A Study of a Selected Manpower Development Training Act Program for Training Adults

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A STUDY OF A SELECTED MANPOWER DEVELOPMENT TRAINING ACT PROGRAM FOR TRAINING ADULTS

by

Robert Vermeulen

A Dissertation Submitted to the Faculty of the School of Graduate Studies in partial fulfillment of the Degree of Doctor of Education

Western Michigan University Kalamazoo, Michigan October 1968
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CHAPTER I

INTRODUCTION

In 1962, with the passage of the Manpower Development and Training Act, the United States Congress made a commitment to that portion of the nation's labor force which makes up the largest segment of the unemployed; the individual who is in need of vocational training. Politicians and educators alike gave increased and renewed attention to the fact that education and training opportunities should be extended beyond high school and made available to those who may have dropped out of secondary education, or who may for other reasons never had an opportunity to develop their skills and abilities.

The Manpower Development and Training Act is a comparatively recent step in a broad federal program of vocational education for adults. The Smith-Hughes Act of 1917 included provisions for adult education. Several programs initiated during the depression of the Thirties were designed to upgrade education and skills of the unemployed. The advent of civil unrest in large cities gave impetus to the passage of the Area Redevelopment Act of 1961. This Act, in part, provided for job training, with subsistence allowances to equip the jobless with new skills, but was limited to certain sections of the nation and which were of insufficient duration to train or retrain the adult who lacked basic education and basic skills. The MDTA was passed against a background of high unemployment, a growing labor force and an awareness of the continuing impact of technological changes.
This study was concerned with one of the programs made possible by MDTA legislation, the Lincoln Skills Center, located in Kalamazoo, Michigan.

At the time of this study the Lincoln Center was a multi-occupational training center for unemployed and underemployed of all ages operated by the Kalamazoo Public Schools. In its scope, the operation included dropouts, high school graduates who were unemployed, older workers who had lost their jobs due to increased mechanization or automation, and women who must support dependents.

The Skills Center was housed primarily at Lincoln School where basic education and several vocational courses were offered. Vocational courses requiring extensive machinery and equipment, such as Auto Mechanics, Welding, and Machine Shop, were conducted in established training facilities available in local high schools. Certified vocational teachers, under the supervision of the Kalamazoo Public Schools and the Portage Public Schools, were employed as instructors.

Funds for the Lincoln Project were supplied in large part by the MDTA, but some State and local monies were used. Local contributions included space, equipment, overall planning and administration. At the local level, organizations that participated in the Project included the Community Action Program, Community Services Council, Douglass Community Association, Kalamazoo Public Schools, Portage Public Schools, Michigan Employment Security Commission, and acting as prime contractor, The W. E. Upjohn Institute for Employment Research.

Although the Lincoln Skills Center is a continuing operation, this study was concerned only with the initial group of trainees. For this group, intensive vocational training was offered in seven general
areas. For women, two sections each of Food Preparation and Clerical training were offered and divided into (a) and (b) categories based on general aptitude and ability. For men, the Skills Center offered training in Welding, Machine Shop, Auto Mechanics, Building and Institutional Maintenance. Only a few men were enrolled in Clerical and Food Preparation sections.

The focus of the program was on vocational training. Students were tested and grouped for the basic-education phase which lasted twelve weeks. Four hours per day were spent, if needed, in basic education and used for upgrading in reading, language, and mathematics skills. Time was also allocated each day for group counseling, including orientation to the world of work, so that the individual could develop an understanding of his place and responsibility in society.

During the remaining four hours of the eight hour work day the student was engaged in either vocational training or prevocational job sampling. He was able to sample three vocational areas during the twelve-week term (four weeks in each area).

Weeks thirteen to twenty-six (to week thirty-eight for clerical) were concerned with intensive vocational training in the selected area. The hours spent each day varied from six to eight, depending on the level of basic education of the student. Trainees could receive some basic education throughout the vocational phase, if needed.

It was not the purpose of this program to develop individuals with a high degree of skill, but rather to develop persons with a high degree of employability. Individuals were expected to acquire sufficient skills to perform jobs with a reasonable amount of instruction and supervision on the part of the employer. Each trainee completing the
full program had a total of eighteen or twenty-nine weeks of training in a vocational area and theoretically would be prepared to begin entry work or on-the-job training.

Statement of the Problem

The primary emphasis of this study was to determine whether the Lincoln Skills Center had been successful in helping trainees to improve significantly their basic education (arithmetic, language, reading) and vocational skills and, at the conclusion of training, find employment at a level commensurate with educational achievement and vocational proficiency.

The other purposes were to determine any relationships which existed between levels of basic literacy skills and the degree of vocational proficiency achieved as well as relationships between basic education achievement and job-success.

Additional concerns were employment history, attendance patterns, rates of pay before and after training and characteristics such as age, sex, color and education of the trainees.

Significance of the Study

In 1965 amendments to the Manpower Act brought about a shift in emphasis concerning the selection and training of the unemployed or

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1 The Lincoln Skills Center is defined as an "institutional manpower training center." Welding, Machine Shop, Food Preparation and Auto Mechanics programs were coupled with an On-the-Job Training Contract held by the W. E. Upjohn Institute for Employment Research whereby trainees in these areas could be placed in work situations for periods up to twenty-six weeks, with partial salary reimbursement (up to $25.00 per week) to the employer.
underemployed. Up to 1965, major emphasis had been placed on locating and training those persons who were most likely to benefit from such training and could be placed subsequently in positions at a job level higher than the one previously held. During the three years prior to this study the major emphasis had been on working with so-called hard-core unemployed. In order to qualify for federal fund support, programs such as the one in this study must involve the hard-core unemployed who are unmotivated or partially motivated and who are without occupational direction or hope. Unless a significant portion of the trainees in a given program are of this orientation, there is small likelihood of funding the project.

Manpower training programs are a relatively new aspect of fundamental vocational education programs for adults. Manpower programs have encouraged experimentation with a wide variety of teaching techniques and curricula. Various systems for teaching basic education and vocational skills have been used and, in some cases, evaluated. Large amounts of federal and local money have been assigned to these programs.

The first section of the Lincoln Skills Center was funded for $514,000.00, with a payroll of approximately $8,500.00 per week. Those responsible for the Center were interested in the continuation of the program if there was evidence of its worth in terms of alleviating unemployment of economically disadvantaged persons.

In the past, many manpower programs have been of relatively short duration without, in many instances, provision for intensive basic education. The literacy level of a large segment of the

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1See p. 51 of this study.
trainees at Lincoln made it mandatory to make long-term basic education available.

The scope of the operation, the innovative aspects, such as job sampling and long-term basic education, along with the financial and human commitment involved, warranted this evaluation of the Lincoln Skills Center Project. Future centers here or in other parts of the nation should find this evaluation useful in planning similar programs.

Questions

This study was designed to answer the following questions:

1. Was a short term skills center of this type successful in raising significantly adult achievement levels in basic education?

2. To what extent was the training program of this project able to develop vocational skills in the time period as funded?

3. To what extent, if any, did job-sampling alter the choice of the trainee for long term vocational training?

4. Did the trainees who had a higher level of competence in basic education show more substantial gains in skills-training?

5. Were employers who had shown an interest in this project ready to accept graduates of the Skills Center?

6. To what extent were trainees successful in work positions forty-five to sixty days after original placement?¹

¹By successful work position, the writer means a job equal to or better than original placement.
7. What are the implications of this study in future programs for vocationally retraining hard-core unemployed and under-employed?

Definition of Terms

For the purpose of this study, the following definitions will be used:

**Basic Education Skills**—Elementary-level\(^1\) education in the general areas of reading, writing, language skills and arithmetic.

**Fundamental Achievement Series Test (FAS)**—A test series developed by The Psychological Corporation for use with culturally different or disadvantaged groups. Numerical and verbal tests are included with many test items based on "culture-laden" experiences assumed to be common to this group.

**Job Sampling**—Four week periods during which trainees were given the opportunity to work in different vocational skills areas.

**Job Success**—The success of the trainee in holding a position equal to, or better than, placement at the conclusion of the training period.

**MDTA**—Manpower Development and Training Act of 1962 as amended.

**MDTA Trainee**—According to guidelines established by the United States Labor Department, individuals selected for training must be in one of the following categories:

1. Unemployed (includes members of farm families with less than $1200.00 annual net family income).

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\(^1\)As used in this study, basic education includes grade levels one through eight.
2. Working below their skill capacities.
3. Working substantially less than full time.
4. Will be working less than full time or will be unemployed because their skills have become, or are becoming, obsolete.
5. Cannot be expected to get appropriate full-time employment without training.
6. Has a reasonable expectation of employment in the occupation for which trained.

**Occupational Status**—Refers to the occupational categories which describe the last full-time jobs held by the trainees before they entered training and the occupational categories which describe the jobs held by trainees at the conclusion of training.

**On-the-job-training**—Refers to instruction received by the trainee while he is working on a job under a formal on-the-job-training contract.

**Skills Proficiency Rating Form**—Rating scales developed to measure degree of proficiency in a given skill area such as Machine Shop, Welding, Auto Mechanics, etc.

**Stanford Achievement Tests**—A series of comprehensive achievement tests to measure skills and understandings commonly accepted as desirable outcomes of the elementary curriculum.

**Underemployed**—Any individual who is working at a job level that is below his training or experience level.

**Vocational Proficiency**—The ability of an individual to perform a given vocational job task at a given time.

**Vocational Success**—Used interchangeably with job-success in this study.
Limitations of the Study

This study was limited to those trainees admitted to the Lincoln Skills Center between the dates of September 1, 1967 and December 7, 1967.

Most of the trainees enrolled in the basic-education phase were available for post-testing, but during the vocational period some drop-outs were unavailable for testing, a factor which reduced the size of the sample.

This study was not designed to control for the socio-economic and socio-psychological status of the individual trainee. It is recognized that cultural variables may have had a decided impact on the behavior of so diverse a group of trainees.

The vocational performance tests and one of the two basic achievement tests used were largely unvalidated at the time of this study.

Basic Assumptions

It was assumed that all trainees had equal chances for success in the basic-education and vocational-training programs.

It was further assumed that:

1. All trainees would honestly report information requested of them.

2. Employers would honestly report on information about trainee success in job situations.

3. Forty-five to sixty days constitute a sufficient period of time
for employers to evaluate the degree of job success achieved by the trainee.
CHAPTER II

REVIEW OF THE LITERATURE

While the volume of material on adult education as such is extensive, the literature on Manpower Development and Training Act programs is fragmentary. Although MDTA legislation was passed in 1962, few comprehensive analytical research studies have been conducted. The Act does require the Secretary of Labor to make periodic reports to the President and these reports do offer a source of general information concerning characteristics of trainees and the number of placements in various skill areas. However, these reports do not attempt any critical evaluation of the training programs leading to the placements reported.

This study makes extensive use of materials such as those developed under government research contracts. Many of the materials are in mimeographed or multilithed form with only small portions having been published in other than government-sponsored monographs and periodicals. In addition to such research studies, there is a body of general information available that bears directly on matters relevant to this study. The studies and literature selected for this study will be presented under the following headings:

1. Studies relative to trainee selection and placement.
2. Studies concerning motivation of MDTA trainees.
3. Studies relative to evaluation of MDTA programs.
4. Studies concerning follow-up of trainees.

