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IALS in the US

A Rippling Impact on Literacy Policy

Author:

Ronald Pugsley

RP Associates

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RP Associates, Bethesda, MD

Ronald S. Pugsley

ronaldpugsley@mac.com

I served as National Director of Adult Education and Literacy in the Division of Adult Education and Literacy (DAEL) in the Office of Vocational and Adult Education (OVAE), U.S. Department of Education for a significant portion (1989-2002) of the period covered by this essay. I retired from USDOE in 2003 and have relied upon recent documents and interviews to bring the narrative up-to-date.

IALS in US

A Rippling Impact on Literacy Policy

SUMMARY

During the 1990s, the International Adult Literacy Survey (IALS), in tandem with the National Adult Literacy Survey (NALS), made a significant impact on U.S. public consciousness and public policy, reaching a high-water mark in 1999-2000. A change in federal administrations in 2001, however, broke the momentum of literacy policy as interest in IALS declined, debates arose on questions of methodology, and the adult education sector faced funding cuts. The interest rekindled in 2007, with a new emphasis on lifelong skills and the importance of global competitiveness.

Background and Context of IALS in the US

Public consciousness of the importance of IALS to literacy policy in the U.S. took time to develop. The initial reaction to IALS (a seven-nation study) was negligible, and generated no media coverage. But to policy wonks, it had significant importance, confirming the findings of the 1992 NALS and the apparent correlation of the NALS/IALS Prose, Document and Quantitative (PDQ) inventory with economic and employment success. To understand the subsequent development of public interest in IALS requires an understanding of the importance of NALS on public consciousness and policy.¹

NALS – Focusing Attention on Adult Literacy

Congress in 1988 directed the U.S. Department of Education to carry out an assessment of the literacy skills of American adults. Undertaken in 1992 by Educational Testing Service (ETS) for the Department of Education, NALS was the largest and most comprehensive assessment of the literacy proficiencies of the nation's entire adult population (16 and older).ⁱⁱ The findings of NALS were alarming:

*21-23% – or some 40-44 million of the 191 million adults in the country – demonstrated skills at Level 1 of prose, document and quantitative proficiencies; and
25-28% of the respondents, representing about 50 million adults nationwide, demonstrated skills at Level 2 on each of the literacy scales.*

Immediate Impact

- **Raising Public Consciousness** – A U.S. Department of Education press release (9/8/1993) reflected the common angst: *LITERACY LEVELS DEFICIENT FOR 90 MILLION U.S. ADULTS*. Secretary of Education Richard W. Riley asserted: “NALS paints a picture of society in which the vast majority of Americans do not know that they do not have the skills they need to earn a living in our increasingly technological society and international marketplace.”
- **Involving Multiple Constituencies** – In addition to the main NALS report, three subsequent reports were issued - on older adults, the labor force, and the prison population.ⁱⁱⁱ
- **Raising Expectations** – Within the Department of Education, the NALS findings sharpened perceptions on the importance of adult education, historically a stepchild within educational circles. Three findings guided subsequent program/policy decisions:
 - 1) Adult education is both an education issue and an economic issue;
 - 2) Adult education is an investment in the present and the future – in the workforce which will help the nation to succeed in global economy, and in parents who prepare and support their children to be successful in school; and
 - 3) Adult education is a preventive strategy reducing future costs in incarceration, welfare, unemployment, and health care.

- **Targeting State/National Decision Makers** – NALS findings ran up against a common refrain: “Yes, it’s a national issue, but not in my backyard.” This changed with publication of *The State of Literacy in America: Estimates at the Local, State, and National Levels* (National Institute of Literacy, 1998). For each congressional district, Level 1 synthetic literacy estimates^{iv} were made and “brought home” a message that drew attention from policy makers.^v Information about low-level literacy in state and congressional districts was a significant contributing factor to the 94% increase in Federal funding of the Adult Education State Grant Program between 1996 and 2000.

Significant Benchmark Study

In 1995 – a GED/NALS Comparison Study linked passing the GED (Tests of General Educational Development) to NALS literacy Level 3, reflecting a moderate level of literacy proficiency (non-passers of GED lay within a Level 2 range).^{vi} The comparison study showed that PDQ skills, as opposed to job-specific skills, provide cognitive underpinning to success in the workplace.

This benchmark study enabled professional adult educators and the public alike to associate a known “educational icon” with the NALS/IALS instruments.

