

**Improving Adult Education Teacher Effectiveness:**

**A Call to Action for a New Credential**

**By**

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**March 19, 2012**

## **Introduction**

Helping undereducated, underprepared adults to learn requires a targeted set of skills. The effectiveness of an adult education program depends on all instructional administrators, teachers and tutors, having those skills. Gone are the days when the teaching of adult basic education could rest upon a foundation of good intentions. There is a growing recognition that the performance of students can be predicted by the quality of instruction. The stakes for adult learners, and for the programs that support them, are higher than ever, as all must meet the needs for higher standards and greater complexity in the 21<sup>st</sup> century workforce.

## **Why Do We Need a National Credential?**

Local programs and state administrators struggle with the task of meeting these 21<sup>st</sup> century challenges with an underprepared teaching force. Adult education teachers are often asked to perform the complex task of teaching all subjects at twelve grade levels to adults, up to half of whom are learning disabled.<sup>1</sup> Many adult education teachers come to this work through a variety of doors, often with little or no adult teaching background or preparation. Often teaching standards are outdated, and there are few models to guide their work. Because of these challenging teaching assignments, they may be required to teach subjects for which they have limited content knowledge or undeveloped instructional skills.

Of greatest concern and urgency is the teaching of numeracy skills, an area with the fewest developed resources and the greatest learner needs. “Numeracy” refers to the ability to apply mathematical reasoning to tasks that must be solved in order to perform adequately in work and in daily life. Just as literacy goes beyond the mere mechanical acts of reading and writing to incorporate comprehension and application, so does numeracy extend beyond the textbook and the test to the contexts in which adults must function. The instruction of math in adult education has been characterized as “...grossly deficient in almost every way—in curriculum, pedagogy, faculty expertise, assessment and articulation...” in an article published by the Council for the Advancement of Adult Literacy (CAAL).<sup>2</sup>

Meanwhile, national trends suggest greater need for common academic standards in education across state lines. The adult education field can build upon the work of other fields, including both higher education and K-12. The Common Core State Standards, now adopted by K-12 systems in all but seven states, have raised the bar for younger students—and therefore for adult learners as well. These unified standards are considered to be critical in equipping today’s students to help maintain America’s competitive edge.<sup>3</sup> With the updating of high school equivalency credentials, the need for coordinated teaching standards—and portable credentials—becomes more compelling.

The need for quality in adult education has never been higher. Alarming studies forecast that from 2007 to 2032, the better-educated individuals retiring from the U.S. workforce will be replaced by younger workers who have lower levels of skills and education.<sup>4</sup> The gap between our most and least educated is already among the highest in the OECD (Organization for Economic Co-operation and Development) countries. But ironically, while the need is dramatically increasing, enrollment in our adult education programs has actually been decreasing.<sup>5</sup>

To counter these trends, our adult education system must improve in both quality and credibility to a skeptical audience. Historically, adult educators have been undercompensated, functioning in a marginalized system of low (or no) pay, part-time work schedules and poor (or no) employee benefits. With poor compensation and inconsistent (or no) professional development, adult education is hard-pressed to attract the best and the brightest to its ranks.

As state resources become tighter, the capacity of state staffs to develop all of their own professional development resources becomes increasingly strained—particularly in the least populous states, which have the fewest resources. Thus, by creating a national mechanism for developing standards, making available a diverse range of professional development resources and providing credentialing options, the field will be able to expand capacity throughout the nation, while creating a system for teachers (both paid and volunteer) to acquire portable, stackable credentials.

### **What Research Do We Have to Inform Our Work?**

An early resource to help guide our work is the 1999 PRO-NET guide to adult education teacher competencies,<sup>6</sup> sponsored by the U.S. Department of Education. Other helpful resources include the LINCS discussions ([lincs.ed.gov/lincs/discussions/professionaldevelopment/11certterms](http://lincs.ed.gov/lincs/discussions/professionaldevelopment/11certterms)) and the Adult Literacy Education Wiki ([wiki.literacytent.org/index.php/Teacher\\_Certification\\_and\\_Credentialing\\_in\\_Adult\\_Education](http://wiki.literacytent.org/index.php/Teacher_Certification_and_Credentialing_in_Adult_Education)).

In 2003, the National Center for the Study of Adult Learning and Literacy at Harvard University's Graduate School of Education continued the national dialogue by reporting on its study of 106 adult education teachers and the effects of professional development on their teaching.<sup>7</sup> That study has been followed up by a small collection of studies and reports on adult educator professional development.

