

Iowa Adult Literacy Profiles

A Secondary Analysis of the Iowa State Adult Literacy Survey (IASALS)

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Who We Are...

*This is the first issue of **Iowa Literacy Profiles**. In this series, we will use the Iowa State Adult Literacy Survey (IASALS) data to address a wide range of issues of interest to Iowa policy makers in adult education, job training and human services. The purpose of this, the first issue, is twofold. First, we will explain the IASALS and its parent study, the National Adult Literacy Survey (NALS). Second, we will present the first of our policy analyses, an analysis of the target population for adult literacy education in Iowa.*

Introduction

Clearly, sound public policy and planning depend on relevant and accurate information. Yet all too often the information available to policy makers is out-of-date, conflicting or simply irrelevant for its intended use. Fortunately, Iowa policy makers in adult education and the human services now have at their disposal a comprehensive body of data known as the IASALS. The IASALS is the Iowa component of the National Adult Literacy Survey (NALS) conducted by the Educational Testing Service for the United States Department of Education.

The NALS

In September 1993 the first results of the National Adult Literacy Survey (NALS) were released to the public. NALS is the most comprehensive assessment of adult literacy in the United States ever conducted. Rather than relying on estimates of literacy, as previous studies had done, the NALS included a test of literacy which measured three forms of English language proficiency: prose literacy, document literacy and quantitative literacy.

- **Prose literacy** pertains to “the knowledge and skills needed to understand and use information from text.”
- **Document literacy** represents the “knowledge and skills required to locate and use graphic information,” such as that found in job applications, maps and tables.
- **Quantitative literacy** pertains to “the knowledge and skills required to apply arithmetic operations, either alone or sequentially, using numbers embedded in printed materials.”

In addition to a test score for each of the over 26,000 adults included in the study, NALS collected a wide range of background, socio-economic and socio-demographic information. Thus, using the NALS data it is possible to answer a wide range of ques-

tions that can accurately inform literacy, job training and human services policy.

The NALS test used in both NALS and IASALS is an item response theory (IRT) scored exam which ranges from a score of zero to 500. The test, which respondents were paid twenty dollars to complete, asked subjects to solve a series of problems that were similar to those which adults typically encounter in daily life. Problems ranged in difficulty. The score point assigned to each task is the point at which the individuals with that proficiency score have a high probability of responding correctly. In this survey, an 80 percent probability of correct response was the criterion used (Kirsch et. a., 1993).

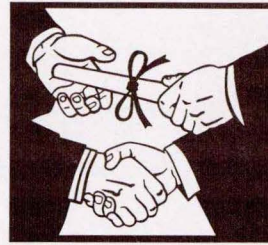
NALS/IASALS scores are typically divided into five levels, each level indicating progressively higher English language proficiency. Generally speaking, level one (score 0-225) indicates very low literacy, and level two (score 226-275) indicates that the individual would have problems with many common literacy tasks. Because of the IRT scoring, each level may be referenced by the tasks an individual is likely to complete correctly at that level. It is important to note that the NALS and IASALS are measures of literacy in the English language. Thus it is quite possible for a person who is highly literate in a foreign language to score low on the test.

The IASALS

When the NALS study was being designed, each state was afforded the option of commissioning an additional state sample over and above the sample randomly drawn as part of the national sample. Eleven states accepted the offer; Iowa was one. The state samples are known as the State Adult Literacy Surveys (SALS). In Iowa's case, the IASALS has a sample of 1,246 individuals randomly selected from the state population aged 16 to 64.

The original Iowa IASALS results, entitled *Adult Literacy In Iowa: Results of the State Adult Literacy Survey*, was released in February 1994. It can be ordered from John Hartwig, Iowa Department of Education, Grimes State Office Building, Des

Moines, Iowa 50319. This report includes a detailed analysis of Iowa NALS scores by a series of social and economic indicators. It also includes a more extensive treatment of methodology than we are able to provide here. The *Iowa Literacy Profiles* series is, in reality, an addendum to the *Adult Literacy in Iowa* report.