It should be noted that these divisions are neither mutually-
exclusive nor all-inclusive.

Studies Relative to Trainee Selection and Placement

Chernick and his colleagues, 1 in a study of the trainee selection criteria and mechanisms used in the Newark, New Jersey training programs, found that training opportunities were available to only a small portion of those unemployed at the time of the study (1964-65). It was found that 70 percent of those persons rejected by MDTA were Negro. It should be added that the Chernick study was made prior to the 1965-66 changes in MDTA which made it mandatory to accept a large portion of those who heretofore would have been ineligible for training. The reasons for making changes in MDTA guidelines were spelled out in a recent government report 2 as follows:

The changing nature of the Nation's manpower problems led in 1966 to major changes of direction in manpower policy and programs, which were strongly supported by congressional action. The new emphases were the logical outgrowth of economic developments reviewed in the previous chapter—rising employment and emerging labor shortages and, at the same time, persistent hardcore unemployment. They grew, too, out of increasing sophistication in applying manpower measures as an instrument of public policy and a mounting confidence that intelligence, determination, and the proper tools could bring about much fuller utilization of the country's human resources.

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Although the unemployment rate for the nation has been holding at approximately 4 percent for the past two years, a disproportionate number of the unemployed come from the young and the non-white segments of our population. The 1967 Manpower Report of the President reports that in 1966 the unemployment rate for non-whites was twice that of whites, with approximately one-fourth of all non-white teenagers in jobless categories. The Manpower Report points out that the most disadvantaged of this nation's citizens--those least able to qualify for work without substantial help--are also least likely to seek out, or even know about the training, placement, or other services potentially available to them. Many unemployed and underemployed are disillusioned, apathetic, or hostile. Leshner and Snyderman made a study of the attitudes of youth toward work and training for work. Questions asked of the young people were designed to reveal personal insights into their problems. The youths were permitted to air all their complaints without interruption. Some of the results of this study confirmed similar studies of disadvantaged youth:

The youth tended to have little understanding of concepts of success and achievement. They tended to view the existing occupational structure as irrelevant and without personal reference, and to view middle class goals as vague or impossible of attainment.

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1 loc. cit., p. 16.
2 ibid.
4 ibid.

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Their negative attitudes toward work in general, and steady work in particular, result from their failure to accept an occupational role. Occupational titles of jobs meant little to these youth. Lack of knowledge about jobs and the job market, in part, at least, explains why so many youth restricted their search to a few occupations and industries. It also underscores why so many could not state a vocational choice or goal.... In summary, a large proportion of the youth had vague and random job-seeking patterns.

Much of the emphasis in current MDTA projects is on programs for youth. In 1966 Gardner reported an increasing number of youths were enrolled in MDTA programs. Only 10 percent of the total enrolled were 45 years of age or older with another 45 percent in the prime working age of 22 to 44. This left approximately 45 percent in the 21 and under bracket. This was an increase of 5 percent over 1964. In spite of the increasing number of youth in training programs, the need for improved communications with this portion of our population is acute.

A group of Americans even more in need of assistance are the non-whites, with particular emphasis on the Negro. Among Negroes, the unemployment rate is almost double the over-all rate. In slums and depressed rural areas, joblessness runs close to 10 percent and one out of three people in these areas who are, or ought to be working, face some severe employment problem. Much of this unemployment occurs not because jobs are unavailable, but because people are unable, due to lack of skills, or unwilling, because of need to change

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2Manpower Report of the President, April, 1967. op. cit., p. xiii.
locations, to fill the available jobs.

Sheppard and Striner\textsuperscript{1} have made several studies of the unemployed Negro and conclude:

The problems associated with the job status of Negroes are greater than the observation of simple statistics might lead us to believe. One expert\textsuperscript{2} has estimated that roughly 50 percent of all Negro workers require upgrading of one sort or another. This high estimate is based on the inclusion of Negroes who have given up any active search for employment, as well as those who do not work full time or on year-round jobs. (A disproportionate number of Negroes are in occupations and industries which do not employ them full time or the year around.) The estimate also includes low-income workers....Finally, when they become disemployed from regular, long-held jobs, they experience longer periods of unemployment than do whites. In 1964, 23 percent of workers unemployed 15 weeks or longer were nonwhite.

Beyond questions of the age and color of those enrolled, there is room for legitimate inquiry into other factors relative to success in training programs. Little research is available in these areas but a recent study by Sommerfeld and Fatzinger\textsuperscript{3} sheds some light on the question. This study was undertaken using 320 male trainees referred to ten Muskegon (Michigan) MDTA programs. The objective\textsuperscript{4} of this study was to identify items in each trainee's record which could differentiate between success and failure. Although initial results indicated some prediction potential for five of the eighteen predictor variables


\textsuperscript{4} loc. cit., p. 1157.
used, cross validation with another group of trainees\(^1\) showed that none of the predictor variables found to be statistically significant with the initial group continued to be significant with the cross-validation group. In almost direct contradiction, Pucel\(^2\) reports a significant positive correlation between certain selection criteria and success in MDTA programs. The same writer hedges his point of view with the assertion that "...different selection criteria are necessary for placing trainees in different types of occupation training programs."\(^3\) Perhaps one of the most important conclusions made by Pucel\(^4\) reinforces the oft-made assertion that the primary purpose of MDTA programs should be development of proper work attitudes, rather than emphasis on training skills.

Studies Concerning Motivation of Hard-Core Unemployed or Disadvantaged Persons

As previously noted,\(^5\) Congress called for a redirection of the MDTA Program in 1966. It was decided, as a national training goal, that approximately 65 percent of the entire training effort would be person oriented, directed to reclaiming the hard-core unemployed as opposed to previous programs designed to retrain primarily those with

\(^1\)loc. cit., p. 1160.


\(^3\)loc. cit., p. 21.

\(^4\)ibid.

\(^5\)Manpower Report of the President, April, 1967, op. cit.
a high degree of potential. To permit wider application of the training techniques, 1966 amendments to the MDTA "authorized training in communications and employment skills with or without occupational training." As reported by Wolfbein, Congress passed these amendments by a vote of 397 to 0 and 79 to 9.

Passage of legislation is only a part of the process of motivating the unemployed to seek assistance. Wolfbein sees the problem of motivation as, "one of the most complex of human attributes to plumb--in general, in particular relation to economics, and in special reference to the world of work." What is lacking, Wolfbein notes, is not the desire to better one's self, but the awareness of what is involved in doing so. In general, the aims of the trainees are rather modest and clear cut but commitment is either superficial or complicated by other motives. Brassiel postulates that in many cases there is no real awareness of what is required to attain the ends expressed, nor any preparation for the sacrifices that may be encountered.

The above contradicts, at least in part, the contention of Sheppard and Striner that, "for significant segments of Negro

1 loc. cit., p. 52.
3 loc. cit., Pp. 87-88.
6 op. cit., p. 28.
population in urban centers, the aspirations and motivations are high; they need only the opportunities for effective social and economic progress, as measured by low unemployment rates, higher incomes and better jobs."

Once enrolled in a training or education program, there are internal factors which have the power to motivate. Adults who have a feeling of accomplishment are motivated to strive for further accomplishment. Klausmeier and Goodwin\(^1\) list four broad categories of motivators essential to activate learners: (1) manipulating materials and activities to arouse curiosity and interest; (2) engaging in goal setting behavior; (3) manipulating rewards and punishments, and (4) competition and cooperation. Boyd\(^2\) puts more weight on intrinsic motivation whereby the adult can see and hear himself read and feel an expanding acceptance among his friends and in his community.

In the recent study of Rutledge and Gass,\(^3\) it was pointed out that lack of motivation among the trainees involved stemmed from two general sources: (1) the men were not work-oriented and were ambivalent about entering a work-study program, and (2) their perception of reality was so dim that they failed to see the need to persist in the program for long-term benefits. Although the men had been out of work for long periods of time, they assumed they could find jobs if they dropped out of training.


After visiting thirty-five Basic Education Programs for Adults, Corbin and Crosby\(^1\) concluded that:

One of the major problems facing the majority of the adult literacy programs observed was a marked lack of written operational objectives designed around the students' goals and needs. Factors that the team identified which probably contributed to the absence of such objectives were (1) the newness of the programs, (2) the rapid expansion of programs, (3) teacher load, and (4) teacher time. In almost all programs, when the question was raised concerning objectives, the answer was the same—'to teach the illiterate adult to read and write.' This is a very commendable objective, but it must be classified as an ultimate objective which in no way indicates what the teacher does or should do to encourage and help the student to develop such skills.

Corbin and Crosby\(^2\) stated that the greatest single problem in adult basic education for the disadvantaged is lack of adequately prepared teachers. Unless the teachers are highly motivated to accomplish student-accepted goals, the adult student is apt to be more complacent than the teaching staff. A 1963 study of the Michigan Employment Security Commission stated that the hard-core unemployed are so demoralized that highly individualized help, rather than mass treatment, is needed. Another factor identified in the study was that many training and basic-education programs are far above the heads of the trainees. Needless to say, this situation does not lend itself to a motivating situation. In like manner, those responsible for training programs

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\(^2\)loc. cit., p. 143.

\(^3\)"Who Are the Unemployables?" *Business Week*, (February 1963), 68.
should be aware of other factors relating to motivation. Among these would be nutrition, health, and what Harbison and Myers\(^1\) call "the social values of the society involved." These latter elements of motivation constitute a large area in which very little comparative research has been done.

When training has been completed, the trainee is usually placed in a job situation related to the skill area in which he has been enrolled. At that point, the trainee is removed from a rather sheltered situation and must ask himself, "What do I want from my job?" Herzberg,\(^2\) in his study on motivation, points out that workers frequently cite as positive factors those elements of their jobs which indicate that they were successful in their work. Feelings of unhappiness, conversely, are associated not with the job itself but with conditions that surround the doing of a job. This study was conducted primarily with middle management, but might be useful if replicated with the type of worker described in this study.\(^3\)

One of the more interesting studies undertaken in the field of Adult Basic Education was a Field Test and Evaluation of four Basic

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3. As this material is being written, a study is being conducted at the Lincoln Skills Center by a Western Michigan University graduate student in the Department of Psychology. The student has developed a master's thesis proposal based on the Herzberg Scale and is using the adults presently enrolled in clerical skills training as his subjects.
Education Systems, conducted by Greenleigh and Associates under a United States Office of Education contract. The field test was conducted in three states, and involved over 1800 adults reading below fifth-grade level and 108 teachers with varying levels of preparation. The design involved three levels of teachers' preparation—certificated teachers, college graduates without certificates and high school graduates. Four well-known programs of adult reading materials were used. After seventeen weeks of instruction, all systems were reported to be successful in increasing the reading ability of most students.

A major finding of the study was "...that the level of teacher preparation was not an important factor in relation to the gains in reading achievement." In most cases, the students of teachers who were high-school graduates showed significant differences between reading test scores taken before and after the training period. The authors of the study suggest that until valid paper and pencil tests have been developed for testing the disadvantaged, oral tests should be used.

The question of the relationships of age, sex, and color with I.Q. and motivation in basic-education programs appears to be a circular one. Austin and Sommerfeld, in a study of the Muskegon Skills Center

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2loc. cit., p. 8.

