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ABSTRACT

To assess efforts in Adult Basic Education (ABE) on a nationwide basis, a longitudinal evaluation was conducted in 1971 of State programs funded under the Adult Education Act of 1966. Data were gathered across a variety of ABE programs and a representative sample of 2,318 program participants was studied over an 18-month period through a series of basic skills tests (arithmetic and reading) and participant interviews covering background, educational goals, employment experiences, earnings, and opinions related to ABE experiences. Information also was collected on program and classroom characteristics through interviews with local ABE administrators and instructors. Gains in test scores showed no statistically significant relationships to program participation between tests. Some findings noted over the 18-month period were an increase in the percentage of participants working, wage increases, a decrease in public assistance, and a decrease in the percentage of students with college aspirations. Interviewees had very positive opinions about their ABE experiences; a majority felt their experience had helped them in their jobs. A limitation of the study was the absence of a control group. Further research needs to be directed toward experimental research rather than survey research. (EA)

A LONGITUDINAL EVALUATION OF THE ADULT BASIC EDUCATION PROGRAM[1]

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In 1971 the United States Office of Education issued a request for proposals (RFP) for a "longitudinal" evaluation of the adult basic education program funded through the Adult Education Act of 1966, as amended (RFP-71-25[B-1]). This request for proposals was issued because of the Federal interest in assessing the value of its efforts in this field.

Since 1964 the Congress of the United States has been supporting educational programs to assist undereducated adults. The priority population group is adults from 18 to 44 years of age and with less than eight years of schooling. Although the minimum age has been lowered to 16 and the target population has been enlarged to include all those with less than 12 years of schooling or its equivalent the primary group the program is intended to serve is the 18 to 44 year group and the evaluation was targeted on this group.

Under the national adult basic education legislation Federal funds are distributed through State formula grants, with each State required to provide 10 per cent matching funds, to State educational agencies for use by local educational agencies and private nonprofit agencies. At least 10 per cent but no more than 20 per cent of the Federal funds are to be used for "innovative" projects and teacher training programs. Between July 1, 1964 and June 30, 1971, $260 million in Federal funds had been appropriated for this program.

In 1970 the number of persons in the United States ages 16 to 44 with less than an 8th grade education was slightly less than 4 million.[2] The number of students of all ages who were enrolled in adult education programs under provisions of Public Law 91-230, Title III, Amendments to the Adult Education Act of 1966 are shown in Table 1.

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[1]Paper presented at the Adult Education Research Conference, Chicago, Illinois, April 18, 1974.

[2]U.S. Department of Commerce/Bureau of the Census, Educational Attainment March 1970. Series P-20, No. 207, November 30, 1970.

TABLE 1

STUDENTS IN ADULT BASIC EDUCATION PROGRAMS
UNDER PUBLIC LAW 91-230[1]

Fiscal Year	Number of Students
1969	484,700
1970	536,041
1971	622,148
1972	820,514
1973	849,529
1974	1,000,000 (est.)

[1]National Advisory Council on Adult Education, Annual Report, 1974, Washington: National Advisory Council on Adult Education, March 1974, p. 22.

Of the 820,514 adults enrolled in the program in fiscal year 1972, there were 659,175 (80 per cent) in the 16-44 age group.[2] In Fiscal Year 1971-72 the Federal Government allotted $51,132,753 to the states to support this program. For Fiscal Year 1973-74 the Federal allotment to the States is $53,286,000.

In issuing its request for proposals (RFP) the Office of Education stated that "the extent to which the need for adult basic education has been met and the quality and impact of services provided have not been determined. In effect, there is a lack of information on the effectiveness of the adult education program in improving literacy, in raising the earnings capabilities of participants, and in increasing the more intangible personal benefits." The authors of the request for proposals identified several serious defects which they said characterize the few evaluation studies that have been made:

> (a) the current information-data systems of the programs vary widely in completeness and reliability with the result that evaluations which depend entirely upon information from the program's own data systems often come up with incomplete and disappointing results.
>
> (b) the objective of the programs, i.e., "increased communication skills," increased employability and productivity, higher income and getting people out of poverty, are, for the most part, long-term effects which may not be apparent until several years after completion of the program. . . . An additional confounding factor . . . is the paucity

[2] Ibid., p. 24.

of reliable instruments to measure "increased communication skills" for adults.

(c) the large array of government programs . . . has resulted in an overlap of target populations and program content to the extent that it has been very difficult to isolate the effects of a single treatment (such as basic education).