The Target Population for Adult Literacy Education

Given limited funding for adult literacy education, who should receive service is a major policy issue. The federal Adult Education Act, which provides funding for adult literacy, provides little guidance, as virtually anyone over the age of sixteen who might benefit is eligible under the law. Funding under the Adult Education Act, however, is apportioned according to the number of adults in each state who are over the age of compulsory school attendance and lack a high school diploma. Thus the target population for federal purposes is defined as adults without high school. According to the 1990 Census, 380,555 adults in Iowa lack high school diplomas, 21 percent of the adult out-of school population.

Although defining the target population according to the federal definition is convenient since the Census provides a commonly accepted figure, there are two major flaws with using the federal definition to define service. The first is that lack of a high school diploma is an imperfect criterion for literacy proficiency. In fact, approximately 16 percent of the Iowa adults who lacked high school diplomas scored at level three or higher on the NALS, thus indicating that they were quite literate. Moreover, 46 percent of the Iowa adults whose highest educational attainment was high school scored at level two or lower on the NALS, suggesting that they had problems with literacy.

The second reason is that the federal criterion does not account for those who actually attend adult literacy education. Participation in adult literacy education is voluntary. Many of those who are technically eligible to participate choose not to or cannot attend. This is particularly true for older adults who constitute a large percentage of those without high school diplomas. Indeed, 57 percent of Iowa's adults who lack high school are age 60 or over.

Our discussion thus far suggests two ways of defining the target population for adult literacy education. The first, the federal definition, has been characterized as being convenient but imperfect. The second method is defining the target population according to who is most likely to participate, and age seems to be the most significant marker. IASALS data show that the mean age of basic skills participants is 32, while the mean age for adults who lack high school diplomas is in the early 60s. Henceforth, we will refer to the first definition as the federal target population and to the second method as the demand target population.

There are two other possibilities for definition. The first is to define the target population according to NALS score. While this is likely the most accurate definition as it is based on tested competency, its utility for decision making will diminish in time as the IASALS data become outdated. The third possibility is to define the target population according to groupings of established socio-economic need such as the unemployed, the poor/near poor and recipients of public assistance.

To analyze the merits of defining the target population for adult literacy education in each of the three ways discussed above, four operational definitions were devised:

- **Federal target population.** Those who lack a high school diploma, are age sixteen or over and who are not in school.
- **Demand target population.** Those who are between the ages of 16 and 40 who lack a high school diploma and are not in school.

- **Tested target population.** Those who score at levels one or two on the NALS test.
- **Socio-economic target population.** This population has three segments that roughly correspond to the JTPA and JOBS populations: the unemployed, the poor and near poor, and those who are on public assistance (AFDC or food stamps).

Our analysis will consist of computing the NALS test score for each of these populations and in describing each according to socioeconomic and background characteristics. These characteristics include age, gender, employment status, having ever participated in basic skills education, poverty status, income, average weeks worked per year and public assistance status.

NALS Scores By Target Populations

Table one displays NALS scores for the federal, demand and tested target populations. **Table two** displays scores for the three socio-economic populations defined above.

Table One. NALS Scores for the Federal, Demand and Tested Target populations.								
	Federal (N=125) score SE		Demand (N=51) score SE		Tested (N=446) score SE		Iowa (N=1246) score SE	
Prose	223	9.4	258	10.6	241	4.2	285	3.0
Document	213	10.6	257	9.6	234	3.8	279	1.1
Quantitative	219	11.5	254	9.8	241	4.5	272	.6

SE = standard error of the estimate. (The reported sample estimate can be said to be within two standard errors of the true population value with 95 percent confidence.)

Clearly, the federal population, which serves as the basis for funding, has the lowest NALS scores. This might suggest that defining the population thus is the best option for targeting service, as this population seems to be in most need. However, when we examine the factors that separate the federal population from the demand population, we see that age accounts for most of the higher performance in

the demand population. NALS scores for those who lack high school certification and are over 40 are lower than those for the federal population as a whole. They are 213 for prose, 201 for document and 209 for quantitative.