3loc. cit., p. 13.

for youth up to age twenty-one, found significant improvement in mean scores of achievement and intelligence tests, occupational status, and aptitude tests at the conclusion of the program, but did not find any significant correlation between these gains and sex, age, I.Q., or aptitude. Indik,\(^1\) in a study of motivation, reports no reason to expect any difference in measures of motivation associated with race. Indik\(^2\) does add a note of caution, however, when he writes "...whites and non-whites listed with the Employment Service at a given period in time may be more alike in motivation to work than all members of both racial groups in the population of the area as a whole."

Perhaps more attention should be given to high-impact programs based on maximum effort in short periods of time. Skill Advancement, Incorporated\(^3\) reports that they have been able to substantially upgrade skills to the point where trainees are able to do a better job, earn more money, and, consequently are motivated to move into higher job levels. This, it is stated, can be done in only forty hours of training.


\(^2\)Ibid.

Studies Concerned with Evaluation of MDTA Programs

One of the earliest efforts to retrain hard-core unemployed was the Norfolk Project. Widely reported in the literature, this training program involved approximately 100 individuals in vocational training in the areas of brick masonry, automobile mechanics, sheet metal work, electronics technology, and building maintenance. Evaluators of the project reported significant gains on scores in basic education as well as a high degree of successful job placement. The only vocational area in which training proved of doubtful value was that of building maintenance in which many of the graduates had a tendency to fall back into previous patterns of low-skill jobs and periods of unemployment.

Several of the training centers mentioned in the literature place a heavy emphasis on programs for youth between the ages of sixteen and twenty-two. In St. Louis, Missouri, for example, the Jewish Employment and Vocational Service developed a program designed to assist

1For an interesting discussion on the entire concept of retraining, see Jakubauskas, Edward B., and Baumel, C. Philip (Editors), Human Resources Development. Ames, Iowa: Iowa State University Press, 1967.


3Ibid.

disadvantaged youth in upgrading fundamental educational skills and thereby making the participants more employable. Sponsors of the program noted several factors causing results to differ measurably from expectations, including the reluctance of the subjects to take employment outside the familiar neighborhoods and their overall resistance to change. In this study the staff noted the inadequacy of tests such as the General Aptitude Battery, Kuder Preference Record and Purdue Peg-board Test of Manual Dexterity, to give definitive results for this population. The St. Louis staff developed Work-Sample Tests designed to expose the student to a number of occupational tasks so that his skills could be evaluated and a basis established for determining instructional and counseling needs.

In a project located in the slum areas of Los Angeles repeated failures were reported in programs of basic-education and vocational training. Not only were the teachers unable to keep the young people interested, but a combination of administrative vacillation and weakness, as well as political interference, precluded all but minimal success.

Reports of projects in South Bend, Indiana and Muskegon,

1 loc. cit., p. 9.
2 loc. cit., p. 15.
Michigan\textsuperscript{1} are more encouraging. The South Bend Project focused on instructional experiences in basic education in preparation for a program of vocational training. The study again reported the inadequacy of available tests\textsuperscript{2} to measure the learning potential of disadvantaged adults. Evaluators found significant progress in basic-education skills after twenty weeks of study. Austin and Sommerfeld,\textsuperscript{3} in the Muskegon study, found significant improvement in trainee scores on achievement and intelligence tests, occupational status and aptitude tests at the conclusion of the training program. They did not, however, find any significant correlation between these gains and sex, age, I.Q., or aptitude. Austin and Sommerfeld\textsuperscript{4} conclude:

\textit{...that the concept of persistent attendance or holding power is only partially related to achievement and occupational outcome. After four months of training, there is no proper or exact length of time which all trainees should be held to for attendance purposes. Some youngsters benefit more from four months of training than others do from twelve months. Yet, each youngster is a differently better person as a result of the training.}

The authors of several studies of training programs for youth and adults place a major emphasis on relationships that may exist between education achievement and success in job placement. An interesting study was conducted at the Detroit Sinai Hospital by Rutledge and Gass.\textsuperscript{5} Twenty previously unemployable Negro males were trained as

\begin{itemize}
  \item \textsuperscript{1} Austin and Sommerfeld, op. cit.
  \item \textsuperscript{2} loc. cit., Pp. 27-28.
  \item \textsuperscript{3} loc. cit., Pp. 13-26.
  \item \textsuperscript{4} loc. cit., p. 87.
  \item \textsuperscript{5} Rutledge & Gass, op. cit.
\end{itemize}
practical nurses. The program was successful, largely because of the staff of clinical psychologists readily available to provide immediate and frequent counseling for the trainees. In contrast, Buenaventura, in a study of an MDTA Skills Center in Lansing, Michigan, concluded that the program for migrant workers was unsuccessful because of a number of factors which included a lack of staff and opportunities for informal off-hours discussions which could have served a counseling function. Other problems cited in the Lansing program were lack of physical facilities, race barriers in job placement and difficulty in recruiting the target population. In studying the relationship between educational attainment and job placement, Woodson and Sheffield found that being a high school drop-out seemed to be more of a hardship for non-whites than for whites. Woodson and Sheffield also report that the proportion of minority-group personnel who obtained like positions was no different for those in the Skills Center than for those who entered via regular employment channels.

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3 loc. cit., p. 8.

4 loc. cit., p. 16.


6 loc. cit., p. 18.
This latter finding also held for non-minority, but disadvantaged, whites.¹

In collecting data on twenty-nine research technicians, Schill² attempted to evaluate relationships between education and occupational success. His primary interest was success in terms of upward social mobility. Within this small sample there were indications that educational attainment is related to some degree to occupational success, but not to the point to which it contributes to advancement. It was found that a special area of education that is functionally related to an occupation is highly correlated with success in that occupation, while general education is not.³ The Schill study, reported above, is not directly related to training programs for disadvantaged, but the findings have relevance for those who would evaluate such training programs. Recently, for example, Skill Advancement, Incorporated⁴ conducted a study that would:

1. Test the proposition that low-skill, low-wage workers can be effectively upgraded through in-plant high intensity training.

2. Determine the effects of formal in-plant training programs on workers who participate in such training and on workers who do not; and the impact of such programs on their organizations.

Although the findings were essentially supportive of the above

¹ibid.


³ibid.

⁴Skill Advancement, Incorporated, op. cit., p. 4.
propositions, the authors agree that job satisfaction for workers seems to be related to extrinsic, rather than intrinsic characteristics of their jobs. Furthermore, the workers see themselves as expendable. ¹

In an investigation of the effects of training on the socio-psychological and socio-economic status of trainees, Jones² found differences between wage-levels, ranking of job-levels and job-satisfaction in favor of trainees over a control group of similar subjects who had not been enrolled in training. Only one difference was found on the socio-psychological scale and that was in terms of increased sociability on the part of the trainees.

An interesting extension of vocational training is the number of individual institutions or private corporations which have developed innovative, but, in some cases, questionable approaches to this aspect of the nation's manpower problem. Turpin³ reported on what is called a "quick response approach to vocational training." A California Center has been developed for employers to indicate a need for certain types of personnel and, in a relatively short time, the personnel are trained and available for employment. It is doubtful whether this type of facility is able to train the hard-core unemployed although the technique may merit further study.


Studies Relating to Follow-up of Trainees

In his 1966 Report to Congress, Gardner\(^1\) wrote:

It is fair to state that the overall performance of the Manpower Program has been satisfactory, and that it has succeeded in a rather low key manner. It has surpassed the original goal set for it by the Congress.

In her book on training, Hoos\(^2\) gave a generally optimistic evaluation of MDTA programs when she stated:

1. It has vitalised the functions of the Department of Employment, a considerable accomplishment in small communities where that agency had previously operated in low gear as a farm labor exchange.

2. By forcing cooperative activity between the school system and the Department of Employment, the MDTA has been instrumental in bringing educators closer to the realities of the work world; perhaps this will lead to some readjustments in the archaic approach to vocational education.

3. Operating under the Act's mandate that data pertaining to all facets of labor force participation be gathered, compiled, and disseminated, the Office of Manpower, Automation, and Training has been the source of important information regarding unemployment and the unemployed. The special studies and analytical reports provide valuable insights into the dynamics of retraining.

4. Thanks to this legislation and its implementation, the American public has been made aware of the fact that unemployment is a complicated phenomenon and not exclusively a manifestation of a sluggish economy; as never before, we have come to recognize the existence of want in the midst of affluence.

In the Sheffield and Woodson\(^3\) Study at Oakland, California

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\(^1\) Gardner, John W., op. cit., p. 61.


\(^3\) Woodson, Wm. B. and Sheffield, Susan S., op. cit., p. 93.
the authors concluded:

In the light of severe problems which exist concerning the employment of minority group persons and of the hard-core unemployed, there is little in the analysis of placement results presented here that encourages one to believe that the project is making a measurable dent in the solving of the problem.

It was further indicated in this study that employers were primarily interested in hiring Negroes for jobs traditionally held by Negroes.¹

In the program at Norfolk,² success has been related to the level of training achieved and the status of the occupation entered. As reported previously,³ low-level job titles, such as building maintenance, were relatively unsuccessful in holding men on jobs.

In the Los Angeles Study,⁴ local politics, internal staff bickering and lack of staff and governmental restrictions were cited as reasons for the comparative failure of the program. Conclusions in this report are diametrically opposed to those reached in the St. Louis Program⁵ where the authors concluded:

This program was designed for a kind of crash basis determination of whether or not youngsters of this background and age can be made employable....There appears to be no doubt that relatively short term efforts can accomplish this, given appropriate methods and techniques.

¹loc. cit., p. 93.


³ibid.

⁴Evaluative Study--Youth Training and Employment Projects of Greater Los Angeles, op. cit., p. 144.

⁵Final Report--Youth Training Program, op. cit., p. 31.
In the 1966 Report of the Secretary of Labor\(^1\) statistics on drop-outs are reported. Up to the end of 1966, about one out of three MDIA trainees had failed to complete his training course. Of those who dropped, the majority took jobs or left for health or financial reasons. Of those who discontinued their training, 46 percent found jobs and 57 percent reported that as a result of even partial training, they could now perform a new skill or a new job. The same report cites statistics to the effect that outcomes of MDIA training programs are more valuable for non-whites than for whites if the measure of success is increased earnings.\(^2\) Additional figures are cited in a work by Wolfbein\(^3\) who reports that approximately 71.3 percent of those completing courses obtained employment. The level of employment is not given. Wolfbein\(^4\) makes the point that there is "a consistent relationship between level of educational attainment and success in job placement." Unfortunately, this same study again cites a ten point spread in the percentage of non-white and white placements, with percentages favoring the whites.

In a highly definitive study, Edgerton\(^5\) is able to cite figures


\(^{2}\)loc. cit., p. 55.

\(^{3}\)Wolfbein, Education and Training for Full Employment, op. cit., p. 155.

\(^{4}\)loc. cit., p. 157.

which demonstrate relationships among ability, previous history and socio-economic status of trainees and their retention and placement. A summary statement in the Edgerton study is worth repeating:

Both retention and placement show enough correlation with characteristics of program organization and program management so that efforts to improve the standing of an MDTA Program in terms of either its retention or its placement should be fruitful. While there is no difficulty in understanding why the selected factors correlate with retention and placement rates, the real problem is that of making the programs fit the trainees, rather than trying to select trainees to fit the training.

