's analysis to a transformative model. To do so, I am intending to make use of some work done by John Smyth (1991) where he suggests a process for developing and sustaining the critical in teaching using four moments. These are: to describe and give an account of the current position; to inform ourselves of what exactly is going on, our positions in it and account for it; to confront the position, revealing and exposing ideas, ideology, epistemology and pedagogy underlying; and then to reconstruct our positions from our agreed social justice perspective. I have found his model very useful when approaching issues in maths education that require the sustainability that Keiko stresses in her writing

Keiko raises concerns about neo-liberal features of the Australian political and educational scene, such as privatisation, consumerism, individualism, union bashing, hostility towards the education sector, budget cuts, control and even blackmail. She says the adult educational scene is under attack because of its emphasis on social justice, its beliefs in inclusive adult numeracy, its learner centred pedagogies, etc. She feels that the only resistance to some of these attacks is to accept a stronger vocational role for adult numeracy, to look outwards towards sustainable and active trade unionism and to re-invent collectivism. She feels it is vital to set up communities, wider global networks, and more active trade unions to ameliorate some of the worst effects of the current neo-liberal movements such as casualisation of labour and the shedding of the social justice agenda.

My response is to accept much of her analysis. But I first want to outline what is happening in the UK and then ask the audience to allow me to be a bit provocative. This is not to divide us as it is vital, as Keiko says, for any attempt to protect ALM and to ensure that it remains committed to sustainable social justice requires joint and community action as well as networking among allied groups of people. Instead, I am seeking to strengthen us by trying to use a reading of Smyth's analytical model (1991) to understand the situation better before trying to reconstruct our positions and give them stronger foundations in relation to social justice. For an interesting account of meanings of social justice I refer you to Hart (2003).

The political position in the UK is not the same as in Australia. The differences may be marginal but there may be larger differences in the field of adults learning mathematics. In the UK we have a Labour Government, which labels itself 'New Labour' but which is not radical in terms of social justice. It sought to win power almost at any cost and this resulted in an acceptance of the need to take the middle classes and business interests along with it. There were all sorts of historic reasons for doing this such as the lack of electoral success for 18 years from 1979 to 1997. Whatever the reasons it was successful and we will now have a Labour government for at least three consecutive electoral periods. The outcomes of this (in some cases perhaps fortuitously achieved) have been mixed in many

fields. As in Australia there has been a strong move towards the market, individualisation, privatisation and even the calamitous PFI (private finance initiative).

There have been some improvements in some aspects of the economy, health and education services, and policies towards development at the same time as some reprehensible excursions in foreign policy. But there have also been significant increases in gaps in some fields especially economics, health and education, which run counter to social justice. Economically there is low inflation, a level of sustained growth, low unemployment, but a loss of manufacturing capacity, an increase in the service sector especially low paid employment. Although there has been rising incomes for many, including a minimum wage, there is a widening gap between rich and poor. There has also been more investment in the national health service and in some cases an improvement in the service received but privatisation is resulting in an increasing gap between the health care received by the rich and the poor.

I now move into the first of Smyth's four moments: a description of the education scene, which reveals similar gaps.

### **Describing – what is going on?**

In education there have been moves which have included greater centralisation and control, marketisation and privatisation, the calamitous private finance initiative, extensive and inappropriate uses of targets, inspections, notions of failing schools, a stress on leadership rather than democracy and community, devolving budgets to institutions through principals, rejecting the unions, a growth in charging fees particularly in HE and FE. A strong emphasis has been placed on the importance of children learning 'the basics' and pathologising and problematising of parents and teachers for educational failures. This led to the provision of the National Numeracy Strategy (DfEE 1999) in schools which has resulted in a new cohort of compliant teachers, who have accepted the Government's agenda and are classroom technicians willing to deliver what they have been asked to do. At the same time there was a start of the provision of good parenting classes, which had at its roots the acceptance that some homes and parents were in deficit, unable to provide for their children educationally. Despite these changes there is clearly a substantial and sustained education gap with children from relatively poor homes doing worse than those from wealthy homes (Feinstein, 2003). In maths in schools there is a similar long tail of underachievement (Ginsberg et al., 1997; Hughes, 1984)

These educational policies and programmes in my view derive from what I would call the access agenda. That is the UK government, perhaps unlike Prime Minister Howard's in Australia, coming from a more liberal (as against neo-liberal) position, believes that access to education will lead to higher employment, better prosperity for the populace and then to greater social stability and control; perhaps best summed up by the term 'embourgeoisment'. For example in prison education the correlation between education and stability is shown here:

At the turn of the 21<sup>st</sup> century the government began to recognise the correlation between crime and the lack of education and introduced basic skills in education for prisoners. ... around 66% [of prisoners] have poor numeracy skills ... There is a strong argument that this lack of basic education is a major contributing factor in offending and there is no doubt that it is a severe disadvantage in the job market. (Smith, 2005, page 14)

The correlation between education and employment is erroneously taken in this quote as causal and has led to pressure for changes in education in the expectation that they will inevitably result in a reduction in offending, more opportunities for work and then in social stability.