In a 2009 study of teacher quality, Cristine Smith wrote of the largely unmet need for adult education teachers to access “comprehensive learning opportunities,” including job-embedded learning, on a continuing basis. She argued for immediate attention to planning and providing improved teacher-preparation activities to raise the effectiveness of teachers and, thereby, the potential success of their students.<sup>8</sup> The following year, CAAL conducted a project to address the urgent need for attending to the professional qualifications of adult educators. A study emerged from this discussion, which reviewed the many and disparate efforts throughout the country to improve teacher quality.<sup>9</sup> This project included a roundtable held in New York City, which brought together a group of experts to examine more specifically the topic of adult educator certification and credentialing. The summary report of this effort called for, among other things, the convening of a new leadership group to take responsibility for developing a new adult education credentialing system.<sup>10</sup>

Other resources that will be helpful in informing this work include:

- Massachusetts state standards for ABE (Adult Basic Education) teachers
- Ohio college readiness standards in math
- Resources from TERC ([www.terc.edu/ourwork/adultnumeracy.html](http://www.terc.edu/ourwork/adultnumeracy.html))
- Materials developed/identified by ANI (Adult Numeracy Initiative) ([www2.ed.gov/about/offices/list/ovae/pi/AdultEd/math.html](http://www2.ed.gov/about/offices/list/ovae/pi/AdultEd/math.html) )
- Resources from TIAN (Teachers Investigating Adult Numeracy) ([www.terc.edu/work/794.html](http://www.terc.edu/work/794.html))
- ESOL (English for Speakers of Other Languages) certification work ([www.cal.org/caela/esl\\_resources/briefs/TeacherCredentialChartJune2010.pdf](http://www.cal.org/caela/esl_resources/briefs/TeacherCredentialChartJune2010.pdf))

As this project progresses, so too will the U.S. Department of Education, Office of Vocational and Adult Education (OVAE) study of teacher competencies. The two projects will be highly valuable in informing one another.

### **Who Could Take on This Challenge?**

Two national organizations, the Commission for Adult Basic Education (COABE) and the National Adult Education Professional Development Consortium (NAEPDC), rose to this challenge. COABE is largely an adult education teacher and local program manager organization; NAEPDC is the professional development arm of the state directors of adult education organization. The two organizations are working to explore, define and create a system for a national credential for adult education instructional staff that will be based on research, best practices and industry-wide input. This credential system will include three components:

- Standards
- Recommendations for Educator Preparation
- A Mechanism for Earning and Awarding Credentials

### **Background**

On September 24, 2011, COABE and NAEPDC gathered a panel of key experts and stakeholders from around the nation in Chicago to identify the underlying issues and develop a plan of action for moving forward with a nationally accepted credentialing system. Included in the group were subject matter experts in the field of adult education including authors, editors, researchers, state directors and state staff members in adult basic education, local program directors and teachers. Names of participants in that forum and in the continuing workgroup are listed in the Appendix.

Together, the participants considered the driving and restraining forces around establishing a national certifying and credentialing system; reviewed the direction that the effort needs to take; considered current practices and needs; and identified solutions, tasks and next steps.

## **Forces For and Against a National Approach**

### **Driving Forces**

What would compel the field to develop a national teacher credentialing system, and with such a sense of urgency? Indeed, there are many talented and effective adult educators working throughout the nation. Yet, there needs to be a common core of knowledge and skills to ensure widespread quality and effectiveness throughout the field. Our adult learners need and deserve a high standard of effectiveness to make their efforts and time worthwhile. Funders, legislators and employers increasingly demand that our learners meet high standards—and new standards. We must expect no less of the teachers, tutors and instructional administrators who are entrusted with their learning. As industries begin to develop stackable, transferable credentials, so must the industry that is tasked with educating adult learners.

Furthermore, for the field to attract the best and the brightest, it must seek a higher level of professionalism. To earn the respect of our peers in education, the trust of our partners in workforce development and the support of our public officials, the field of adult education must establish, express and promote a high level of professionalism, expertise and skill throughout its ranks. The standards that underlie this professionalism need to provide continuity from classroom to classroom, locality to locality and state to state.

### **Restraining Forces**

Yet such an initiative faces many challenges. Teacher credentialing has its costs, not only in financial resources, but also in time and energy. Most adult educators are part-time employees, with low pay, few or no fringe benefits and limited time. Many want only to devote a defined number of hours per week to this work. Many adult education instructors hold primary jobs apart from their work in adult education, and, after other work and family responsibilities, have little discretionary time to devote to professionalizing their part-time occupations. And many do not stay in their jobs long enough to make any extraordinary investments pay off.