If trainees were selected to show a high retention rate, they would be high school graduates, would have been regularly employed and not on public assistance. These, of course, are not the people for whom the training programs were primarily designed. The Edgerton study mentions two other variables which are frequently overlooked, the area of the country and the economic climate of that area along with the availability of training-related jobs.

Perhaps one of the most ambitious attempts to evaluate MDTA programs is the study of London wherein five-hundred trainees were studied in an eighteen month follow-up of fifty-one different classes in St. Louis, Kansas City, and Joplin, Missouri. The investigator sought information on a variety of topics, including earnings, mobility, employment record and observable changes in modes of

1 ibid.

2 loc. cit., p. 28.

living. Major findings\(^1\) included continued instability (only one out of six remained in his first placement), work habits were erratic and irregular, and with each passing month, few remained in jobs related to training.

Although there is a substantial body of literature which relates in some manner to institutional skills training for adults, only a few of the more general works have been cited. The works of Super\(^2\) and David\(^3\) on self-concept and manpower policies for a democratic society have substance, while Evans\(^4\) book on automation and its impact on workers is of particular value to educators.

**Summary**

Writers of studies regarding a selection of MDTA trainees for training programs indicate a shift in emphasis from assisting all unemployed or underemployed to those categorized as hard-core. In addition, since 1965 an increasing emphasis has been placed on programs for minority groups and youth under the age of twenty-five.

The authors of studies on motivation place emphasis on the need to assist trainees in developing a sense of zeal to improve job skills. A review of research in this area points out the necessity

\(^1\) loc. cit., p. 8.


for stated objectives as a part of all MDTA programs.

Studies relative to evaluation and follow-up are numerous and contradictory. Much emphasis is placed on problems of youth and minority groups with particular weight given to the needs of the Negro.

Overall, this review of the literature indicates the lack of consistency in both program planning and evaluation. Measures to alleviate the employment problems of the disadvantaged, or hard-core, have been attempted in various parts of the United States with varying degrees of success. Much of the literature is relatively new. It is evident that better coordination of MDTA projects, both training and evaluation theory, would be helpful.
CHAPTER III

THE SOURCES OF DATA, PROCEDURES AND METHODOLOGY

The background data for this study were obtained primarily at the Lincoln Skills Center, Kalamazoo, Michigan during the period of September 1, 1967 to May 17, 1968. Additional information was obtained from the files of the Michigan Employment Security Commission. These data were supplemented with follow-up information supplied through the cooperation of the W. E. Upjohn Institute for Employment Research.

Restatement of the Problem

The primary purpose of this study was to determine whether the Lincoln Skills Center had been successful in helping trainees to improve significantly their basic education (arithmetic, language, reading) and vocational skills and, at the conclusion of training to find employment at a level commensurate with educational achievement and vocational proficiency.

The other purposes were to determine any relationships which existed between levels of basic literacy skills and the degree of vocational proficiency achieved as well as relationships between basic education achievement and job-success.

Additional concerns were employment history, attendance patterns, rates of pay before and after training and characteristics such as age, sex, color and education of the trainees.
Procedures

The subjects of this study consisted of two groups. The original group of 145 trainees, ranging in age from 17 to 62, were the subjects used in the initial basic-education and vocational job-sampling phase of the study. Because of drop-outs and other terminations, voluntary and involuntary, the local office of the Michigan Employment Security Commission found it necessary to add new trainees at the beginning of the vocational phase of the program. The original group and those who were added make up the total of 156 subjects in this study. Tables 4-1 through 4-6 have been developed to show characteristics of those subjects.

During the initial weeks of activities at the Lincoln Skills Center all trainees were given individual interviews to determine their job backgrounds, their expectations for training from the Center and other personal information relevant to this study. The interview form was adapted from one used by Sheppard and Belitsky in their study of job-seeking behavior of unemployed workers in the Erie, Pennsylvania area. The interview format was designed to obtain information on job performance and job-seeking behavior for a period of up to three years. Additional information was collected regarding salary, length of time on each job held, and the reasons as perceived by the trainee as to why

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1 See Table 4-3, p. 53.

2 In Tables on trainee characteristics, the writer uses the terms original and total to differentiate between segments of the population in this study.

he was dismissed or left the position voluntarily. The interview was important in providing a cross-check on the accuracy of the information obtained on MESC and Skills Center initial registration forms. A copy of the interview form used in this study will be found in Appendix B, page 116.

In preparing the proposal resulting in the establishment of the Lincoln Skills Center, provision had been made for basic-education testing without specifically indicating the type of instruments to be used. The Kalamazoo Public Schools suggested utilizing the Stanford Achievement Tests (SAT), Advanced Form, as a measure of achievement attained in the basic-education phase of the program. It seemed imperative to supplement this test with another instrument which might more closely measure the growth achieved by those with minimal education backgrounds as well as those who brought other than a middle-class orientation to the testing situation. However, few instruments have been designed specifically for use with the culturally disadvantaged. Most existing basic-achievement tests are designed for use with children and youth of middle-class background. Doppelt and Bennett refer to the situation as "unfairness of content" and maintain that,

...most existing tests, especially verbal measures, emphasize middle-class concepts and information and are therefore unfair to those who have not been exposed to middle-class cultural and educational influence. Consequently, the low-test scores which are earned are not indicative of the "true" abilities of the disadvantaged. Predictions of job success made from such scores are therefore held to be inaccurate.

Doppelt and Bennett also state that test scores of the


2ibid.

3loc. cit., p. 3.

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disadvantaged should be compared with test scores of other similarly disadvantaged. The **Fundamental Achievement Series Tests** of the Psychological Corporation, although not fully validated at the time of the study, appeared to hold promise for use with disadvantaged children and adults who had minimal reading and writing skills. The **FAS** was used in addition to the **SAT** as pre- and post-measures of achievement over the basic education period.

One other instrument was needed at the Skills Center in order to measure skills achieved at the conclusion of the vocational training phase. Again, no instrument was readily available. Some measures of vocational proficiency have been used by business and industry for many years. Typing and stenographic tests have been widely employed. Various written tests as well as performance tests with pegs and blocks have been used to estimate the specific skills possessed by job seekers. In the 1930's some larger business concerns used a technique called **Oral Trades Tests** in which job seekers were asked specific questions regarding the type of work in which they were interested. These responses were quantified and scores used for ranking potential employees. The major difference between the above techniques and the skills proficiency rating forms developed for use at the Lincoln Skills Center is that the above measures are meant to be predictive. The skills proficiency rating forms developed for use at Lincoln were designed to measure gains in skills proficiency but not to predict potential job success. It was assumed, however, that the results would have relevance for counselors who worked with

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job placement of trainees. The above instruments were used to answer questions raised in Chapter I of this study concerning the success of the basic education and vocational training programs.

During the initial week of the program, the Stanford Achievement Test: Form X was administered to all trainees. After scoring, those who had achievement measures at mid-fifth grade or below were tested with the Fundamental Achievement Series: Form XB. Again, at the conclusion of the twelve-week basic-education period, those who previously scored between the 5.5 and 9.5 grade levels on the SAT were retested using the SAT. Those scoring less than 5.5 (average of the three areas) were retested using the FAS. Those who scored above the 9.5 grade level on the SAT were not retested. Growth scores were obtained between the pre- and post-tests for each group tested.

During the first three weeks of the program, all trainees were interviewed and the results recorded on an interview schedule. This schedule (see Appendix B) was designed to provide information on job history, educational level achieved, job-seeking behavior, and attitude of the trainee toward the Skills Center.

Skills proficiency rating forms were administered to all trainees during the first week of vocational training and again during the last week of the period or at that time when training was terminated for

1Beyond the ninth-grade levels, the distortion in the testing pattern would have negated the possibility of valid scores. Oscar K. Buros (Ed.) in the Sixth Mental Measurements Yearbook. Highland Park: The Gryphon Press, 1965, stated, "Since the grade norms are based on the performance of pupils in grades 1 through 9 tested in the standardization program, grade scores up to 96 (9.6 grade equivalent) are considered to reflect accurately the achievement of pupils of the designated grade status in the various subjects."
early placement. As was true during the basic-education period, some trainees dropped or were dismissed\(^1\) from the program and were not available for post-rating. The differences between post- and pre-test scores were again tabulated for skills rating forms.

Approximately forty-five to sixty days after original placement a follow-up questionnaire was administered to each employer to determine the degree of success or failure of the trainee in that position. During the period of the study, any trainee who was dismissed or who voluntarily terminated from his original placement was contacted in his next job for a second follow-up. These data were used to determine job success as defined in this study.\(^2\)

The Instruments and Techniques

The following testing instruments were used at the Lincoln Skills Center.

The **Stanford Achievement Test, Advanced Battery Revised 1964**

*Stanford Achievement Test* is the designation of a series of comprehensive achievement tests developed to measure knowledges, skills and understandings commonly accepted as desirable outcomes of the major curriculum areas in the elementary and junior high school curriculum. First editions of the test were published in 1923. Revisions have been made periodically until the publication of the present fifth edition. The test battery includes eight subject areas consisting of paragraph meaning, spelling, language, arithmetic computation, arithmetic concepts,

\(^1\)Information on reasons for dropouts and other terminations is summarized in Table 4-30, page 88.

\(^2\)See p. 7.
arithmetic application, social studies and science. Raw scores are converted into grade equivalents. Reliability coefficients for the three tests used range from .87 to .94.1 Three sub sections of the test—paragraph meaning, language, and arithmetic computation—were used in the testing program at the Skills Center.

It should be kept in mind that the Stanford Test Series was validated using students in the elementary and junior high grades2 and therefore may not be entirely appropriate for use with adult groups.

The Fundamental Achievement Series

The Psychological Corporation has developed a series of "culture-laden" tests3 with experiences considered to be common to disadvantaged groups. Doppelt and Bennett4 believe this approach is superior to that of attempting to develop so-called "culture-free" tests. Their rationale is that:

The purpose of employment testing is to select people who ultimately will be successful in one or more jobs. The jobs are inevitably embedded in some cultural matrix, and criteria of success will undoubtedly be influenced by cultural factors. Thus the abilities to understand oral and perhaps written instructions, to go from one place to another in a reasonable manner, and to cope with simple arithmetic, are activities which are "culture laden" but which are also likely to be criterion-related. Such behaviors have their parallels in everyday living and can be translated into test questions which are not unfair to disadvantaged applicants.5

2loc. cit., p. 25.
3Doppelt and Bennett, op. cit., p. 4.
4ibid.
5ibid.
The FAS is presently available in only one form (XB) and consists of verbal and numerical sections. Each section is administered by playing a tape recording. All the questions and instructions are recorded on tape and the timing for each question or group of questions is controlled by the tape. Persons taking the test are given response booklets, one each for verbal and numerical sections of the test. The subjects are asked to place a check in a box, write out a number, complete a sentence or circle a number in the booklet.

The validity of the FAS is now being tested with various groups. The Lincoln Skills Center subjects taking this test have been included in a program of validation. The performance of Lincoln Skills Center trainees can be seen in Tables 3-1, 3-2 and 3-3.

