

*Below is a summary of the major points from *The Inclusion of Numeracy in Adult Basic Education* (2002) by Dave Tout and Mary Jane Schmitt. The full article is available at http://gseweb.harvard.edu/~ncsall/ann_rev/v3_c5.html.*

Introductory Points

Numeracy is an essential skill.

It may be the cognitive skill that most highly correlates with economic success in the U. S. (Murnane, Willet, Levy, 1995).

The U.S. ABE system has yet to sufficiently address the gap between those who are less numerate and those who are more numerate.

- Research on numeracy is minimal.
- Instructional practice is often constrained by commercial publications and standardized tests and often operates from an outdated notion of what constitutes “basic math.”
- Policy has yet to recognize numeracy as an essential part of being “literate” enough to negotiate the demands of the contemporary workplace and modern life.

This is also a particularly active, promising time in the

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developmental trajectory of adult numeracy education.

- In 2000, two compendia concerned with how adults use and learn mathematics were published.
- Numeracy is treated as a distinct domain in the international Adult Literacy and Lifeskills (ALL) assessment survey.
- The National Science Foundation (NSF) has for the first time funded a major mathematics curriculum project for adults enrolled in adult basic and adult secondary education programs.
- In July 2000, a conference was held that brought together researchers and practitioners from twelve countries to discuss a wide range of emergent issues in the field of adult numeracy.

Recommendations

Policy needs to address literacy and numeracy. Why has literacy upstaged numeracy in the language of policymaking? One obvious reason is that leadership and advocacy for ABE comes from practitioners and researchers with backgrounds in language and literacy. They are the ones who have helped their

respective fields mature, developed theoretical frameworks, and conducted research to advance the body of knowledge about how adults come to acquire another language and learn to read. They are the ones who have influenced policy. Experienced numeracy practitioners and researchers—and they do exist—need to be included and supported in the development of any ABE policy.

Increase public understanding of today’s mathematics.

The public needs to see the importance of numeracy—not simply mathematics—as a personal resource that can benefit the community at large. A campaign promoting the idea that all adults improve their numeracy skills could be the backdrop for the involvement of ABE. Numeracy campaigns should stress the need for all adults to expand their repertoire of math skills in interpreting and manipulating numerical information and concepts. We have been a population riddled with math fear and math avoidance. A campaign to educate the public about the importance of numeracy must address these issues. ABE needs to join forces with K-12

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educators, as well as international adult numeracy experts, to develop a successful public awareness campaign.

Challenging and engaging ABE curricula and instruction are needed.

One promising U.S. curriculum guide is the *Framework for Adult Numeracy Standards* (Curry, Schmitt, and Waldron, 1996). These curriculum standards consolidate several perspectives, mainly those supported by the NCTM, the Secretary's Commission on Achieving Necessary Skills (SCANS, 1991), and the ABE Mathematics Team in Massachusetts (Leonelli & Schwendeman, 1994), but also those of adult learners, numeracy teachers, and employers. The *Framework for Adult Numeracy Standards* is organized into seven broad themes/areas:

- Relevance/connections to real-life situations
- Problem solving/reasoning/decision making
- Communication of mathematical ideas and processes
- Number and number sense
- Data
- Geometry: spatial sense and measurement

- Algebra: patterns and functions

Assessment must be aligned to instruction. Improvement in curriculum will have little effect if assessment practices conflict with teaching practices. Assessment practices based on NCTM approaches such as those reflected in the ANN framework and in overseas adult numeracy practices, such as those in the Netherlands and Australia, should be considered. For the U.S. assessment systems now being used, for example, the GED, CASAS, TABE, ABLE, and AMES, it would be useful to have numeracy practitioners and researchers work with test developers to ensure these tests assess important numeracy skills.

Teacher preparation is crucial.

Any change in practice needs to begin by equipping ABE teachers with both pedagogical and content knowledge of numeracy, as well as with good instruction techniques, instructional materials, curriculum frameworks, and assessment instruments. (See Mullinex, Gal and, most recently, Ward's findings indicating most ABE teachers lack sufficient mathematics education training.) A range of substantive and innovative professional development and training programs can support this knowledge acquisition. Toward these ends, the ABE field should

consider consulting some of the existing international adult numeracy teacher training materials as a basis for developing a similar range of training and professional development materials in the United States.

A research culture for adult numeracy is needed. Research should focus on issues of cognition and attempt to ask questions about both the numeracy demands of society and the ways in which adults can develop numerate thinking to meet those demands. We need to know more about how adults think mathematically, what resources they bring to bear in approaching and solving problems, and what instructional interventions support the development of adult numerate thinking. Research also needs to be conducted about adult students' inherent attitudes toward mathematics and the effect these attitudes have on students' ability to learn. Research centers such as NCSALL, NCAL, NIFL, and TERC should join with collaboratives such as the Adult Numeracy Network and Adults Learning Mathematics to develop a strategic research agenda that connects research with practice and policy. Practitioner research such as that described by Meader (2001) or that conducted by the Massachusetts ABE Math Team is a good model for moving forward in this respect.