Further, the field lacks comprehensive research to support a positive link between credentialing and increased learner outcomes. For adult learners, who generally experience complex influences and complicated lives, it would be difficult at best to draw a cause-and-effect relationship between teacher qualifications and ability to achieve educational gains and attain educational and employment goals.

ABE providers are housed in diverse environments, including community based organizations, community colleges, correctional institutions, workforce agencies and local educational agencies, among others. The autonomy of states and of these local providers presents a daunting challenge to the goal of creating a unified system with a common set of goals and requirements.

## **Direction**

Given the urgency of need and the complexity of challenges, there emerged from this discussion recognition that “We can’t just build it and let it go.” What needs to be constructed is a viable, rigorous and meaningful system; one that is obvious in its value, well packaged and well promoted; and—significantly—one that is well maintained. It requires “agile product development,” comprehensive input and continuous improvement to address the shifting needs of employers, learners and funding guidelines.

Taking all of these forces into consideration, the group expressed a consensus that the time had come for the development of a national credentialing system, and participants focused on key elements of a policy that would have national implications. Those elements clustered around the areas of standards, teacher preparation and the credentialing mechanism.

## **Standards**

It was agreed that a process must be set in motion to develop national knowledge and professional standards for adult educators. Even as OVAE is engaged in a three-year project to identify teacher competencies, the field at large must also begin the process of developing national content standards in math, language arts and language acquisition. Content standards, together with identified teacher competencies, will form the foundation upon which teacher preparation and credentialing are built.

Given the diversity of programs, clientele, cultures, needs and professionals between and within states—it is clear that one size will not fit all. Many teachers come into the field “sideways,” with little or no preparation for teaching, or with little or no preparation for working with adults. There is an essential and immediate need for all new educators to learn and understand adult learning theory and to build on a base of common knowledge. Yet some teachers may come into this work with extensive experience/training in teaching or in working with adults in other environments or situations.

Standards therefore encompass two realms: first is the more general adult learning theory—how to teach undereducated, underprepared adult learners—how to organize instruction, methods that work with adults, accommodating learning differences and engaging adult learners in planning and evaluating their learning.

The second realm of standards is content knowledge and content methodology. Mathematics, for example, has specific content knowledge requirements from four functions: addition, subtraction, multiplication and division through higher-level math including algebra and statistical processing controls used throughout industry. Mathematics standards also incorporate content methodology including those instructional and learning methods that work well with adult learners.

Acquiring this series of standards cannot be achieved all at once. A system of stackable credentials, developed over time, will help ensure that teachers of diverse subjects have access to the targeted professional development and credentials they need in order to attain, demonstrate and update skills to meet their classroom needs.

The work of the planning group and any subgroups will need to be informed by the field in an open and continuing dialogue. In many ways, and despite many commonalities, the needs of programs and learners vary greatly across the nation—based on demographics, environments, cultures and labor market needs. That very diversity of programs and professionals throughout the nation will not only challenge the development of a unified system, but also enrich and strengthen both the process and the resulting system.

### **Acquiring and Demonstrating Standards Competency**

What does an adult educator need to know and to be able to execute instruction in the classroom, in order to help our adult learners to be successful? Once standards are developed, how will teachers acquire and demonstrate competencies in each? This fundamental question challenged the planning group. Is common coursework desirable? Is portability necessary? To what extent should teacher preparation mirror current practice—and to what extent should it be aspirational, setting higher standards for greater accomplishment?

Needless to say, states have professional development systems in place; many offer exemplary resources for their teachers. Thus, any credentialing system must take into account the work that is already being done by states, local and regional programs, universities and professional associations. A focus of the resulting credentialing system should be to give guidance to the states as to options for adapting their professional development system to support attaining the credential standards.

The challenge, then, is to create a system that is of high quality and flexibility for candidates to pursue different paths to a credential. Any credential created must be credible to both internal and external stakeholders. It must be of sufficient substance, rigor and refinement to earn the status of a national industry credential. And it must be relevant to the needs of all states and all localities. A tall order indeed!

Taking all of these concerns into account, it appears that the best approach includes national standards and competencies, alternatives for teachers to acquire those competencies through independent learning and state-sponsored professional development and a national credentialing center.