(d) enrollees get into these programs in a variety of ways, including self-selection, so that valid control groups are difficult to obtain. In addition, the intensity of instruction and definition of program completion vary among programs, thus further confounding the distinctions between "treatment" and "non-treatment." However, without valid control groups attributing post-program success to the effects of the program (and not to maturation, changes in local markets, etc.) is highly presumptive.

Any researcher might well applaud the stance taken by the Office of Education in its RFP. It is unfortunate that the professed concern for the inclusion of an appropriate control group was not expressed in the fiscal oversight of the project. When funding agencies are aware of the limitations of previous research in an area and they continue to administer grant funds in such a way as to perpetuate the deficiencies it seems reasonable to conclude that the professed concern may not be completely authentic.

Four general purposes of the evaluation were identified in the R.F.P.:

(a) to provide consistent and comparable data across adult education programs that will provide the basis for an assessment of their effectiveness for various target groups. . . .

(b) . . . to provide comparable data with the study, Evaluation of Basic Education Programs Conducted under the MDTA Institutional Training Program . . . and with the basic education component of the OEO-DOL sponsored evaluation of five major U.S. Government Manpower Training Programs.

(c) . . . provide programmatically useful results on the relationships between post-program performance and the kind of experience that ABE enrollees received. . . .

(d) to assess the State grant mechanism of the Adult Education Act, including (1) the extent to which the States identify and serve adults in geographic areas of greatest need, and (2) the extent to which States have incorporated the results and products of innovative projects (both State-funded and those funded through section 309 of the Adult Education Act) into regular ABE classes.

Restraints on the scope of the evaluation regarding programs and enrollees were listed in the R.F.P.:

(a) Only programs which have been in operation for at least a year will be included in this study. . . . programs under study will also be restricted to those designed for adults with less than eight years of schooling.
(b) . . . English for a Second Language (ESL) programs will not be included in this study. . . .
(c) Programs for migrants, Indians and institutionalized persons also will not be included in this study . . .
(d) Enrollees selected for interviews will be in the age range from 16 to 44 years of age, the priority population group.

The RFP also included the prescient statement "The need for valid control groups to control for the effects of external factors on the post program performance of enrollees cannot be underestimated" as will be explained later.

System Development Corporation (SDC) was awarded the contract in 1971 to conduct a two-year longitudinal evaluation of the effectiveness of adult basic education programs in improving literacy, in raising the earning capabilities of the participants and in increasing less tangible benefits for the students. The project director was William P. Kent. Kent had been associated with SDC for 13 years and had conducted a study of job-related adult basic education for the Office of Economic Opportunity. The study involved the following consultants in addition to SDC staff: William S. Griffith, Department of Education, The University of Chicago and Raymond J. Jessen, Graduate School of Business, University of California at Los Angeles.[1]

An obvious problem regarding the proposed investigation is the conceptualization of "longitudinal." How much time, encompassing what possible sequence of events, constitutes an adequate period for a "longitudinal" evaluation? The problem was resolved pragmatically rather than theoretically by the time limits established in the R.F.P.

In selecting the sample of states a two-way stratification scheme was used, based on grouping states according to geographic regions and according to the percentage of black students enrolled in ABE classes. The sample included 15 states, 91 programs, 206 classes, and 2,318 students.

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[1] The final report of the project was submitted by SDC to the Office of Planning, Budgeting and Evaluation, Office of Education, Department of Health, Education and Welfare, Washington, D.C., in November, 1973. The final report contains copies of all data gathering instruments used in the study.

Questionnaire, achievement test, and interview data were collected on the following variables: age, sex, race, language most often spoken in the home, educational background, previous attitude toward school, attitude toward the ABE program, educational goals, employment, earnings, hours of work, welfare status, job hunting experience, view on employment prospects, attendance, motivation, and achievement in reading and math.

To measure achievement, tests 2 (Reading Comprehension) and 4 (Arithmetic Fundamentals) from Level M of Tests of Adult Basic Education (TABE) published by CTB/McGraw-Hill were used. Gain scores were calculated for 441 students. Complete attendance and reading gain scores were developed for 399 students; attendance and mathematics gain scores were available for 393 students.

Data were gathered across a variety of adult basic education programs and a representative sample of program participants was studied over an 18-month period through a series of interviews and basic skills tests. Data were also collected on program and classroom characteristics as well as on methods for establishing and improving ABE classes. Students were tested twice and interviewed three times. The interval between tests was usually four months; follow-up interviews were obtained at intervals of 12 and 18 months after initial interviews.

At the time of the initial interviews nearly one-fourth of the students had been enrolled in the program for at least a year. Their stated reasons for attending were primarily educational rather than job-related.