Skills Proficiency Rating Forms

Reference has already been made to early attempts at measuring vocational or occupational proficiency. One of the needs in a skills center operation is a set of aptitude criteria to determine whether trainees are actually able to acquire needed skills in the programs offered and in the time periods available.

Test makers frequently emphasize the need to evaluate achievement in terms of clearly specified objectives. The development of skill in certain manipulative operations is a part of most courses in vocational

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1 A second form is being used in validation tests and will be available sometime in late 1968 or early 1969.

2 See Tables 3-1, 3-2 and 3-3.


Table 3-1

Fundamental Achievement Series: Form XB
Verbal Test

Mean, Standard Deviation and Selected Percentiles
for Group Tested at Lincoln Skills Center--
and Other Groups*

<table>
<thead>
<tr>
<th>Score</th>
<th>Lincoln Skills Center</th>
<th>Truck Driver Trainees</th>
<th>Students in a Southern City</th>
<th>Students in a Northern City</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grade 6  Grade 8</td>
<td>Grade 6  Grade 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Negro  White  Negro  White</td>
<td>Negro  White  Negro  White</td>
</tr>
<tr>
<td>Possible</td>
<td>100</td>
<td>100</td>
<td>100  100</td>
<td>100  100</td>
</tr>
<tr>
<td>High</td>
<td>89</td>
<td>93</td>
<td>84  93</td>
<td>88  96</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>75th Percentile</td>
<td>75th Percentile</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>73</td>
<td>79</td>
<td>65  78</td>
<td>72  89</td>
</tr>
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<td>59</td>
<td>70</td>
<td>57  70</td>
<td>68  85</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>42</td>
<td>51</td>
<td>52  59</td>
<td>63  80</td>
</tr>
<tr>
<td>Low</td>
<td>14</td>
<td>22</td>
<td>31  28</td>
<td>41  65</td>
</tr>
<tr>
<td>Mean</td>
<td>55.2</td>
<td>66.8</td>
<td>58.4  68.9</td>
<td>67.3  84.0</td>
</tr>
<tr>
<td>SD</td>
<td>20.8</td>
<td>17.0</td>
<td>10.2  12.6</td>
<td>8.5  6.3</td>
</tr>
<tr>
<td>N</td>
<td>51</td>
<td>45</td>
<td>142  107</td>
<td>144  137</td>
</tr>
</tbody>
</table>

Data for other groups courtesy of The Psychological Corporation, New York, New York.
Used with permission.
Table 3-2

Fundamental Achievement Series: Form XB
Numerical Test

Mean, Standard Deviation and Selected Percentiles
for Group Tested at Lincoln Skills Center—and Other Groups*

<table>
<thead>
<tr>
<th>Score</th>
<th>Lincoln Skills Center</th>
<th>Truck Driver Trainees</th>
<th>Students in a Southern City</th>
<th>Students in a Northern City</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grade 6</td>
<td>Grade 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Negro</td>
<td>White</td>
</tr>
<tr>
<td>Possible</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>High</td>
<td>51</td>
<td>65</td>
<td>56</td>
<td>59</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>43</td>
<td>48</td>
<td>57</td>
<td>59</td>
</tr>
<tr>
<td>50th Percentile</td>
<td>33</td>
<td>39</td>
<td>45</td>
<td>52</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>25</td>
<td>29</td>
<td>35</td>
<td>44</td>
</tr>
<tr>
<td>Low</td>
<td>1</td>
<td>9</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Mean</td>
<td>32.2</td>
<td>39.2</td>
<td>32.2</td>
<td>39.2</td>
</tr>
<tr>
<td>SD</td>
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<td>13.2</td>
<td>13.1</td>
</tr>
<tr>
<td>N</td>
<td>52</td>
<td>47</td>
<td>142</td>
<td>107</td>
</tr>
</tbody>
</table>

* Data for other groups courtesy of The Psychological Corporation, New York, New York. Used with permission.
Table 3-3

Fundamental Achievement Series: Form XB
Verbal + Numerical

Mean, Standard Deviation and Selected Percentiles
for Group Tested at Lincoln Skills Center—and Other Groups*

<table>
<thead>
<tr>
<th>Score</th>
<th>Lincoln Skills Center</th>
<th>Truck Driver Trainees</th>
<th>Students in a Southern City</th>
<th>Students in a Northern City</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grade 6</td>
<td>Grade 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Negro</td>
<td>White</td>
</tr>
<tr>
<td>Possible</td>
<td>175</td>
<td>173</td>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td>High</td>
<td>135</td>
<td>154</td>
<td>140</td>
<td>152</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>114</td>
<td>128</td>
<td>104</td>
<td>127</td>
</tr>
<tr>
<td>50th Percentile</td>
<td>96</td>
<td>113</td>
<td>89</td>
<td>114</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>72</td>
<td>85</td>
<td>76</td>
<td>97</td>
</tr>
<tr>
<td>Low</td>
<td>19</td>
<td>36</td>
<td>44</td>
<td>41</td>
</tr>
<tr>
<td>Mean</td>
<td>88.0</td>
<td>106.9</td>
<td>90.3</td>
<td>110.7</td>
</tr>
<tr>
<td>SD</td>
<td>31.9</td>
<td>27.3</td>
<td>19.0</td>
<td>21.1</td>
</tr>
<tr>
<td>N</td>
<td>51</td>
<td>45</td>
<td>142</td>
<td>106</td>
</tr>
</tbody>
</table>

Data for other groups courtesy of The Psychological Corporation, New York, New York. Used with permission.
and practical arts. Few instruments are available for use in measuring the development of a vocational trade skill. Michaels and Karnes\(^1\) developed what they called **Manipulative Performance Tests**. These tests involved a rather complicated set of checklists and detailed directions, both for the teacher and the student. Again, the authors were interested in the development of predictive instruments. As Tyler\(^2\) points out, "...in the use of aptitude tests...conclusions about a person must be cautious ones."

To measure skill development at the Lincoln Skills Center, a series of proficiency rating forms were prepared by the investigator for each of the six skill-training areas being offered. In clerical and machine shop classes these rating consisted of written tests as well as observed proficiency as demonstrated under direct supervision. The other four vocational skills areas--auto mechanics, food preparation, welding and maintenance--were evaluated entirely on observed proficiency as defined objectively in each section of the skills tests.

All skills-proficiency rating forms were developed with the cooperation of expert teachers in each of the skill-training areas. The clerical skills tests were administered to business education classes at Portage Northern High School (Portage, Michigan) prior to their use at the Lincoln Skills Center.

It should be reiterated that these ratings were not used as a predictive measure in terms of future job or occupational success. All proficiency rating forms used are reproduced in Appendix C, page 124.

---


Follow-up Form

The design of this study included a follow-up of trainees approximately forty-five to sixty days after original placement. Most of the follow-up actually took place in periods ranging from fifty to ninety days after placement. The form used for this part of the study is reproduced in Appendix A, page 113.

Procedures for Treating the Data

The differences between pre- and post-test scores in basic education and skill ratings were tested for significant change by means of the "t"-test.¹ In evaluating the results of tests for achievement in the basic-education phase, the trainees were grouped in terms of the test administered (SAT or FAS), while in vocational proficiency, each skills group was handled separately. All computations were made at the Computer Center at Western Michigan University.

Information collected in trainee interviews and employer follow-up questionnaires was used as a basis for determining pre-program job status and post-program job success.

Summary

The procedures, instrumentation and methodology employed to obtain and analyze data concerning the Lincoln Skills Center were described in this chapter. The data were obtained from Michigan Employment Security

¹The formula used was 

\[ t = \frac{M_a - M_b}{SE_{ab}} \]
records, registration forms, personal interviews, achievement tests
given before and after basic-education training and skills proficiency
ratings given before and after vocational training.

Data were collected and analysed for purposes of evaluating a
program of training and retraining of the hard-core unemployed. These
data were collected by use of the SAT, the FAS and skills proficiency
ratings as well as an interview schedule for the trainees along with
a follow-up questionnaire which was completed by the employers of the
trainees. The test data were evaluated statistically to determine
significance by use of the "t"-test.
CHAPTER IV

PRESENTATION OF FINDINGS

The findings of this study will be presented in two major sections: (1) Characteristics of the Subjects and (2) Answers to the Questions.

Characteristics of the Subjects

Prior to the opening of the Lincoln Skills Center, various social agencies and the Kalamazoo office of the Michigan Employment Security Commission developed a list of approximately 625 names of potential candidates for vocational training from the Southwestern Michigan area. All interested candidates were referred to the MESC office for interviews and enrollment. By September 1, 1967, 177 persons had enrolled for training.

On September 5, 141 persons appeared for training. Throughout the first twelve to fourteen weeks of the program additional persons were enrolled with the total number reaching 156. Of this number, 121 eventually graduated. Table 4-1 summarizes the age levels and races of all trainees enrolled during the program.

One of the major considerations of the Manpower Development Training Act program is to serve youth up to age 22 as well as those in the prime working age group (22-44). Of the trainees at the Lincoln Skills Center, 62 percent were in these groups. Of these, 47 percent were non-white and 53 percent white. The percentage ratio of males to females was 52:48.

1Actually, the Center could accommodate only 145 trainees but it was expected that many of those enrolled would not report. The assumption proved to be correct.

49
Where possible, women on Aid to Dependent Children and men on welfare were given preference. Considerable emphasis was placed on recruitment of non-white males but the number (32) enrolled (20 percent) was not up to the expectations of officials at the Center.

Table 4-1
Age and Race of Total Trainees
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>White</td>
</tr>
<tr>
<td>All Trainees</td>
<td>156</td>
<td>81</td>
</tr>
<tr>
<td>17-21</td>
<td>45</td>
<td>28</td>
</tr>
<tr>
<td>22-44</td>
<td>96</td>
<td>44</td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Lincoln Skills Center Registration Form.

One of the more important questions asked of trainees upon enrollment was the school grade level completed. Among the subjects reported in Table 4-2, 65 percent had completed less than twelve years of formal schooling. Females, both white and Negro, entered the Center with a higher level of educational attainment than males. Negro males constituted the largest single group of low-level educational attainment with 29 percent reporting less than eighth grade schooling. Only 9 percent of the white males were in this category.

^In general, the trainees tended to add a grade level or more when filling out enrollment forms. During personal interviews, the trainees gave a more accurate picture of educational backgrounds.
### Table 4-2
**Educational Levels of All Trainees**
**Lincoln Skills Center**

| Sex, Race and Age Group | Grade Level | Total
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 8</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total Males</strong></td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total Males, White</strong></td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>17-21</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>22-44</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total Males, Negro</strong></td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>17-21</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>22-44</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Females</strong></td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Females, White</strong></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>17-21</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>22-44</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Females, Negro</strong></td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>17-21</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>22-44</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>18</td>
<td>9</td>
</tr>
</tbody>
</table>

*Source: Lincoln Skills Center Registration Form.*

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When enrolled, some of the trainees were unemployed while others were employed at low pay or in work they considered to be undesirable. Many in the latter group considered themselves to be underemployed.