IALS – Three Stages 1994,1996, 1998

Following upon NALS, the National Center for Educational Statistics (NCES) supported the pioneering effort to develop and conduct IALS the first-ever comparative, international assessment of adult literacy.^{vii}

Significance of Findings

Early stage – The first report (1995) reinforced NALS data on the relationship between literacy and economic viability through the strong associations between literacy and employment, income and economic life changes. The IALS data suggest that literacy skills are maintained and strengthened through regular use at work and at home, *a theme consistent with the NALS findings and the 1990 SCANS report* (Department of Labor’s Secretary’s Commission on Achieving Necessary Skills). The second IALS report (1997) confirmed the important effect of literacy on the determination of wages, noting the

contribution of literacy comes on top of the effect of education on earnings. It highlighted the critical role of the workplace in improving adults' readiness to learn and in encouraging development of literacy skills – *a finding especially important to the U.S. National Workplace Literacy Program (NWLP).*^{viii}

Later reports – Since 2003, efforts to reauthorize the Workforce Investment Act of 1988 (WIA) have languished until today. During this period, several IALS-based publications were issued that “might have” impacted U.S. literacy policy had a reauthorization review been launched:

- *Benchmarking Adult Literacy in America: An International Comparison* (Albert Tuijnman, 2000)^{ix}
- *Twin Challenges of Mediocrity and Inequality: Literacy from International Perspective* (Andrew Sum and Irwin Kirsch, 2002)^x
- *Time Bomb in the Workforce: Illiteracy* (Business Week, February 2002)
- *America's Perfect Storm: Three Forces Changing Our Nation's Future* (Kirsch, Braum, Yamamoto, and Sum, 2007)^{xi}

HIGH WATER POINT

*“I ask for your support for adult literacy to mount
a national campaign aimed at helping the millions
and millions of working people who still read at
less than a fifth grade level. We need to do this”*

– President Clinton's State of the Union Address, January 19, 1999

Following the 1999 State of the Union Address, President Clinton proposed the *FY 2000 Initiative for 21st Century Adult Education*, a five-year strategy to dramatically increase support for adult education. NALS/IALS reports and findings were important data sources underpinning both the initiative and the President's address.^{xiii} *Federal funding of adult education in FY 2001 increased by \$100 million and OMB targeted federal funding of the Adult Education State Grant Program to exceed one billion dollars by the end of 2005.*

SHADOWS ON HORIZON

With the election of George W. Bush in 2001, literacy policy at the national level underwent a dramatic shift. Over the course of the next four years, Administration support and/or interest in adult education significantly eroded.

During this same period, another challenge arose that had a serious impact on how the U.S. approached the measurement of literacy. This challenge significantly distracted attention from the overarching issue of too many undereducated, low-skill adults in the U.S.

In July 2001 the Washington Post's lead education writer, Jay Mathews, dropped a bombshell, quoting Andrew Kolstad, the NALS project monitor, who said, "The problem with the original analysis (NALS) was that it used the wrong 'response probability,' an 80% cut point [or rp80] ... and exaggerated the severity of the problem."^{xiii} From this point on, the media and the field of adult education became enmeshed ("distracted by" is perhaps a better expression) in a methodological debate that had nothing to do with the underlying distribution of literacy skills in the U.S.

2001 SQUARING OFF

With the change in Administration, a quiet debate began in the U.S. Department of Education between the NCES and the Office of Vocational and Adult Education (OVAE) over the probability criterion to be used in the 2003 National Assessment of Adult Literacy (NAAL). As noted above, NCES's concern was that the NALS technique to establish literacy levels was flawed because it was based on an 80% response probability (rp80). Equally important, however, was the NCES concern that an rp80 was not in sync with the criterion of 67 percent used by NAEP for the K-12 system (around the mid 1980s NAEP's response probability changed from 80% to 67%).

For OVAE, NCES' position was simply "dumbing down" literacy proficiency for the convenience of symmetry with NAEP and ignoring the facts that rp80 had been vetted internationally and that no OECD nation advocated lowering the bar. To resolve this dispute, NCES and OVAE agreed to fund a two-year

study on performance levels to be used in reporting results from the new NAAL and from the International Adult Lifelong Learning Survey (ALLS).