Student turnover was high. Of students who had been enrolled in November, 1971, less than 40 per cent were still attending in May, 1972. More than half of the students had completed nine or more grades of schooling. About 15 per cent had high school diplomas or certificates and a few had attended college.

Students were given standardized reading and mathematics tests in January, 1972 and retested in May 1972. Average scores on initial tests showed achievement in reading at the fifth grade level and in mathematics at the sixth grade level. Mean grade level gains between tests were 0.5 in reading and 0.3 in mathematics with a mean number of hours of instruction of 98. Gains in test scores showed no statistically significant relationships to student attendance between tests. In another study of students enrolled in adult basic education classes conducted by the Manpower Development and Training Act (MDTA) Institutional Training Program the average reading gain reported was 0.4 grade levels with 54 hours of instruction.

During the last quarter of 1971, when all students were active in the ABE program, 58 per cent reported having some job earnings. This percentage rose to 70 per cent eighteen months later by which time most respondents were no longer attending ABE. In 1971 26 per cent of the students were receiving public assistance. Eighteen months later 22 per cent were in this category. At the time of the first interviews the employed students reported earning an average of $336 per month. Eighteen months later the average monthly wage of employed respondents was $407. In the 18 month period the percentage of respondents working increased from 55 to 65 per cent. The modest gains in reading and in math scores seem entirely unsatisfactory as causes of the students' improved financial status.

Sixty-six per cent of those respondents who were working in February-March, 1973 said they had received a pay increase since October, 1971. Fifteen per cent of them believed that ABE helped very much; 20 per cent that it helped some; and 12 per cent that it helped a little in obtaining the increase. In the first six months of 1973 earnings gains contined at a rate equal to or greater than the previous year's rate.

Three-quarters of those respondents who were working s id they felt that their ABE experience had helped them in their jobs.

The interviewees had very positive opinions about their ABE experiences. A majority of students also gave ABE credit for improvement in income and for jobs. However, no statistically significant correlations could be found between program characteristics or classroom methods and the differential gains students made in earnings and in academic achievement. Multiple regression and discriminant analyses were used to explore classroom variables, attendance patterns, and individual student characteristics in an attempt to identify program features that could be recommended to program managers to improve achievement or earnings of at least some types of students. None of the results of the analyses produced data which could be used in making programmatic recommendations.

The decrease in the percentage of students with aspirations of attending college from 60 to 37 per cent over the 18-month period may have been the result of students' becoming better informed about their own abilities and the nature and costs of pursuing a college education. The decline in the percentage of those planning to obtain a high school diploma was much smaller: from 93 to 81 per cent.

Although 40 per cent of the students had spent some time studying alone with books, worksheets or machines, most students preferred learning by working with a teacher. The students were about equally divided in their preference for working with a

teacher singly as in groups. Only a small minority, 16 per cent, preferred learning alone, that is, with books or other instructional material rather than with a teacher.

Most ABE classes meet in school buildings, two evenings per week, from September through May. Average enrollment was 16 students. A class is usually taught by a part-time certificated teacher with at least two years of ABE experience and some special training for ABE. Seventeen per cent of the classes have paraprofessional aides and 7 per cent have volunteer assistants.

Ninety-three per cent of the students said they felt ABE students would not object to attending classes in an elementary or a high school building. This figure may be biased somewhat because the majority of the students were attending class in public school buildings.

ABE students in this sample did not believe that the program was intended to help them find a job. When asked, "Did anyone connected with the basic education program ever help you to find a job?" 90 per cent said "no."

Six kinds of data were collected in the study: (1) student characteristics, (2) classroom methodologies, (3) teacher characteristics, (4) attendance, (5) reading and mathematics test scores at two times, and (6) socio-economic indicators of the communities in which the classrooms were located.

The ABE student population was divided into four race-sex groups. Stepwise multiple linear regressions were computed for the entire population and for each of the four subgroups. The same statistical procedures applied to the same sets of variables were performed for each subgroup and for the entire population so as to facilitate comparisons.

Residual reading gains, residual math gains and residual changes in earnings between the last quarter of 1971 and the last quarter of 1972 were the key measures of outcomes.

Regressions were performed both with the student as the unit of analysis and with the class as the unit of analysis. Interrelationships among the educational, demographic, sociological and economic data were studied.