Table 4-3 is a summary of job-status prior to training. Although females made up a larger percentage of the unemployed, it should be noted that many of these women, both white and non-white, were on ADC and had been unable to find jobs at pay levels high enough to warrant accepting employment. In the group of non-whites, 65 percent of the males and 48 percent of the females were unemployed while for white trainees these percentages were 56 for males and 67 for females.

As stated earlier in the study, MDTA programs are designed to assist youth (up to age 21) and those in the prime working age group, 22-44. Table 4-4 is a summary of age, race and sex characteristics of Skills Center graduates and shows that 90 percent of the graduates were in the 18-44 age group. The largest single group (26 percent) was in the 21-25 age bracket.

Table 4-5 shows characteristics which help to delineate the reasons why a large percentage of the graduates had been unemployed prior to training. Some of the trainees could be counted in several categories in this Table. The number of males on public assistance rolls was considerably lower than for females, with non-white females constituting the largest number in this category. After training, the number on public assistance was reduced by over 70 percent.
Table 4-3
Statistics on Employment
Prior to Training
(All Trainees)

<table>
<thead>
<tr>
<th>Sex, Race and Age Group</th>
<th>Employed</th>
<th>Unemployed</th>
<th>Percentage of Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>Total Males</td>
<td>29</td>
<td>42</td>
<td>47.2</td>
</tr>
<tr>
<td>Total Males, White</td>
<td>20</td>
<td>25</td>
<td>28.1</td>
</tr>
<tr>
<td>17-21</td>
<td>6</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>22-44</td>
<td>11</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total Males, Negro</td>
<td>9</td>
<td>17</td>
<td>19.1</td>
</tr>
<tr>
<td>17-21</td>
<td>2</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>22-44</td>
<td>7</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>45 &amp; over</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total Females</td>
<td>36</td>
<td>47</td>
<td>52.8</td>
</tr>
<tr>
<td>Total Females, White</td>
<td>13</td>
<td>26</td>
<td>29.2</td>
</tr>
<tr>
<td>17-21</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>22-44</td>
<td>10</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total Females, Negro</td>
<td>23</td>
<td>21</td>
<td>23.1</td>
</tr>
<tr>
<td>17-21</td>
<td>6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>22-44</td>
<td>15</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>65</td>
<td>89</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Derived from MT-101 "Characteristics" form, personal data sheets, and evaluations.
Table 4-4
Characteristics of Lincoln Skills Center Graduates
By Age Groups, Sex, and Race
May, 1968

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>White</td>
</tr>
<tr>
<td>All Graduates</td>
<td>121</td>
<td>65</td>
<td>37</td>
</tr>
<tr>
<td>17-20</td>
<td>17</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>21-25</td>
<td>32</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>26-30</td>
<td>22</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>31-35</td>
<td>20</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>36-40</td>
<td>10</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>41-45</td>
<td>7</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>46-50</td>
<td>7</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>51-55</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>56-60</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>61-65</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Derived from MT-101 "Characteristics" form, personal data sheets, and evaluations.
| Type of Handicaps, Welfare Status and Criminal Record | Total | Male | | | Female | | |
|---------------------------------------------------|-------|-----|-----|-----|------|-----|
|                                                   | Total | White | Negro | Total | White | Negro |
| **Handicap**                                      |       |       |       |       |       |       |
| Physical<sup>a</sup>                              | 15    | 11    | 8     | 3     | 4     | 3     |
| Emotional<sup>b</sup>                             | 14    | 10    | 5     | 5     | 4     | 1     |
| **Public Assistance**                             |       |       |       |       |       |       |
| Prior to training                                 | 39    | 10    | 4     | 6     | 29    | 8     |
| After training                                    | 10    | 4     | 1     | 3     | 6     | 1     |
| **Criminal Record**                               |       |       |       |       |       |       |
| Felony Conviction                                 | 22    | 19    | 9     | 10    | 3     | 1     |
| Imprisonment                                      | 4     | 2     | 1     | 1     | 2     | 1     |

<sup>a</sup>Includes disabilities, severe weight problems, etc.

<sup>b</sup>Includes nervous conditions, severe alcoholism, etc.

<sup>c</sup>Some of these women who graduated from the Skills Center had not obtained employment at the time of this study.

Source: Derived from MT-101 "Characteristics" form, personal data sheets and evaluations.
Table 4-6 summarizes educational characteristics of the graduates by grade-level completed. Some of the trainees may have attended classes for the mentally handicapped and may have been confused as to the actual grade completed although the number in this category would be small. Table 4-6 shows that 82 of the trainees (68 percent) who graduated from the Skills Center had failed to complete grade 12 and 17 (14 percent) left school prior to completing grade 8. The percentage of white and non-white completing grade 12 was approximately the same but females, both white and non-white, accounted for 80 percent of those trainees who had graduated from high school.
### Table 4-6
Educational Characteristics
Highest Grade Completed by Lincoln Skills Center Graduates
By Sex and Race
May, 1968

<table>
<thead>
<tr>
<th>Sex and Race</th>
<th>N-121</th>
<th>0-2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Males</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>White</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negro</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Females</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>White</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negro</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>121</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Derived from MT-101 "Characteristics" Form and Personal Data Sheets.
Answers to Questions

Question 1:

Was a short-term skills center of this type successful in raising significantly adult achievement levels in basic education?

The basic-education phase of the program extended for twelve weeks, four hours each day, and was mandatory for all trainees regardless of scores attained on initial achievement tests. The trainees were placed randomly in classes except for one group classified as functionally illiterate. Classes ranged in size from thirteen to eighteen persons. There were nine teachers employed to teach the basic-education program consisting of four areas—social living, arithmetic, reading and language skills. Three of the instructors were experienced teachers with two holding elementary or secondary certificates. Most of the instructors were required to teach all subject areas regardless of their major fields of study. Of the nine instructors, six held college degrees while the remaining three each had approximately two years of study beyond high school. Classes were operated in traditional recitation fashion using textbooks and supplementary materials. A few of the nine basic-education teachers made minimal use of films, tape recorders and resource personnel. The primary emphasis in basic education was on group discussion of current social problems. Trainees would move to two, three or four different rooms during the four-hour basic-education period. The student-teacher ratio in basic-education classes was approximately 18 to 1.

The physical facilities for basic-education classes were distributed over three floors in several locations at Lincoln School. Two groups were housed in the home economics department with a plastic
partition dividing the classes. In some rooms it was possible to conduct classes in what could be termed a conference setting with long tables and folding chairs. The remaining rooms were equipped with tablet-arm chairs.

As indicated previously, the tests used to determine the degree of growth in this phase of the program were the *Stanford Achievement Test, Advanced Form*, and the *Fundamental Achievement Series*. These tests were administered approximately eleven weeks apart.¹

Those trainees scoring below the 3.5 grade level ² on the SAT were re-tested using the *FAS*. For statistical tests, both verbal and numerical, the scores of Negro and white were tallied compositely and separately.

As shown in Tables 4-7 and 4-8, the mean scores for low Negro trainees were lower than those for low white trainees. Low Negro trainees made smaller gains on post-tests than low white trainees. No significant gains were made by the total group or by either group on numerical or verbal sections of the FAS, although the means reflected positive gains in all cases and were close to being significant.

¹Some trainees were absent frequently. It was necessary to use an additional week for make-up testing.

²Throughout this study, those who scored below this level on the SAT are classified as those with low or lower basic education achievement. Those at this level or above are classified as high or higher.
### Table 4-7

**Fundamental Achievement Series**

*Pre-test and Post-test Scores in Basic Education*

*Lincoln Skills Center*

#### Total Low Group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>46</td>
<td>53.20</td>
<td>22.83</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>46</td>
<td>60.04</td>
<td>22.17</td>
<td>&quot;t&quot;-1.4914 NS</td>
</tr>
<tr>
<td><strong>Numerical</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>46</td>
<td>31.35</td>
<td>13.65</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>46</td>
<td>34.63</td>
<td>14.44</td>
<td>&quot;t&quot;-1.202 NS</td>
</tr>
<tr>
<td><strong>Verbal + Numerical</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>46</td>
<td>84.54</td>
<td>35.02</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>46</td>
<td>94.67</td>
<td>34.25</td>
<td>&quot;t&quot;-1.4024 NS</td>
</tr>
</tbody>
</table>

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### Table 4-8
**Fundamental Achievement Series**
*Pre-test and Post-test Scores in Basic Education*
**Lincoln Skills Center**

#### Low White Group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>18</td>
<td>56.44</td>
<td>18.55</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>18</td>
<td>65.17</td>
<td>16.14</td>
<td>( t )-1.5049 NS</td>
</tr>
<tr>
<td><strong>Numerical</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>18</td>
<td>34.83</td>
<td>10.12</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>18</td>
<td>40.39</td>
<td>11.55</td>
<td>( t )-1.5349 NS</td>
</tr>
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</table>

#### Low Negro Group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Verbal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>28</td>
<td>48.61</td>
<td>25.30</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>28</td>
<td>56.75</td>
<td>23.55</td>
<td>( t )-1.2466 NS</td>
</tr>
<tr>
<td><strong>Numerical</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>28</td>
<td>28.75</td>
<td>15.32</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>28</td>
<td>30.93</td>
<td>15.08</td>
<td>( t )-.6363 NS</td>
</tr>
</tbody>
</table>
Those trainees scoring between the 5.5 and 9.0 grade levels on the SAT were retested at the conclusion of basic-education classes with the SAT and the results are shown in Tables 4-9 and 4-10. Significant growth was made by both white and Negro trainees in mathematics and in paragraph meaning. Only white trainees showed significant progress in language. When Negro and white group scores were combined, there was significant growth in all three areas, paragraph meaning—approximately one grade level, language—seven months, and arithmetic—one year and four months.

Table 4-9
Stanford Achievement Test
Pre-test and Post-test
Scores in Basic Education
Lincoln Skills Center

Total High Group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paragraph Meaning</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>63</td>
<td>60.65</td>
<td>18.90</td>
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<tr>
<td>Post-test</td>
<td>63</td>
<td>69.32</td>
<td>19.85</td>
<td>&quot;t&quot;=2.5096 S .01</td>
</tr>
<tr>
<td><strong>Language</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>73</td>
<td>54.08</td>
<td>17.41</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>73</td>
<td>60.74</td>
<td>19.13</td>
<td>&quot;t&quot;=2.985 S .01</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>81</td>
<td>55.17</td>
<td>16.86</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>81</td>
<td>69.36</td>
<td>17.98</td>
<td>&quot;t&quot;=5.1794 S .001</td>
</tr>
</tbody>
</table>

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Table 4-10

Stanford Achievement Test
Pre-test and Post-test
Scores in Basic Education
Lincoln Skills Center

High White Group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paragraph Meaning</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>33</td>
<td>61.27</td>
<td>18.42</td>
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</tr>
<tr>
<td>Post-test</td>
<td>33</td>
<td>69.33</td>
<td>20.37</td>
<td>&quot;t&quot; -1.6860 S .05</td>
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<tr>
<td><strong>Language</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>39</td>
<td>54.03</td>
<td>17.36</td>
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</tr>
<tr>
<td>Post-test</td>
<td>39</td>
<td>60.56</td>
<td>17.09</td>
<td>&quot;t&quot; -1.6759 S .05</td>
</tr>
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<td><strong>Mathematics</strong></td>
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<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>48</td>
<td>57.42</td>
<td>16.79</td>
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</tr>
<tr>
<td>Post-test</td>
<td>48</td>
<td>71.65</td>
<td>18.72</td>
<td>&quot;t&quot; -3.9201 S .001</td>
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</tbody>
</table>

High Negro Group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paragraph Meaning</strong></td>
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<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>30</td>
<td>59.97</td>
<td>19.70</td>
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<tr>
<td>Post-test</td>
<td>30</td>
<td>69.30</td>
<td>19.62</td>
<td>&quot;t&quot; -1.8385 S .05</td>
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<tr>
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<td>Pre-test</td>
<td>34</td>
<td>54.15</td>
<td>17.74</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>34</td>
<td>60.94</td>
<td>21.50</td>
<td>&quot;t&quot; -1.4213 NS</td>
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<tr>
<td><strong>Mathematics</strong></td>
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<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>33</td>
<td>51.91</td>
<td>16.67</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>33</td>
<td>66.03</td>
<td>16.57</td>
<td>&quot;t&quot; -3.4519 S .001</td>
</tr>
</tbody>
</table>

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On the basis of the data obtained, it appears that a short-term basic-education program in a skills center of this kind may be beneficial for those trainees who enter such programs with basic-education skills at sixth grade level or above. White trainees who entered the program with a higher education level\(^1\) were able to make significant gains in numerical and verbal skills. But those with low achievement skill levels\(^2\) did not make significant improvement in verbal and numerical skills. Negroes with higher-level ability made significant gains in mathematics and reading but not in language, but, when combined white and Negro scores are used, all those trainee groups tested with the SAT showed significant gains in achievement.