REPORT ON PERFORMANCE LEVELS FOR ADULT LITERACY

In the summer of 2002, NCES approached the Board on Testing and Assessment (BOTA) of the National Academies for help to set performance standards for the new household survey, the National Assessment of Adult Literacy (NAAL). BOTA formed a Committee on Performance Levels for Adult Literacy to offer advice and in 2005, the committee issued two major recommendations:^{xiv}

- **A NEW SET OF PERFORMANCE LEVELS** for each of the three domains of English literacy: Nonliterate in English, below basic literacy, basic literacy, intermediate literacy, and advanced literacy.
- **A NEW PROBABILITY LEVEL** of 67 percent.^{xv}

The committee made no mention of the confounding issues that would arise from misalignment (different cut points) of national and international literacy assessments.

2001 WORKING IN TANDEM

While the left arms of NCES and OVAE were drawing swords in 2001, the right arms were forging a partnership built on the success of the Young Adult Literacy Survey (1985), NALS (1992) and IALS (1994-96-98). OVAE's Division of Adult Education and Literacy (DAEL), working with NCES, planned three new integrated surveys:^{xvi}

- **Adult Literacy and Life Skills Survey (ALL)**, a direct successor to IALS. For policymakers there were two distinct goals: to compare the performance of the U.S. adult population with those in similar countries, and to monitor changes in skill levels since 1994.
- **Adult Education and Literacy Survey (AEL)**, a survey of adult education programs using ALL assessment instruments. This would be a first-ever comparison of the literacy skills of those enrolled in adult education programs and the general population.

- **Level One Study**, a detailed examination of the skills of lower literacy adults (from adult education programs and households) using IALS literacy tasks and a battery of reading component skill tests.

WANING INTEREST

Overall, however, programmatic interest in IALS and subsequent surveys (ALL) diminished under the Bush Administration. Administration proposals to dramatically cut adult education funding absorbed the field's attention. This defensive angst accompanied a growing detachment and skepticism about national and international assessments. Sadly, the language of NALS/IALS/ALL, developed over a decade of use, declined.

NAAL

In December 2005 NCES released data on the 2003 NAAL. The media spotlighted the report's finding that one in 20 Americans is not literate and that 29 percent of the population had only basic reading and computing skills.

Within the field of adult education there was considerable debate about how to respond to NAAL.

Concerns related to:

- How the new set of performance levels (Below Basic, Basic, Intermediate, Proficient) were similar or dissimilar to NALS/IALS performance levels 1-5.
- NCES public emphasis on "Below Basic" literacy (14 percent of the population) and scant attention to the needs of individuals at the "Basic" level (29 percent of the population).
- Change in cut scores to a lower threshold of performance, from rp80 to rp67.
- Reconfiguring 1992 NALS data to an rp67 standard.

Little or no concern was expressed by the media or adult educators on the disconnect between the new NAAL and IALS/ALL.^{xvii}

AEPS

The Adult Education Program Study (AEPS) was released in February 2007.^{xviii} For the field of adult education the study was a survey of firsts:

- It was the first time the skills of adult education program participants were assessed by comparable literacy measures.
- It was the first time such measurement permitted comparisons with a household sample, by comparing results with those from the ALL.
- It was the first time this kind of assessment was conducted in both Spanish and English.

Significant findings of AEPS were:

- 1) Literacy and numeracy skills of program participants were significantly below general population,
- 2) The highest proportion of adult learners were performing in Level 1 (implying a critical need to develop skills to successfully compete in today's society)
- 3) The dual challenge of English as a Second Language learners, and
- 4) Participant participation was well under 100 hours.

The value of AEPS was that it pointed not only to the system's weaknesses but also to ways to reinvigorate the delivery of services. Yet, AEPS' strength, the same theoretical framework that guided the development of ALL, had become its liability – for *NAAL was the new boy on the block and commanded the field's attention.*^{xix}

ALL – A Hidden or Unnoticed Report?

When Statistics Canada and the OECD released *Learning a Living: First Results of the Adult Literacy and Life Skills Survey* in May 2005, the event was scarcely noticed in the U.S. The NCES issued a short "Issue Brief" (NCES, May 2005-117rev.) that highlighted the overall literacy and numeracy performance of U.S. adults' ages 16-65 compared to their peers in five other countries.

Why this perceptible downplay of ALL? Why no ALL country or national report? Several answers come to mind. First, NCES's commitment to ALL was limited in scope when compared to the literacy program

office's (DAEL) commitment. Second, NCES's attention was focused on the release of NAAL. This meant that internally within NCES, the new national assessment of literacy held the upper hand. Finally, there was an awkward issue (never fully investigated) that the ALL data, especially for subpopulations, did not fully square with the NAAL data. To highlight ALL would spotlight the differences in findings.