A shocking 7 million adults in England cannot read and write at the level we would expect of an 11-year-old. Even more have problems with numbers. The cost to the country as a whole could be as high as £10 billion a year. The cost to people's personal lives is incalculable. People with low basic skills earn an average £50,000 less over their working lives, are more likely to have health problems, or to turn to crime. These people, and their children, risk being cut off from the advantages of a world increasingly linked through information and technology. A fair and prosperous society cannot be built on such insecure foundations. (Blunkett, 2003)

Too many adults don't have the basic skills they need to get a job. Lower productivity and the increased burden on the welfare state is estimated to cost billions. ... The prospects for employment don't look good for those who lack the basics. 98% of jobs are closed to people with basic skills below entry level and 50% of jobs are closed to people with basic skills below level 1. (Rammell, 2005)

In a similar manner education is seen here as a route that will lead inevitably to work and social stability. The UK government therefore has become committed to ensuring access and "equal opportunity" to education, enforcing this, if necessary through centralised measures. This at times translates into ensuring that previously disadvantaged groups in particular have access to education that is seen by many as having a potentially powerful impact on people's lives. This seems like an exemplary position to take but I want to argue here that it has real and important

problems associated with it. The problems, in part, may come from the appropriation of the ideas by policy makers. The argument here might contain important lessons for us in adult numeracy.

### **Informing – how do we understand this description?**

Looking more closely at Adult Education in England let me unpack in what ways the UK government has appropriated this access or equal opportunity agenda. First it has prioritised Adult Education in general. It has given it status and resources through its 'Skills for Life' agenda (DfES, 2003). This has meant that there is an explicit commitment to substantially increasing the numbers of people attending adult education programmes, that it has set high targets and invested a comparatively large amount of money into this process. Every adult in England who has not achieved a adult basic skills level 2 (equivalent to a GCSE in maths achieved by many children at school at aged 16) has the right to free attendance at adult numeracy classes. Maybe this is not happening to the same extent in Australia. Thus:

Our mission is to give all adults in England the opportunity to acquire the skills for active participation in twenty-first-century society (Blunkett (Sec of State for Education and Employment), 2003).

and,

we are investing more money into further education [including adult education] than ever before. Over the past three years, we have increased cash going into the sector by 25% in cash terms (Rammell (Minister of State for life long learning, further and higher education), 2005).

Second, seeking to extend its influence and impact on adult education it encouraged the provision of an Adult numeracy core curriculum (DfEE, 2001). Then it sought ways of ensuring that "best practice" in teaching and learning adult numeracy was available to all. To do this the National Research and Development Centre (NRDC) (<http://www.nrdc.org.uk>) was set up in 2002. Within NRDC, in 2004, it set up the Maths4Life project (<http://www.maths4life.org/>) with a similar brief for conducting research and development projects to look for 'best practice' in terms of adult pedagogy and practice in post 16 numeracy.

Third, in England the focus in adult numeracy research, development and teaching is essentially to seek an essentially 'best way' of teaching the given mathematics curriculum in all situations. By 'best' is meant ensuring that set targets of numbers of people attain designated levels of 'basic' numeracy as assessed by formal tests. This fits a model of educational access where equal opportunities exist for people to achieve their own individual levels of attainment. Levels of attainment in this sense are related to individual merit. If learners fail it is their fault and they are blamed. At least they have all been given the opportunity to succeed.

### **Confronting – what is going on in terms of power and social justice?**

The question at this point is: what can be wrong with an access agenda? It is about equal opportunities and therefore must be an inclusive model of maths education. Can we confront these assumptions, see possible flaws in them, understand issues and problems and then seek to extend it to reconstruct an alternative model, which will fit more closely issues of social justice.

Before seeking to develop an alternative perspective on adult numeracy I want, in Smyth's (1991) terms, to confront the existing access model, seeking to reveal ideas, power, ideology, epistemology, and pedagogy underlying it.

In my view the access model is based on several assumptions, beliefs and values:

1. that the numeracy/maths curriculum contains important context-free, uncontested and powerful maths knowledge to which learners have access. What is the effect of this construction of mathematics?
2. that all learners are given the opportunity to reach their 'level of ability' – a meritocracy (Goldthorpe, 2005). The provision for maths/numeracy is designed and structured so that all learners can learn this mathematics knowledge and achieve the qualifications appropriate to their ability. All barriers or inhibitors of meritocratic attainment are removed. Does this provide genuine equal opportunities for access to mathematics?
3. that pedagogies provide equal opportunities and ensure access for all learners. Do current pedagogies do this?