**Question 2:**

To what extent was the training program of this project able to develop vocational skills in the time period as funded?

Training in vocational skills was conducted at three locations. Welding and Auto Mechanics classes were held at Portage Northern High School (six miles from Lincoln School) and Machine Trades sessions were conducted at Kalamazoo Central High School (three miles from Lincoln School). All other skills classes—Maintenance (two sections), Food Preparation and Clerical Practice—were housed at Lincoln School.

Classes at Lincoln were conducted between the hours of 8:00 A.M. and

\(^1\) Those trainees who were re-tested on the SAT had originally scored at the 5.5 grade level or above on the SAT and were categorized as those with higher-education levels.

\(^2\) All those taking the FAS had scored below the 5.5 grade level on the SAT. The group taking the FAS is categorized as those with low achievement levels.
4:30 P.M. with classes at Portage Northern High School and Kalamazoo Central High School operating from 4:00 P.M. to midnight. All training sessions were conducted for fourteen weeks with the exception of clerical classes which were extended to twenty-five weeks. Except at Portage Northern,¹ teachers were employed for the full training period.

In Machine Trades, a series of four Skills Proficiency Tests or Scales were used to measure growth in skills or gains in information. There was a significant difference in pre- and post-test scores in Machine Tool Identification and Machine Tasks but not significant difference in pre- and post-test scores in Blueprint Reading and Shop Mathematics. The data on Machine Trades Proficiency Ratings are summarized in Table 4-11.

¹At Portage, a total of six teachers were assigned to teach two skill areas—Welding and Auto Mechanics.
Table 4-11
Machine Trades Proficiency Ratings
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Test</th>
<th>N*</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Machine Tool</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>9</td>
<td>6.78</td>
<td>5.59</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>9</td>
<td>15.67</td>
<td>6.82</td>
<td>t = -3.0253 S .01</td>
</tr>
<tr>
<td><strong>Shop Mathematics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>6</td>
<td>27.17</td>
<td>11.20</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>6</td>
<td>31.00</td>
<td>11.10</td>
<td>t = .5955 NS</td>
</tr>
<tr>
<td><strong>Blueprint Reading</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>10</td>
<td>40.50</td>
<td>16.24</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>10</td>
<td>49.00</td>
<td>13.49</td>
<td>t = 1.2733 NS</td>
</tr>
<tr>
<td><strong>Machine Tasks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>10</td>
<td>1.91</td>
<td>.20</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>10</td>
<td>2.98</td>
<td>.94</td>
<td>t = 3.5308 S .005</td>
</tr>
</tbody>
</table>

*The N differs for several of the sub-tests due to poor attendance. The testing period covered approximately one week. Those who did not finish the tests could not be scored.*
As a group, the trainees in Welding made a significant improvement in scores during the fourteen-week vocational training period. Trainees enrolled in Auto Mechanics did not show a significant difference in scores after the training period. Several members of the Auto Mechanics group had poor attendance records which may account in part for the lack of growth in scores. The data for these two groups are summarized in Tables 4-12 and 4-13.

**Table 4-12**
*Welding Proficiency Ratings*
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>9</td>
<td>2.92</td>
<td>.84</td>
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</tr>
<tr>
<td>Post-test</td>
<td>9</td>
<td>3.98</td>
<td>1.13</td>
<td>&quot;t&quot;=2.2496 S .05</td>
</tr>
</tbody>
</table>

*Although three different teachers were used to teach this section, all ratings, pre- and post-tests, were made by the same instructor.*

**Table 4-13**
*Auto Mechanics Proficiency Ratings*
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>7</td>
<td>2.34</td>
<td>.93</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>7</td>
<td>3.04</td>
<td>.56</td>
<td>&quot;t&quot;=1.7455 NS</td>
</tr>
</tbody>
</table>

*As in Welding, three teachers were employed. One of the teachers did the rating.*
Several of the trainees in Maintenance sections had originally planned to elect Machine Shop or Welding but when it was announced that the sessions would be held at Portage High School and Kalamazoo Central High School between 4:00 P.M. and midnight, these trainees asked to be transferred to day sessions in Maintenance that were held at Lincoln School.

Maintenance was divided into two sections—(A) Building and (B) Institutional. Building Maintenance trainees were given instruction in elementary plumbing, wiring, carpentry and masonry as well as some instruction in what are commonly referred to as custodial skills. Institutional Maintenance instruction consisted largely of custodial training with some emphasis on health and sanitation.

Table 4-14 shows significant growth in scores for group B (Institutional) but not for Group A (Building).

Table 4-14
Maintenance Skills Proficiency Ratings
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maintenance (A)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>13</td>
<td>2.34</td>
<td>.61</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>13</td>
<td>2.45</td>
<td>.57</td>
<td>&quot;t&quot;=-.4959 NS</td>
</tr>
<tr>
<td><strong>Maintenance (B)</strong></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Pre-test</td>
<td>7</td>
<td>3.21</td>
<td>.22</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>7</td>
<td>3.79</td>
<td>.18</td>
<td>&quot;t&quot;=-5.3612 S .001</td>
</tr>
</tbody>
</table>
The Clerical scores were arranged in six sub-sets--Business Machines, Spelling, Filing, Typing, Business English and Business Arithmetic and are shown in Table 4-15 for the total group.

On the basis of the scores obtained by the trainees, the Clerical portion of the Lincoln Skills Center program was one of the more successful in developing vocational skills. For the total group, significant growth was achieved in Business Arithmetic, Typing, Spelling and Business English. Scores in Business Machines were too high in the pre-testing sessions to allow for much growth. In Filing, the trainees did not show significant improvement.

When analyzed as separate groups, Negro and white (See Tables 4-16 and 4-17), there are only minor changes from those results reported for the total group. White trainees scored significant growth in Business Arithmetic but neither group made significant gains in Spelling although when treated as a total group, the Spelling sub-test indicated growth at the .05 level.

1It should be noted that most trainees in clerical sections had already been in half-day job-sampling classes for four to eight weeks.
<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typing</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Pre-test</td>
<td>34</td>
<td>17.86</td>
<td>12.82</td>
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<tr>
<td>Post-test</td>
<td>34</td>
<td>34.49</td>
<td>15.07</td>
<td>&quot;t&quot; = -4.9715, p &lt; .001</td>
</tr>
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<td><strong>Business Machines</strong></td>
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<td>Pre-test</td>
<td>36</td>
<td>3.06</td>
<td>.81</td>
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<tr>
<td>Post-test</td>
<td>36</td>
<td>3.29</td>
<td>.72</td>
<td>&quot;t&quot; = -1.2629, NS</td>
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<tr>
<td><strong>Spelling</strong></td>
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<tr>
<td>Pre-test</td>
<td>35</td>
<td>38.40</td>
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<td>41.46</td>
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<td>Pre-test</td>
<td>35</td>
<td>32.47</td>
<td>7.59</td>
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</tr>
<tr>
<td>Post-test</td>
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<td>37.64</td>
<td>6.17</td>
<td>&quot;t&quot; = -4.3956, p &lt; .001</td>
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<td>Pre-test</td>
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<td>17.17</td>
<td>7.54</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>34</td>
<td>21.41</td>
<td>7.57</td>
<td>&quot;t&quot; = -2.0224, p &lt; .05</td>
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<td><strong>Filing</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>33</td>
<td>8.97</td>
<td>6.28</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>33</td>
<td>9.37</td>
<td>6.73</td>
<td>&quot;t&quot; = -2.568, NS</td>
</tr>
<tr>
<td>Test</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>Level of Significance</td>
</tr>
<tr>
<td>------------------</td>
<td>-----</td>
<td>------</td>
<td>------</td>
<td>-----------------------</td>
</tr>
<tr>
<td><strong>Typing</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>17</td>
<td>21.23</td>
<td>13.59</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>17</td>
<td>36.35</td>
<td>13.31</td>
<td>&quot;t&quot;-3.2758 S .005</td>
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<td><strong>Business Machines</strong></td>
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<td></td>
</tr>
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<td>.51</td>
<td>&quot;t&quot;-0.0000 NS</td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
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<td>40.53</td>
<td>6.42</td>
<td>&quot;t&quot;-1.0510 NS</td>
</tr>
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<td>17</td>
<td>42.65</td>
<td>5.27</td>
<td>&quot;t&quot;-1.0510 NS</td>
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<tr>
<td><strong>Business English</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>18</td>
<td>34.28</td>
<td>7.64</td>
<td>&quot;t&quot;-3.2125 S .005</td>
</tr>
<tr>
<td>Post-test</td>
<td>18</td>
<td>41.72</td>
<td>6.19</td>
<td>&quot;t&quot;-3.2125 S .005</td>
</tr>
<tr>
<td><strong>Business Arithmetic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>17</td>
<td>20.06</td>
<td>6.42</td>
<td>&quot;t&quot;-1.8258 S .05</td>
</tr>
<tr>
<td>Post-test</td>
<td>17</td>
<td>24.18</td>
<td>6.73</td>
<td>&quot;t&quot;-1.8258 S .05</td>
</tr>
<tr>
<td><strong>Filing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>17</td>
<td>8.35</td>
<td>2.57</td>
<td>&quot;t&quot;-0.0657 NS</td>
</tr>
<tr>
<td>Post-test</td>
<td>17</td>
<td>8.41</td>
<td>2.65</td>
<td>&quot;t&quot;-0.0657 NS</td>
</tr>
</tbody>
</table>
### Table 4-17
**Clerical Skills Proficiency Ratings**
*Lincoln Skills Center*

**Negro**

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>17</td>
<td>15.00</td>
<td>12.34</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>17</td>
<td>32.29</td>
<td>16.69</td>
<td>&quot;t&quot; = -3.5477 S .005</td>
</tr>
<tr>
<td><strong>Business Machines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>16</td>
<td>3.00</td>
<td>.52</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>16</td>
<td>3.25</td>
<td>.77</td>
<td>&quot;t&quot; = -1.0741 NS</td>
</tr>
<tr>
<td><strong>Spelling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>18</td>
<td>36.47</td>
<td>9.37</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>18</td>
<td>40.00</td>
<td>5.77</td>
<td>&quot;t&quot; = -1.3228 NS</td>
</tr>
<tr>
<td><strong>Business English</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>17</td>
<td>31.59</td>
<td>6.86</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>17</td>
<td>38.82</td>
<td>5.84</td>
<td>&quot;t&quot; = -3.3113 S .005</td>
</tr>
<tr>
<td><strong>Business Arithmetic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>17</td>
<td>14.00</td>
<td>8.01</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>17</td>
<td>16.82</td>
<td>7.54</td>
<td>&quot;t&quot; = -1.0587 NS</td>
</tr>
<tr>
<td><strong>Filing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>16</td>
<td>6.94</td>
<td>3.80</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>16</td>
<td>7.50</td>
<td>2.63</td>
<td>&quot;t&quot; = .4864 NS</td>
</tr>
</tbody>
</table>
Those trainees electing Food Preparation were tested before and after a project in which, for approximately twelve weeks, all trainees and teachers at Lincoln were served a lunch each day by the Food Preparation Classes. On the basis of data shown in Tables 4-18, 4-19 and 4-20 there is evidence of significant growth in Food Preparation skills for the total group, but significant only for Negro trainees when the data are treated separately for white and Negro sub-groups.