But appearances are ephemeral, and in the case of ALL, the survey included a new numeracy domain that allowed ALL to collect more information about how adults apply mathematical knowledge and skills to real-life situations. This evolution or expansion in the concept of literacy was to be continued in PIAAC, the Programme for the International Assessment of Adult Competencies.

NEXT PHASE: CONVERGENCE OF LARGE-SCALE ASSESSMENT INTERESTS

In June 2011 IES reached a decision to incorporate the next NAAL within the next international study (PIAAC), extensively expanding the sample size and using a separate background questionnaire. Field test for the integrated assessment is scheduled for 2016, and its first main assessment is scheduled for 2021. In sum, a decision has been made to have one national literacy assessment based on PIAAC and scheduled to mesh with OECD's 10-year cycle. *This decision constitutes a major shift in U.S. strategy for conducting large-scale literacy assessments.*

PIAAC Decision

Between 2007 and 2011, support within IES/NCES for having PIAAC serve as the framework for NAAL developed as the agency explored the relative merits of national and international assessments and the need to make best use of limited resources. The discussions were often heated as national and international advocates struggled to execute development activities within timetables that partially overlapped. With resources limited, it was not possible to square the circle.

When the first cycle of PIAAC was launched in 2007 (note: PIAAC is named the International Survey of Adult Skills (ISAS) in the United States), it was clear to many stakeholders that PIAAC, built on previous international surveys of adult skills, would allow literacy levels in the U.S. to be compared over

a 14-year period. Additionally, and beyond NAAL, PIAAC was breaking new ground by: expanding the range of skills being measured; introducing a self-reported measure of the use of skills at work; and using computers to administer literacy assessments. As the cachet of international benchmarking became increasingly important, earlier resistance to literacy assessments of this kind began to wane.

Between October 2010 and January 2011, NCES conducted nine focus groups with policymakers, researchers, and other adult education and training stakeholders. Among the topics discussed were the relative merits of national and international assessments of adults' skills and competencies. On this topic, there was agreement that, "ideally," national and international assessments should be aligned and offer complementary information. Additionally, group members expressed the view that international assessments have political benefits, "especially in comparing the skills of the U.S. population to those in other countries and understanding the country's 'global competitiveness'."^{xx}

Given limited resources, the innovative domains of PIAAC and the job-related revisions to its background questionnaire, it is not surprising that voices in IES emerged in support of PIAAC serving as the framework for NAAL. To these stakeholders, PIAAC offers an opportunity to review, through an international prism, the changing nature of information, its role in society and its impact on people's lives. In short, PIAAC provides a way to focus on a very significant problem, low-level literacy in the U.S., which is so considerable and so widespread but today lies veiled and partially hidden because of the history of disagreement on how to interpret findings.

ENDNOTES

ⁱ One can also argue that the opening salvo was a forceful little report called *A Nation at Risk*, released in April 1983. The most famous line of the widely publicized report declared, “the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people” (U.S. Department of Education, 1983). This Cold War metaphor aside, *A Nation at Risk* found that one-third of 17-year-olds could not draw inferences from written materials, only one-fifth could write a persuasive essay, and 13 percent (40 percent among minority youth) were functionally illiterate by the simplest tests of everyday reading, writing, and comprehension. These findings prompted a National Assessment of Educational Progress (NAEP) survey in 1985 of the literacy skills of America’s young adults aged 21 to 25, *Literacy: Profiles of America’s Young Adults* (I. Kirsch & A. Jungeblut, NAEP 1986). This report became the forerunner to NALS, which, in turn, provided the framework establishing the PDQ scales for IALS.

ⁱⁱⁱ Kirsch, Irwin, Ann Jungeblut, Lynn Jenkins, and Andrew Kolstad. 1993. *Adult literacy in America: A first look at results of the National Adult Literacy Survey*. U.S. Department of Education.

ⁱⁱⁱ U.S. Department of Education, National Center for Education Statistics. *Literacy of Older Adults in America: Results from the National Adult Literacy Survey*. 1996. *Literacy Behind Prison Walls: Profiles of the Prison Population from the National Adult Literacy Survey*. 1994. *Literacy in the Labor Force: Result from the National Adult Literacy Survey*. 1999.

^{iv} Statistical synthetic estimation is a technique to carry down estimations to local levels. In this instance two data sets (NALS and 1990 U.S. Census) were used to develop estimates of literacy proficiencies at congressional district levels. See Stephen Reder, *Synthetic Estimates of Literacy Proficiency for Small Census Areas*. Prepared for OVAE/DAEL, U.S. Department of Education, June 1996.