In order to answer question 2 and 3 above, in relation to the implementation of an access approach, we could evaluate the effect of the current practices by looking at 'outcomes'. There is much evidence (Ginsberg, 1997; OECD, 2004) that attainment in mathematics is most closely associated with social class. Learners in schools from middle class backgrounds in general do significantly better than those from working class backgrounds. This is not to

say that some individuals do not depart from this general rule. They clearly do. But members of the group do indeed do less well than those from other groups. This finding seems robust over time and over systems and cultures. This suggests that attainment is not straightforwardly related to merit. There are aspects of teaching and learning mathematics that seem to privilege some learners rather than others. This suggests that current practices are not effectively inclusive. They either exclude working class learners or at the least make it significantly harder for them to access the knowledge, the pedagogy and the qualifications in formal mathematics. Failure is seen as due to learners' inadequacies (they did not have the ability to learn or did not take the opportunities offered to them) or ineffective teaching. It does not acknowledge or accept that learners from different social background may be in conflict with the nature of the mathematics being taught, the discourse of the classroom or even the learner themselves. An access model is built on the notion of an educational meritocracy but formal education seems to reproduce social differences and is therefore not redistributive. Formal education therefore conflicts with an access agenda and pedagogies that claim to be directed towards equal opportunities or social justice are not effectively doing so.

A challenge to the first question above could come from a practices perspective. That is, asking which mathematics practices (Baker, 1998) dominate formal education and why? It is clear that these mathematics practices are the autonomous (Baker, 1998) or esoteric (Dowling, 1998), ones that dominate formal maths curricula including the adult numeracy core curriculum (DfEE 2001), in England. This mathematics is often seen as decontextualised meta-knowledge often abstract in nature with much contextual 'noise' removed. It is often seen as value-free culture-free autonomous knowledge most of which plays little explicit role in many people's lives. Yet at the same time some of the least useful (in terms of every day lives) aspects such as algebra are seen by many as really important knowledge (Swain, forthcoming). From this perspective it is not surprising that mathematics is so dominant in education because it has so much power. The first source of power is its social or economic role. Here it is used to filter (Hart, 2003) or sort learners into their future career trajectories. The second source of power is its use in other specific fields of human endeavour where it has remarkable explanatory, predictive and communicative power in technology, engineering and science. Maybe most surprising is mathematics' often invisible power to frame or produce Discourse (Gee, 1999) within education. Here mathematics seems to have achieved authority as an indicator of 'intelligence'.

The above arguments seems fairly conclusively to reject the notion that an access agenda works or could work. Yet my experience is that challenging such access models can be highly problematic. Pointing out the inequities in student attainments has been met by very firm suggestions that I am either being deterministic in suggesting that working class learners cannot in general learn current formal mathematics or that my views will result in denying them access to the powerful ideas in mathematics perhaps through labelling or low expectations of teachers. This point is made strongly in relation to language in South Africa by Janks (2003/4 p. 33). I think this has clear application to mathematics as well. For illumination I have inserted 'numeracy', where appropriate in brackets:

If, on the other hand, you deny students access you perpetuate their marginalisation in a society that continues to recognise this language [numeracy] as a mark of distinction. You also deny them access to the extensive resources available in that language [numeracy]; resources which have been developed as a consequence of the language's [numeracy's] dominance. This contradiction is what Lodge (1997) calls that access paradox. .... we need to counterbalance access with an understanding of [numeracy] hegemony and diversity as a productive resource

This suggests that the provision of access has complexities that are often unacknowledged. In one direction, denying access to education would marginalise working class learners. On the other hand, the provision of access has built in contradictions. It is access to hegemonic knowledge, which privileges learners from some backgrounds and disadvantages others. These complexities seem to play a part in the fierce defence of the access model. One way to view this is to ask in whose interests is the model? The answer may be in part about vested interests and the privileging of the dominant hegemonic mathematics knowledge in formal education curriculum and the consequent rejection of diversity. Those who have had access, be they teachers of mathematics, other educationalists or families of learners who have gained from achievement in formal mathematics, then seek to privilege and defend that position. This suggests it is an elite position and one that is therefore exclusive. This privileging of certain content and processes results in an elite passing through educational filters and into powerful career trajectories, which they will defend. Where is the social justice in this?

### **Reconstructing – how shall we do this differently?**

I have attempted to challenge and confront the access agenda in adult numeracy. Before we go on to attempt to reconstruct an agenda (transformative) more closely allied to social justice we need to look at what kind of agenda may be more suitable. I need to say at this point that I have not yet fully developed the details of this agenda and I

look forward to starting the debate with this paper and continuing discussions with the ALM community in the future. The following points will frame the agenda.