### **Mechanism for Credentialing**

The final component of the system is the method for demonstrating/validating that educators have learned the content and met the standards to receive a meaningful credential. Certainly, a variety of modalities for assessment should be available for this work. In current local and state programs of teacher certification

and credentialing, there is a wide range of techniques employed in the demonstration of teacher learning, including portfolios, applied learning, etc.

Two critical tasks are involved in developing the credentialing mechanism. The first is developing the protocols for assessing attainment of competencies. The second involves establishing a national body to conduct the assessment, issue the credential and house transcripts.

The credential itself will carry the logo and the support of the adult education state directors—the National Adult Education Professional Development Consortium (NAEPDC)—and the Commission on Adult Basic Education (COABE). The endorsement of both the state directors and the field represented by COABE adds much validity to, and acceptance of, the credential.

## **Current Practices and Needs**

### **What We Know**

Clearly, much work has already been accomplished in these areas, and an essential task of this project will be to bring together collectively what has already been discovered in research and practice.

Currently, fourteen states plus the District of Columbia have formalized adult education teacher certification programs for incumbent teachers.<sup>11</sup> This initial workgroup is in the process of surveying those states to discover best practices currently in effect. This survey will provide additional data that will inform the design for the new system.

### **What We Want to Know**

What are the strengths and commonalities of national industry credentials, in other fields, from which we can learn? In K-12, required teacher licensure is state-focused, set by the state superintendents of instruction. The National Teacher Certification for K-12 teachers has set nationwide standards, methods for meeting and assessing those standards and protocols for issuing the certification. Many aspire to the voluntary recognition that national credential provides. In postsecondary institutions, including colleges and universities, subject matter expertise is essential—but credentialing teaching knowledge is not. Adult education as a field shares some common characteristics with each of these groups, but is also separate and distinct from each. Thus, we must also look to other professional groups with national accreditation or licensure, to glean the related processes that we need to know more about. We may also look to other countries for their models in similar or related professional development systems. A notable example cited by participants is England's early childhood education professional certification.

## **Other Considerations**

Thus, this project needs to address the issue of adult education career pathways. It needs to consider the role—or potential role—of unions in the development of career pathways for adult educators. Participants in this project recommend that COABE and NAEPDC work on setting standards for adult education career pathways that states can implement, while recognizing that to do so will require input from many stakeholders, with multiple points of view.

Clearly, there must be incentives for participation including options to take courses online at times that are convenient to their lives and meet the budgetary constraints of a system that is already underfunded. Thus, this project must make clear the explicit, credible and compelling value that would accrue to teachers and their leadership. It must become both a standard and a part of the culture, using strategic packaging and promotion. A credential must be instantly recognizable by the “industry”—the adult education field.

## **The First Credential: Mathematics**

The field of adult education is broad, multileveled and multilayered. As the deliberations of this working group explored options for credentialing, a focus and a sense of urgency emerged. Well aware of the breadth of instruction from beginning reader to college transition that includes reading, mathematics, English, science, social studies, employability skills and others, the group determined that the first step in this process was to select a target: the first stack among the stackable credentials to be developed. Very quickly, the group decided to take on the most critical need: mathematics.

### **Why Mathematics?**

Of the five subjects tested in the GED® exam, passing rates were lowest in mathematics, according to a report based on 2009 data.<sup>12</sup> Recent studies have further revealed a startling lack of understanding and competency among Americans in mathematical concepts and their application to work and life contexts.<sup>13</sup> The National Assessment of Adult Literacy (NAAL) reported that 55% of America’s adults scored at either the Below Basic or Basic levels in Quantitative Literacy (levels 1 and 2 of a 5-level scale).<sup>14</sup> Other large-scale studies have corroborated these findings.

Furthermore, very few adult education teachers have an in-depth background in math or math education. Massachusetts is the only state that requires that adult education teachers pass a mathematics content assessment in order to be licensed to teach adult education. According to a study published by the Center for the Advancement of Adult Literacy, “little attention has been paid by all sectors to examining and improving numeracy in adult education programs.”<sup>15</sup>

Thus, the poor performance of adult learners in mathematics and the poor preparation of the teachers who are challenged to help them, combine to create a powerful impetus for putting mathematics first on the list of competencies for professionals to develop, demonstrate and document.