Thirty-seven independent variables were included in all the regressions reported with the student as the unit of analysis. These variables and their definitions are shown in Table 2. The sources of data for Table 2 are as follows:

E1	Initial Enrollee Interview
E2	Post-Program Enrollee Interview
CL	Class Instructor Interview
ATT	Attendance Summary - taken from instructor interview
CENSUS	1970 Census Data

TABLE 2

INDEPENDENT VARIABLES INCLUDED IN ALL MULTIPLE REGRESSIONS WITH THE STUDENT AS THE UNIT OF ANALYSIS

Variable	Code	Source
How often will you attend in the future?	1=Not at all 2=Not often 3=Most of time 4=Every time	E1
Are you working now?	0=No 1=Yes	E1
What year were you born? 19??	Actual year after 1900. (00 if before 1900.)	E1
Do you have any school age children?	0=No 1=Yes	E1
What was the last grade of school completed?		E1
Are you receiving welfare or public assistance?	0=No 1=Yes	E1
Compared with grade school, did you like basic education methods?	1=Much better 2=Better 3=Same 4=Less	E2
Rank learning by yourself with books or instructional materials against the alternatives of working alone with a teacher or as part of a group with a teacher.	1=Most useful 2=In between 3=Least useful	E2
Did the basic education program help you receive health services from any source?	1=Yes 2=No	E2
Are you not enrolled in education or training?	0=Otherwise 1=Not enrolled	E2
Are you enrolled in basic education?	0=No 1=Yes	E2
In the past year, how much do you feel your writing ability has improved?	1=Very much 2=Some 3=A little 4=Not at all	E2

TABLE 2 (continued)

Variable	Code	Source
In the past year, how much do you feel you have improved your ability to work with numbers?	1=Very much 2=Some 3=A little 4=Not at all	E2
In the past year, have you helped any children with their school work?	1=Yes 2=No	E2
Are you working now?	1=Yes 2=No	E2
Did you earn money by working at a job any time in October, November, December 1972?	1=Yes 2=No	E2
At the present time, are you receiving welfare or public assistance?	1=Yes 2=No	E2
Number of teachers with more than 2 years ABE experience		CL
Number of teachers that attended ABE workshop (12 hours or less)		CL
Emphasis on preparation for GED studies	3=Great 2=Some 1=Not emph. 0=None	CL
Emphasis on preparation for job improvement	3=Great 2=Some 1=Not emph. 0=None	CL
Emphasis on preparation for grade level advancement	3=Great 2=Some 1=Not emph. 0=None	CL
Emphasis on teaching parents to assist children in school	3=Great 2=Some 1=Not emph. 0=None	CL
Job-related instructional materials (language)	3=Always 2=Usually 1=Sometimes 0=Rarely or never	CL
Job-related instructional materials (computation)	3=Always 2=Usually 1=Sometimes 0=Rarely or never	CL
Commercially prepared tests to determine placement (computation)	3=Always 2=Usually 1=Sometimes 0=Rarely or never	CL

TABLE 2 (continued)

Variable	Code	Source
Commercially prepared tests to measure improvement (computation)	3=Always 2=Usually 1=Sometimes 0=Rarely or never	CL
Post-program placement services available	3=Always 2=Usually 1=Sometimes 0=Rarely or never	CL
Student determined rates of progress (language)	3=Always 2=Usually 1=Sometimes 0=Rarely or never	CL
Student selected goals, methods, materials (language)	3=Always 2=Usually 1=Sometimes 0=Rarely or never	CL
Student participation in evaluation and improvement of materials and methods (language)	3=Always 2=Usually 1=Sometimes 0=Rarely or never	CL
Presence and use of mechanical equipment	0=No 1=Yes	CL
Total number of sessions attended (November 71 thru June 72)		ATT
Attended at least once in each month from November 71 thru March 72	1=Yes 2=No	ATT
County median school years completed for persons over 25*		CENSUS
County percent of civilian labor force unemployed*		CENSUS
County percent families below poverty level*		CENSUS

*Label for a non-questionnaire variable.

Three outcome class variables were created to facilitate the calculation of multiple regressions with the class as the unit of analysis: (1) mean class grade equivalent reading gain; (2) mean class grade equivalent math gain; and (3) mean class difference between earnings in 1971 and 1972.

Stepwise multiple regressions were calculated on all variables from the class file and the three socioeconomic variables based on census data. The regressions on mean reading gain and on mean earnings gain were not statistically significant at the .05 level.

For mean math gain the regression equation was statistically significant at the .01 level and accounted for 79% of the variation in class math mean gain scores.

Table 3 shows the independent variables in the regression equation, the square of the multiple correlation coefficients (R^2), and the sign of the Beta weights for each variable.