Because the IASALS sampled adults age 16 to 64, the number of older adults (65 and older) in the sample is reduced. Thus our operational definition of the federal population overestimates NALS score; if a random sample of adults over age 64 had been included, the difference in NALS scores between the federal and demand populations would be even greater. The fact that the mean age for those who participate in basic skills classes is 32 demonstrates that the demand population is considerably younger than the federal population. It is largely because younger adults tend to score better on the NALS that the scores for the demand population surpass those of the federal population.

The scores for the tested target population are necessarily lower than the state NALS scores simply because those who scored at levels three, four and five are not included by definition. The important figure for the tested population is its size as represented by the N of 446. The tested target population is much larger than the other populations analyzed here. In fact, the tested population is 3.6 times larger than the federal population (N = 125) and 8.7 times larger than the demand population (N = 51).

Most public policy is designed to meet social needs, and when we consider workforce readiness and welfare policy, the priority for service is the unemployed, the poor/near poor and persons on public assistance. When we define the target population for adult literacy education according to these groups, we obtain the results in Table Two.

Table Two. Target Population Defined As the Unemployed, Poor/Near Poor and Those On Public Assistance

	Unemployed Score SE		Poor/Near Pr. Score SE		Public Ass't* Score SE	
IOWA						
	(N=69)		(N=105)		(N=123)	
Prose	278	11.2	267	6.6	26	6.7
Document	278	10.8	263	5.9	260	8.3
Quantitative	274	10.0	269	6.7	263	5.7
NATION						
Prose	260	2.1	239	2.2	236	1.8
Document	257	1.8	234	2.3	232	1.9
Quantitative	256	1.9	233	2.4	228	1.9

**For national data, public assistance includes food stamps only. Sf = standard error of the estimate. (The reported sample estimate can be said to be within two standard errors of the true population value with 95 percent confidence.)*

Table Three. Descriptive Variables for the Federal, Demand, and Tested Target Populations.

	Federal (N=125)		Demand (N=51)		Tested (N=4467)		Iowa (N=1,246)	
	N	%	N	%	N	%	N	%
Male	51	41	19	37	207	46	592	48
Employed full-time	49	39	24	47	222	50	741	60
Unemployed	14	11	9	18	30	7	69	6
Not in lbr. force	47	38	12	24	122	27	230	19
Poor/near poor	29	35	16	43	86	26	176	17
On pub. asst.	28	22	16	31	68	15	123	10
Part in bas. skills. ed.	15	9	17	31	43	10	89	7
Av. weekly wage	147.53		196.54		200.16		317.17	
Mean wks. wrk. last yr.	24.2		27.17		32.36		37.4	
Mean age	46.8		29.27		42.00		40.0	

The NALS scores for all three socio-economic groups are considerably higher than for the federal and tested target populations and are slightly higher than for the demand population. What is most striking about the scores for the three socio-economic groups, however, is their divergence from national figures. Clearly, the unemployed, the poor and those on welfare in Iowa are more literate than the national norm.

Implications: Target Populations and NALS Scores

- Based on NALS scores, the federal target population is most in need of adult literacy education. However, a major reason for the lower scores is that the federal target popu-

lation includes large numbers of older adults who tend to score lower on the NALS. Should Iowa invest its scarce literacy resources on older adults who, while they may need adult literacy education, have by and large reached the end of their major years of economic productivity?

- The NALS scores for the demand target population are higher than those of the tested target population, and the tested target population is considerably larger than the demand population. This suggests that Iowa has a relatively large “untapped” population that could benefit from adult literacy education. Significant numbers of this untapped population are high school graduates.