^v The National Institute for Literacy (NIFL) received this data from the Office of Vocational and Adult Education's (OVAE) Division of Adult Education and Literacy (DAEL), which contracted for the development of techniques for estimating adult literacy proficiencies from 1990 U.S. Census data (Steve Reder, June 1996). DAEL developed Level 1 and Level 2 profiles for state and congressional districts. These profiles, highlighting the issue of low-level literacy, were designed for congressional budget hearings – and were in themselves powerful testimony to the issue.

^{vi} Baldwin, Janet. 1995. *Adult Basic Education; Adult Literacy; Comparative Analysis; Educational Attainment; Educational Certificates; Educational Research; High School Equivalency Programs; Scores.*

^{vii} The first phase of the survey was conducted in 1994 in nine countries. Data for seven of these countries were published in *Literacy, Economy and Society: Results of the First International Adult Survey* (OECD and Statistics Canada, 1995). The second phase of the survey was conducted in five additional countries in 1996 and was used along with data from the first phase to produce the 1997 publication *Literacy Skills for the Knowledge Society: Further Results from the International Adult Literacy Survey* (OECD and HRDC, 1997). A third phase surveyed nine additional countries in 1998. The final report was published in 2000 *Literacy in the Information Age: Final Report of the International Adult Literacy Survey* (OECD/Statistics Canada).

^{viii} This message, however, was lost in the 1988 reauthorization process where the emphasis on employment redirected the focus in workplace literacy (Workforce Investment Act of 1988).

^{ix} Reflecting the importance of international assessments to the national debate on adult education and training, senior staff members of the Senate and House Education/Labor committees commended the Division of Adult Education and Literacy for commissioning the Tuijnman monograph, noting that the data and policy implications provided were exactly what were needed for discussions on reauthorization of Title I of the Workforce Investment Act (The Adult Education and Family Literacy Act).

^x The report highlighted twin findings of mediocrity and inequality of U.S. adults' literacy skills and the challenges to U.S. educational and workforce development systems in the years ahead.

^{xi} The report documents and describes three forces – divergent skill distribution among U.S. population groups, a changing economy, and demographic trends of a growing, more diverse population. The confluence of these factors, the report argues puts the nation at great risk.

^{xii} When the final IALS report, *Literacy in the Information Age*, was published in 2000, a U.S. Department of Education press notice quoted Secretary of Education Richard Riley as saying, “Perhaps

the major indication from this report is that more investment in adult education is needed to improve literacy skills.” The press release also indicated the importance of the IALS data by quoting the Director of Adult Education and Literacy: “It is not enough to know how literacy is distributed in America, we also need international performance benchmarks to put our data in comparative perspective.” (U.S. Department of Education Press Notice, 2000-06-14)

^{xiii} “Adult Illiteracy, Rewritten – Director Revises Widely Quoted 1993 Study that Said 1 in 5 Couldn’t Read; Analysis Called Overly Pessimistic” (The Washington Post, July 17, 2001). No mention was made in the article, however, that rp80 was used because it represented the concept of “mastery” as it is generally conceptualized in the field of education and was also the same level of proficiency used by NAEP in 1985. Even more importantly, the article’s argument over which response probability to use masked the real issue of how literacy is distributed and how it relates to social, educational, and economic outcomes.

^{xiv} National Research Council, *Measuring Literacy: Performance Levels for Adults*, 2005).

^{xv} In opting for a moderate rp67, the committee asserted that rp80 “was overly stringent given the uses of the assessment results.” The committee did acknowledge, however, that in the health field, rp80 might be appropriate given the “critical importance of correctly using health-related materials to accomplish health tasks.” The committee did not mention that adults who function at the lowest literacy levels have difficulty: understanding instructions of medical care providers, reading consent forms, reading and understanding prescription labels.

^{xvi} OVAE/DAEL's commitment to these studies strengthened by the commissioned monograph, *Benchmarking Adult Literacy in America: An International Comparative Study* (Tuijnman, September 2000). In short, NALS/IALS studies had put literacy issues squarely back on the policy agenda and provided a framework that enabled people to talk to each other about literacy in different parts of the country. Accordingly, the program office (DAEL) was prepared to make a substantial financial commitment to the three integrated surveys that enabled each study to proceed.