### **What Research Addresses This Focused Need?**

A large body of research forms a strong foundation for mathematics instruction in K-12. The pace and sequencing of the teaching of arithmetic and math align with the developmental stages of children and adolescents. The field of adult education can, and does, learn from and build upon this foundation. Yet, the developmental stages of adulthood are considerably different from those of children—and, further, the information and skills needs differ dramatically. Until very recently, there has been a lack of research on adult numeracy. Only in the last several years has significant progress been made in addressing this shortfall. OVAE sought to address this issue by engaging in the project *Strengthening America's Competitiveness Through Adult Math Instruction*. The work of this project resulted in an extensive, and highly researched report, *Building on Foundations for Success: Guidelines for Improving Adult Mathematics Instruction*.<sup>16</sup> This report will, to a large extent, inform the effort to establish a national teacher credential.

### **What Are the Key Considerations in Focusing on Teacher Credentialing in Math Instruction?**

All adults need proficiency with rational numbers (fractions, decimals and percents) and with proportional reasoning. Also, to varying degrees, they need to understand elements of algebra, data and statistics, geometry and measurement. And they need to have skills in reasoning, problem solving and communicating—to use mathematics in real situations on the job, in their communities and in their daily lives.

Teachers need to know how to provide this instruction in a meaningful progression that will be appropriate not only to their learners' academic preparation but also to their learners' goals and contextual needs.

Too often, teachers in ABE/GED programs teach to the test, decontextualizing arithmetical procedures and presenting them in the form of worksheets that appear to have little connection to learners' lives and jobs. Now, we are functioning in an era wherein there is increasing awareness that the test or diploma or degree are not the end goals, but just steps along the way to career readiness. Academic preparation must include preparation for effective functioning in the workforce and in life. Thus, mathematics must be re-contextualized.<sup>17</sup> Rather than following a test-prep model, adult education teachers must present an educational model which will enable learners to apply the skills learned to their everyday work, civic and home management needs.

### **What Are the Current Practices and Needs We Should Address?**

The focus of this project will be to build upon what we already know about mathematics instruction. The Common Core State Standards<sup>18</sup> present the standards for mathematical practice and content, based on an awareness of how children and adolescents learn best. These standards can be applied to the mathematics instruction for adults, but in a different way that acknowledges how adults learn best.

There are three main questions that this project will need to answer:

- What do we need to teach?
- How do we teach it?
- How do we teach teachers to teach it?

The mathematics credential will include both content knowledge and teaching competencies for the three levels of progression in adult education:

- Adult Basic Education (ABE)
- Adult Secondary Education (ASE)
- Transition to College and Career Readiness

For each of those levels, four content strands will be addressed:

- Numerical operations
- Geometry and measurement
- Statistics
- Algebra

Thus, there will be twelve parts or benchmarks within the numeracy credential for adult education. This approach will dovetail with the Common Core content continuum, but will also align to the sequencing most appropriate to adult instruction.

### **Conclusion**

As the project takes shape, it is clear that it will consist of a two-tiered system: one with a national option, but also other options for multiple delivery modalities. This effort will not supersede nor supplant efforts already made by other institutions and entities—rather, it will add to, expand and enrich those other efforts and offerings. It will establish a new standard: in the words of one panel participant, “a sweeping standard of excellence.” This, then, is intended to be a game-changer—an effort that will significantly reform, upgrade and enhance the professionalism of adult education instructional staff.

Adult learners deserve the best-prepared teachers we can provide.