Table Four. Descriptive Variables for the Unemployed, Poor/Near Poor and Public Assistance Populations

	Unemployed (N=69)		Poor/Near Poor (N=105)		Public Assistance (N=123)	
	N	%	N	%	N	%
Male	34	49	84	48	44	36
Employed full-time	—	—	58	33	44	36
Unemployed	—	—	31	17	17	14
Not in lbr. force.	—	—	47	27	40	33
Poor/near poor	31	56	—	—	71	75
On pub. asst.	17	25	71	75	—	—
Part. in bas. skills ed.	12	17	17	10	14	11
Avg. wk. wage		151.73		137.34		144.06
Mean wks. wrk. last yr.		15.33		30.6		22.54
Mean age		34.7		38.6		34.58

- Although the NALS scores for the unemployed, poor/near poor, and those on public assistance demonstrate that there is a literacy need among these populations, the scores are relatively high in comparison to national findings. While nationally membership in these groups could almost be considered a surrogate for low literacy, this is not as true for Iowa. The fact that NALS scores are relatively high for these groups suggests that Iowa may be under-utilizing 'the talent of its labor force. The data also suggest that Iowa adult literacy programming should concentrate on adult secondary education and eventual post-secondary education for these groups, and that these groups are more likely to benefit from occupational training than their counterparts elsewhere in the country.

Implications: Target Populations and Descriptive Variables

Tables Three and Four portray each target population by pertinent descriptive variables.

Because the sample size is small for many of the comparisons Tables Three and Four portray, interpretations must be made with caution. Nevertheless, it is reasonable to conclude:

- The federal target population has the highest percentage of those not in the labor force and the highest mean age. If the IASALS sample had included those over age 64, the percent of

those not in the labor force and the mean age would undoubtedly increase substantially. If the state of Iowa wishes to invest heavily in the education of its older, low-literate citizens, the federal definition of the target population is adequate. Otherwise, its suitability is questionable.

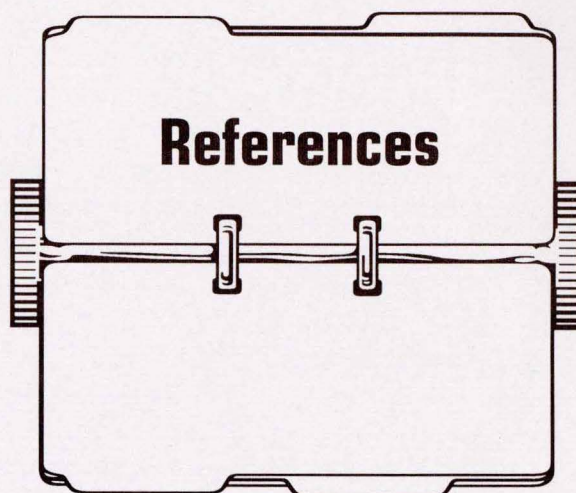
- The demand population is the youngest, and hence has the greatest number of years of potential future economic productivity. The unemployment rate for this group, however, is three times the Iowa average. This group also has the highest percent of those on public assistance and is most likely to participate in basic skills education. If the target population is to be defined according to economic potential and motivation to participate in adult literacy education, the demand population may be the best alternative.

Because the literacy level for this group is tested, it is the most accurately defined target population.

- The tested target population has the highest employment rate, the lowest numbers at poverty/near poverty and the highest average weekly wage. This group also works the most hours per week. The comparative well being of this group is partly a result of the fact that it has been operationally defined as those who test at levels one or two on the NALS. Had our definition been more conservative—defined as NALS level one, for example—much of the apparent well being would disappear. For example, the mean average wage for level

one's is \$128, the mean number of weeks worked is 20, and 21 percent of level ones are on welfare. The mean age for level ones is 50, and 49 percent are poor/near poor. Nevertheless, defining the tested target population as NALS level one and two is quite defensible, and to that extent the relative well being of this group is real. Because the literacy level for this group is tested, it is the most accurately defined target population.

- The unemployed, poor/near poor and public assistance groups all have the greatest economic problems [partially by definition]. Interestingly, about a third of those on public assistance work full time and about a third are males.



Kirsch, I., Jungleblunt, A., Jenkins, L., & Kolstad, A., (1993). *Adult Literacy in America: A first look at the results of the National Adult Literacy Survey*. Washington, D.C.: United States Department of Education. [To order call 1-800-424-1616].

Iowa Adult Literacy Profiles is authored by Hal Beder, Rutgers University, New Brunswick, NJ. Dr. Beder also conducted the analyses of the IASALS data upon which this issue is based.

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