^{xvii} One exception was Maryland, one of only six states that took part in a state-level study in conjunction with the NAAL survey. Maryland had developed an in-depth, strategic analysis of its delivery system and authored a comprehensive plan for reconstructing and reconfiguring its delivery of adult education services, relying in part on NALS and IALS data profiles (*Stepping Up to the Future: Findings and Recommendations from the 2005 Superintendent's Panel on Excellence in Adult Education* (MSDE, 2005)). Understandably, the State was upset at the loss of its ability to make comparisons with and between NALS, NAAL, and IALS/ALL.

^{xviii} Titled *Adult Education in America: A First Look at Results from the Adult Education Program and Learner Surveys*, the study's goal was to provide nationally representative information about adult education programs and their participants.

^{xix} It thus remains unclear whether AEPS had or will have an impact on adult education policy. While the AEPS program survey, which collected information about the characteristics of U.S. adult education programs and the services they offered, was used by DAEL to describe program activities, the AEPS Learner Survey data was not used. This data was perceived as "flawed"! DAEL no longer references IALS/ALL performance levels, substituting instead the four NAAL performance levels. Lost in this medley were policy and programmatic issues raised by the AEPS analysis.

^{xx} *Focus Group Findings for Adult Education and Training Data Collection Needs*, MPR Associates, Inc. January 31, 2011.

References

Kirsch, Irwin, Henry Braun, Kentaro Yamamoto and Andrew Sum. 2007. *America's perfect storm*. Policy Information Report. Princeton, NJ: Educational Testing Service.

Kirsch, Irwin, Ann Jungeblut, Lynn Jenkins, and Andrew Kolstad. 1993. *Adult Literacy in America: A first look at results of the National Adult Literacy Survey*. U.S. Department of Education.

- Kirsch, Irwin, Ann Jungeblut. 1986. *Literacy: Profiles of America's Young Adults*. NAEP, Educational Testing Service, report, No. 16-PL-02.
- Kolstad, Andrew. February 1996. *The Response Probability Convention Embedded in Reporting Results from the 1992 national Adult Literacy Survey*. Unpublished Paper, U.S. Department of Education, National Center for Education Statistics.
- Kutner, Mark, Elizabeth Greenberg, and Justin Baer. 2005. *A first look at the literacy of America's adults in the 21st century*. Washington, D.C.: National Center for Educational Statistics.
- Murray, T.S., Kirsch, I.S. and Jenkins, L. (eds.) (1997), *Adult Literacy in OECD Countries: Technical Report on the First International Adult Literacy Survey*, National Center for Education Statistics United States Department of Education, Washington, DC.
- National Center for Education Statistics. 2005. *A first look at the literacy of America's adults in the 21st century*. Washington, D.C. U.S. Government Printing Office <http://nces.ed.gov/NAAL/PDF/2006470>. PDF.
- National Institute for Literacy. 1998. *The State of Literacy in America: Estimates at the Local State, and National Levels*. National Institute for Literacy. <http://www.eric.ed.gov>.
- OECD and Human Resources Development Canada. 1997. *Literacy Skills for the Knowledge Society: Further Results from the International Adult Literacy Survey*. Paris and Ottawa.
- Organization for Economic Co-operation and Development and Statistics Canada. 2000. *Literacy in the information age: Final report of the International Adult Literacy Survey*. Paris, France: OECD Publishing.
- Organization for Economic Co-operation and Development and Statistics Canada. 2005. *Learning a living: First results of the Adult Literacy and Life Skills Survey*. Paris, France and Ottawa, Ontario, Canada: OECD and Statistics Canada.
- Reder, S. (1994b). *Synthetic estimates of NALS literacy proficiencies from 1990 Census microdata*. Portland OR: Northwest Regional Educational Laboratory.
- Sum, Andrew, Irwin Kirsch, and Robert Taggart. 2002. *The twin challenges of mediocrity and inequality: Literacy in the U.S. from an international perspective*. Princeton, NJ: Educational Testing Service.

Tuijnman Albert. September 2000. *International Adult Literacy Survey - Benchmarking Adult Literacy in America: An International Comparative Study*. U.S. Department of Education, Education Publication Center <http://www.ed.gov/offices/OVAE/publicant.html>.

U.S. Department of Education, The National Commission on Excellence in Education, *A Nation at Risk: The Imperative for Educational Reform*, April 1983.

Willms, J. Douglas. 1999. *International Adult Literacy Survey: Inequalities in Literacy Skills Among Youth in Canada and the United States*. Statistics Canada.