TABLE 3

MULTIPLE CORRELATION COEFFICIENTS AND BETA WEIGHTS OF INDEPENDENT VARIALBES IN THE REGRESSION EQUATION FOR MEAN MATH GAIN ($P=<.01$)

Independent Variable	R^2	Sign of Beta Weight
Preparation for Job Improvement	.19	+
Number of teachers with 12 hours or less training	.40	-
County Percent Unemployed	.50	-
Students Select Goals (language)	.59	-
Commercially Prepared tests for placement (computation)	.66	-
Emphasis on teaching parents to assist children in school	.73	-
Job related instructional materials	.79	+

The interpretation of the data in Table 3 leads to the following conclusions:

1. The greater the emphasis on preparation for job improvement the greater was the mean math gain.

2. The greater the number of teachers with 12 hours or less training the smaller was the mean math gain.

3. The greater the percentage of unemployed in the county in which the ABE program is located the smaller was the mean math gain.

4. The greater the part students played in selecting the goals for the language program the smaller was the mean math gain.

5. The greater the use made of commercially prepared math placement tests the smaller was the mean math gain.

6. The greater the emphasis placed on teaching parents to assist children in school the smaller was the mean math gain.

7. The greater the use made of job related instructional material the greater was the mean math gain.

Only conclusions 1 and 7 appear to be logically sound. The other five conclusions do not appear to provide satisfactory explanations for the variation in mean math gain scores among classes. All in all the analyses among classes did not yield satisfactory predictions of mean reading gains, mean math gain, or mean differences between earnings in 1971 and 1972. Further the pattern of the findings based on extensive correlational approaches eluded plausible interpretation. Statistical operations performed in an essentially atheoretical approach may produce findings which stimulate further thought, but they may also lack conceptual validity.

Multiple regressions with the student as the unit of analysis could be computed for only the 440 students who took both the initial and the final tests. Regressions of outcome variables on input variables were computed for all students and for race-sex groupings. Although ten input variables yielded regressions statistically significant at the .05 level with residual raw reading gain, ten other input variables yielded regressions statistically significant at the .05 level with residual raw math gain; and ten input variables yielded regressions statistically significant at the .05 level with residual earnings gain, in no case was the same input variable found to yield a statistically significant regression with all three output variables. Further even for those cases in which a given input variable yielded a statistically significant regression equation for the entire sample for residual reading gain, residual math gain or residual earnings gain, in no case was there a statistically significant regression for all four of the race-sex groupings. In fact, in only one case, the regression of residual earnings gain on extent of post program placement services, were the regressions also statistically significant for three of the four race-sex groupings. Even so the regression values for the entire sample for each of the input output variable pairs were no larger than .115. The findings then appear to lack generalizability.

No clear cut practical conclusions can be drawn from the data analysis. At best the following four inferences appear reasonable and justified from the data:

1. Individual gains in reading appear to be positively related to the presence and use of mechanical equipment (r=.071).

2. Individual gains in math appear to be positively related to the number of teachers who have more than two years experience in ABE (r=.098).

3. Individual gains in earnings appear to be positively related to the extent of post-program placement services which are available (r=.046).

4. Class gains in math appear to be positively related to their stress on job improvement and job related instructional materials.

Nevertheless the size of the regression coefficients and the pattern of the results complicated rather than clarified the interrelationships among the variables.

State and local directors of ABE were asked about the use of innovative materials and methods which had been developed by special ABE projects. Although the state directors felt that innovative approaches and materials are widely used, no evidence of such usage was detected in the local programs and classes included in this study.

Program directors did not show any evidence that they were establishing programs or recruiting students in ways that were intended to reach the hard core illiterate adults. The audience to be served as typically described in broad terms, reflecting no more focus than reaching adults "sixteen years of age or older functioning below an eighth grade level." The major consideration which appeared to influence programs and class locations in 1971-72 was the pattern which had been followed the preceding year.

No doubt the most glaring weakness in the execution of the research is the absence of a control group. It was originally intended to identify a comparable group of persons who lack eighth grade level skills in reading and math and to ascertain the changes in their employment status, welfare status, hourly wages, monthly wages, job changes and related variables over the 18 month period of the study. The estimated costs of securing data on a comparable control group were regarded as too expensive by the funding agency and so the plan for the use of a control group was regretfully dropped. Accordingly it was not possible to establish program effects on employment status and earnings.

The bulk of the research on teaching methods concludes with a finding of no significant differences in student achievement among treatments. This research follows in that tradition. Accordingly, if further research is to be conducted to compare teaching methods for ABE students and classes, rigorous experimental research rather than survey research should be undertaken.