First, this agenda accepts that all curricula, including formal mathematics ones, are value-laden and derived from selections and choices. This implies that there are values, beliefs and ideology underlying these decisions. In a transformative agenda such values would be made explicit and would be contested. That means that the existing mathematics curriculum itself would be challenged and all resulting curricula would have to be justified. The criteria for such justifications would themselves have to be made explicit. A transformative agenda would insist that any social or economic power residing in a maths curriculum would be made explicit and its position justified. That would almost certainly mean its role as a filter or gatekeeper would be modified and perhaps also its central role in adult education. In Bourdieu's terms the rules and procedures of the educational qualification "game" would be exposed and shared with learners (Bourdieu, 1990). It might challenge the content or even the emphasis placed on content areas. At the micro level for example the exaggerated position in the mathematics curriculum of the esoteric treatment of vulgar fractions might be challenged and instead allow greater emphasis to be placed on decimals or 'betting odds' or the use of the calculator. The position of long division as a skill might be challenged, as might some of the academic geometry, and instead allow more practical geometry to be included, such as builders' mathematics practices for ensuring that constructed objects are 'square'. In a macro sense it might challenge the largely esoteric nature of much of the maths curriculum and instead encourage a more embedded or situated emphasis (Lave, 1994; Rogoff, 2003).

A second aspect would consist of reframing pedagogical practices. At one level this would mean challenging existing ones and then building on current teaching practices of mathematics/numeracy all from a social justice perspective. It would reframe the full range of practices within teaching and learning numeracy from assessment and classroom activities to social and institutional relations. Such a perspective would no longer imagine equal opportunity but would seek to develop approaches that sought to ensure equity. This would use affirmative action to seek to redress imbalances in the privileging of the practices of previously advantaged learners. It would ask that we rethink the ways that we distribute resources in education. As an example of such an approach I would draw on what Luis Moll calls learners' "funds of knowledge":

Funds of knowledge represents a positive and realistic view of households as containing ample cultural and cognitive resources with great potential for utility for classrooms. (Moll et al p 134:1992)

In a recent edition of NRDC's journal, *Reflect* (Baker, 2005), I suggested what a broad view of funds of knowledge in terms of numeracy might be:

For numeracy we could take [funds of knowledge] to refer to our learners':

- Knowledge, experiences, histories, identities and their images of themselves in relation to mathematics;
- Attitudes, dispositions, desires, values and beliefs, and social and cultural relations in relation to mathematics;
- Relationships to learning, to teachers and to mathematics itself
- Numeracy practices both within and beyond the class (Baker, 1998, Street et al forthcoming)

A model of funds of knowledge could be accused of being romantic about what resources people have in their lives in relation to formal education, but to ignore the resources people bring to learning situations is not equitable and is counterproductive. Pedagogic practices would therefore include the need to be explicit about the values inherent in the educational processes and acknowledge that the education process is what Bourdieu called a game (Bourdieu, 1990).

A transformative agenda also needs to be responsive to the changing nature and demands of the society for mathematical knowledge skills and understandings that comes from digital technologies and globalisation. So we could ask what forms of mathematical practices (that is the knowledge, skills and values, the social relations) do learners need to become effective, thinking and acting citizens in the changing and technological societies of the future? The notion that these should be limited to the esoteric skills, knowledge and understandings of past mathematics curricula is untenable. There is a need for a much stronger more critical use of mathematics. Such an approach can be seen in the attempt by Gutstein and Petersen (2005) to "rethink" mathematics. Here the authors broaden perspectives on the role and place of mathematics within social justice and make practical suggestions about the kinds of teaching and learning activities that could be used in classroom practices for mathematics that would fit social justice. There is much to admire in this contribution but it still seems to be sited within dominant formal mathematical practices. That is, although there is some potential change in social relations, especially in the contexts in which they site mathematics, they do not advocate sufficiently, changes in the nature of mathematics and

the curriculum itself. What remains, therefore, still to work on is what kinds of mathematical practices, (curriculum and pedagogies) should be part of a transformative agenda.

My main response, then, to Keiko's paper is to accept the points she has made but then to extend them. I agree with her stress on the importance of moving towards a sustainable social justice agenda in adult numeracy and maths education. I agree with her ideas about networking and strengthening the role of the unions as politicising organising and conscientising bodies. But I am concerned that in her desire to defend the valued work that adult numeracy has been doing, she may be proposing an approach, which will inadvertently place a ceiling in terms of social justice. I have therefore tried to suggest ways that could go beyond the notions of access and a narrow view of equal opportunities and towards a transformative agenda (Freire, 1972) that stresses equity, affirmative action and much larger changes in the adult numeracy curriculum and pedagogy. If the adult numeracy community takes an access agenda and extends it into a transformative one then we will be ready for the challenges that Keiko has identified. I welcome the opportunity to engage together in taking these ideas further.

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