## **Appendix**

### **Project Participants**

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## Endnotes

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- <sup>1</sup> Learning Disabilities Association of America (2000). *Learning Disabilities and Low Income Populations*. Pittsburgh: Learning Disabilities Association of America, [www.ldanatl.org/aboutld/adults/special\\_pop/low\\_income.asp](http://www.ldanatl.org/aboutld/adults/special_pop/low_income.asp)
- <sup>2</sup> Chisman, F.P. (2011). *Facing the Challenge of Numeracy in Adult Education*. New York: Council for Advancement of Adult Literacy, [www.caalusa.org/NumeracyChallenge.pdf](http://www.caalusa.org/NumeracyChallenge.pdf).
- <sup>3</sup> National Governors Association Center for Best Practices, Council of Chief State School Officers (2010). *Common Core State Standards*. Washington: National Governors Association Center for Best Practices, Council of Chief State School Officers, [www.corestandards.org](http://www.corestandards.org).
- <sup>4</sup> Braun, H., Kirsch, I., Sum, A. and Yamamoto, K. (2007). *America's Perfect Storm: Three Forces Changing Our Nation's Future*. Princeton, NJ: Educational Testing Service, [www.ets.org/perfect\\_storm](http://www.ets.org/perfect_storm).
- <sup>5</sup> National Commission on Adult Literacy (2008). *Reach Higher, America: Overcoming Crisis in the U.S. Workforce*. Washington: Council for Advancement of Adult Literacy, [www.nationalcommissiononadultliteracy.org/report.html](http://www.nationalcommissiononadultliteracy.org/report.html).
- <sup>6</sup> Sherman, R., Tibbetts, J., Woodruff, D. and Weidler, D. (1999). *Instructor Competencies and Performance Indicators for the Improvement of Adult Education Programs*. Washington: Building Professional Development Partnerships in Adult Education (PRO-NET), [www.calpro-online.org/pubs/Instructor%20competencies%20and%20indicators%20\(C.PDF](http://www.calpro-online.org/pubs/Instructor%20competencies%20and%20indicators%20(C.PDF).
- <sup>7</sup> Smith, C., Hofer, J., Gillespie, M., Solomon, M. and Rowe, K. (2003). *How Teachers Change: A Study of Professional Development in Adult Education*. Boston: National Center for the Study of Adult Learning and Literature, [www.ncsall.net/fileadmin/resources/research/brief25.pdf](http://www.ncsall.net/fileadmin/resources/research/brief25.pdf).
- <sup>8</sup> Smith, C. (2010). "The Great Dilemma of Improving Teacher Quality in Adult Learning and Literacy." *Adult Basic Education and Literacy Journal*, 4(2): 67–74, <http://blog.ncladvocacy.org/wp-content/uploads/2010/08/Smith2010TQinAE.pdf>.
- <sup>9</sup> Smith, C. with Gomez, R. (2011). *Certifying Adult Education Staff and Faculty*. New York: Council for Advancement of Adult Literacy, [www.caalusa.org/certteach.pdf](http://www.caalusa.org/certteach.pdf).
- <sup>10</sup> Chisman, F.P. (2011). *Closing the Gap: The Challenge of Certification & Credentialing in Adult Education*. New York: Council for Advancement of Adult Literacy, [www.caalusa.org/Closing.pdf](http://www.caalusa.org/Closing.pdf).
- <sup>11</sup> Smith with Gomez (2011), op cit.
- <sup>12</sup> American Council on Education and GED® Testing Service (2010). *2009 GED® Testing Program Statistical Report*. Washington: GED® Testing Service, [www.acenet.edu/Content/NavigationMenu/ged/pubs/2009ASR.pdf](http://www.acenet.edu/Content/NavigationMenu/ged/pubs/2009ASR.pdf).
- <sup>13</sup> Ginsburg, L. (2011). Adult Numeracy Demand & Provision, in *Adult Numeracy: A Reader: Four Papers from CAAL's January 2011 Roundtable on Adult Numeracy*. New York: Council for Advancement of Adult Literacy, [www.caalusa.org/publications.html#other](http://www.caalusa.org/publications.html#other).

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<sup>14</sup> Kutner M., Greenberg E. and Baer, J. *National Assessment of Adult Literacy (NAAL): A First Look at the Literacy of America's Adults in the 21st Century* (NCES 2006-470). Washington: National Center for Education Statistics, U.S. Department of Education, [nces.ed.gov/NAAL/PDF/2006470.PDF](http://nces.ed.gov/NAAL/PDF/2006470.PDF)

<sup>15</sup> Ginsburg, L. (2011), p. 22.

<sup>16</sup> Ginsburg, L., Manly, M., Schmitt, M.J., Chernus, K., Fowler, D. and Gardner, D. (2011). *Building on Foundations for Success: Guidelines for Improving Adult Mathematics Instruction*. Washington: MPR Associates, [www.lincs.ed.gov/publications/pdf/AdultNumeracyReportFinal2011.pdf](http://www.lincs.ed.gov/publications/pdf/AdultNumeracyReportFinal2011.pdf)

<sup>17</sup> Bickerton, B. (2011). "Policy to Improve Math Teaching & Learning in Adult Basic Education: A Perspective from Massachusetts," in *Adult Numeracy: A Reader: Four Papers from CAAL's January 2011 Roundtable on Adult Numeracy*. New York: Council for Advancement of Adult Literacy, [www.caalusa.org/publications.html#other](http://www.caalusa.org/publications.html#other).

<sup>18</sup> National Governors Association Center for Best Practices, Council of Chief State School Officers (2010). *Common Core State Standards for Mathematics*. Washington: National Governors Association, Center for Best Practices, Council of Chief State School Officers, [www.corestandards.org/the-standards/mathematics](http://www.corestandards.org/the-standards/mathematics).