Table 4-18
Food Preparation Proficiency Ratings
Lincoln Skills Center

Total Group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>22</td>
<td>2.96</td>
<td>.80</td>
<td>&quot;t&quot;-1.8185 S .05</td>
</tr>
<tr>
<td>Post-test</td>
<td>22</td>
<td>3.35</td>
<td>.63</td>
<td></td>
</tr>
</tbody>
</table>

Table 4-19
Food Preparation Proficiency Ratings
Lincoln Skills Center

White

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>6</td>
<td>3.12</td>
<td>.29</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>6</td>
<td>3.33</td>
<td>.40</td>
<td>&quot;t&quot;-1.0650 NS</td>
</tr>
</tbody>
</table>
Attendance patterns were erratic for many trainees, and thus in treating group scores statistically with a small N there is the distinct possibility that even one or two scores may have distorted the results.

Insofar as the data collected are valid, the aim of developing vocational skills at the Lincoln Skills Center was successful in some areas and unsuccessful in others. Significant growth was accomplished in some areas of Clerical training and Machine Trades training as well as in Food Preparation, Welding and Janitorial training, but was not accomplished in Auto Mechanics, Building Maintenance, Blueprint Reading, Shop Mathematics and two areas in Clerical training—Filing and Business Machines.

**Question 3:**

To what extent, if any, did job-sampling alter the choice of the trainee for long-term vocational training?

During the first twelve weeks of the program, all trainees were
given an opportunity to engage in vocational or pre-vocational job-
sampling. Upon entering the program, each trainee was asked to list his first choice of a skill area in which he would hope to enter intensive vocational training for either fourteen or twenty-five weeks. Of the initial group of trainees, 123 remained in the program more than twelve weeks and enrolled in vocational-skill areas.

Table 4-21 summarizes the job choices made before and after the job-sampling phase of the program.

Because of the possible effects on trainees of the time schedule for some classes, it was difficult to determine the effects of job-sampling on trainee choices. For the most part, the Maintenance sections became a catch-all for those males who wished to be enrolled in a day, rather than a night, program.

For females, job-sampling was of doubtful value, with only a few trainees moving from one vocational class to the other. A few were counseled into Food Preparation because of their rather obvious lack of ability to benefit from study and training in the Clerical field. If all training sections had been conducted at Lincoln School, it might have been possible to give a more valid answer to this question.

---

1 Many of the female subjects had signed for Clerical skills and did not wish to spend four weeks in Food Preparation. The decision of officials at the Center was that all women enrolled would take part in job-sampling in both Clerical and Food Preparation skill areas.
Table 4-21
Vocational Choices of 115 Traineesa
Before and After Job-Sampling
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Skill Area</th>
<th>September</th>
<th>November</th>
<th>Percentage Moving to Other Skill Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Mechanics</td>
<td>9</td>
<td>4</td>
<td>56</td>
</tr>
<tr>
<td>Food Preparation</td>
<td>18</td>
<td>17</td>
<td>6</td>
</tr>
<tr>
<td>Machine Trades</td>
<td>14</td>
<td>28</td>
<td>43</td>
</tr>
<tr>
<td>Welding</td>
<td>15</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>Clerical Training</td>
<td>52</td>
<td>47</td>
<td>9</td>
</tr>
<tr>
<td>Maintenance A (Building)</td>
<td>6</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>Maintenance B (Custodial)</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

aSome trainees did not indicate a choice of vocation at time of September registration.

bThese vocational classes were conducted at Portage Northern High School and Kalamazoo Central High School from 4:00 P.M. to 12 midnight. A number of trainees changed sections because of the evening hours.

cLack of interest in Maintenance can be explained in part by the lack of status and, in general, low salaries paid for this type of work.

Source: Lincoln Skills Center Registration Forms.
Question 4:

Did those trainees who had a higher level of competence in basic education show more substantial gains in skills training?

The criteria used to differentiate between those of higher and lower-level competence in basic education were the SAT scores. Those with grade-level scores below 5.5 were removed from the original skills-training proficiency ratings and additional t-tests conducted for those remaining. Many of those who scored below the 5.5 grade level on the SAT were enrolled in Auto Mechanics, Machine Trades and Maintenance sections. The size of the N in these groups was too small for re-tabulation. Other groups—Clerical, Welding and Food Preparation—were re-tabulated and this resulted in only one change. Spelling scores which had been significant at the .05 level were no longer significant on the re-tabulation. Based on data collected for three of the seven skill-training areas, there would appear to be no difference in the degree of vocational proficiency reached by those with higher achievement in basic education as compared to those with low achievement in basic education. This information is summarized in Table 4-22.
Table 4-22
Pre- and Post-Proficiency Rating Scores for Those Trainees
Scoring at Higher Basic-Education Achievement Levels
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Test</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Welding</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>3.14</td>
<td>.49</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>3.89</td>
<td>.88</td>
<td>&quot;t&quot; = 1.9612  S .05</td>
</tr>
<tr>
<td><strong>Food Preparation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>3.27</td>
<td>.44</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>3.72</td>
<td>.48</td>
<td>&quot;t&quot; = 2.1851  S .05</td>
</tr>
<tr>
<td><strong>Business Machines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>3.29</td>
<td>.53</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>3.52</td>
<td>.57</td>
<td>&quot;t&quot; = 1.6173  NS</td>
</tr>
<tr>
<td><strong>Spelling (Clerical)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>39.30</td>
<td>8.21</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>42.07</td>
<td>5.66</td>
<td>&quot;t&quot; = 1.5200  NS</td>
</tr>
<tr>
<td><strong>Filing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>7.93</td>
<td>3.10</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>8.60</td>
<td>2.03</td>
<td>&quot;t&quot; = .9868  NS</td>
</tr>
<tr>
<td><strong>English (Business)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>33.17</td>
<td>7.33</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>41.07</td>
<td>5.58</td>
<td>&quot;t&quot; = 4.6980  S .001</td>
</tr>
<tr>
<td><strong>Arithmetic (Business)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>18.38</td>
<td>7.85</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>21.97</td>
<td>7.08</td>
<td>&quot;t&quot; = 1.8266  S .05</td>
</tr>
<tr>
<td><strong>Typing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>20.21</td>
<td>12.33</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>36.79</td>
<td>12.56</td>
<td>&quot;t&quot; = 4.9810  S .001</td>
</tr>
</tbody>
</table>
Of the total number of trainees (156) twenty-six achieved scores of ninth-grade level or above on the Stanford Achievement Test. An attempt was made to determine whether this group of trainees would show higher scores on proficiency ratings than was true for other trainees. Table 4-23 summarizes the information available for those trainees who remained in the program through graduation. Because of the small number of subjects, it is doubtful that valid generalizations can be made from these data. Five of those in the group of twenty-six who dropped out did so to take employment. It may be that jobs are more readily available for those with a higher level of competence in basic education skills which may account for the high drop-out rate in this group.

Table 4-23
Relationship of Vocational Proficiency Scores to Basic Education Level of Those Trainees Scoring Ninth Grade Level or Above on the Stanford Achievement Test* Lincoln Skills Center

<table>
<thead>
<tr>
<th>Sex</th>
<th>N</th>
<th>Number Scoring in Top 20 Percent of Skills Tests</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>3</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td>Females</td>
<td>9</td>
<td>7</td>
<td>78</td>
</tr>
</tbody>
</table>

*The total of those scoring at ninth-grade level or above was 26. Of these, 12 dropped out of the program and 2 did not complete the skills tests because of poor attendance. Of the 12 who dropped out, 8 were females with family needs which required additional income or a return to welfare payments because of lack of child-care facilities.
Question 5:

Were employers who had shown an interest in this project ready to accept graduates of the Skills Center?

Over eighty potential employers had been contacted prior to the opening of the Lincoln Skills Center. All the employers indicated an interest in employing trainees of the Center. In some situations, the employers indicated that skills would have to match jobs. The larger employers were less concerned with specific skills because of the flexibility of placement possibilities within their organizations.

In placement of graduates of the Center, counselors received excellent cooperation of employers. However, there were small employers who, after one poor experience, were reluctant to try another trainee and in a few cases employers were reluctant to hire trainees with prison records or those who were known to drink excessively. Employers were cooperative in granting job interviews to trainees referred by the Skills Center. All available\(^1\) trainees (96), regardless of previous work record or skill, were eventually placed in at least one job.

Question 6:

To what extent were trainees successful in work positions forty-five to sixty days after original placement?

One of the stated purposes of this program was to produce persons with a high degree of employability. It was assumed that those who graduated would have acquired sufficient skills to perform on a job with a reasonable amount of instruction and supervision on the part of the

\(^1\) The term *available* is used to denote a person who is actively seeking employment.
employer. Although it was assumed that many of the trainees would be placed in training-related jobs, the measure of success in the program was the extent to which trainees remained employed rather than whether the job was related or not related. As defined in this study, **successful** work position means a job equal to or better than original placement.

A follow-up of Clerical trainees at forty-five days and at ninety days for all other groups indicated that of 121 graduates, 84 were successfully employed with 66 in related and 18 in non-related jobs. Of the remaining 37, one had been drafted and the other 36 were categorized as unsuccessful or unavailable. Some of those labeled as unsuccessful had been placed in several jobs but were again unemployed. These data are summarized in Table 4-24.

Also shown in Table 4-24 is the fact that trainees classified as white, both males and females, were better able to secure and hold positions than were those who were non-whites. The percentage of non-white males and females who were unemployed was high, but not higher than expected by officials at the Skills Center. The number of trainees employed at any given time was expected to fluctuate, but at the time of this study was holding fairly constant at approximately 70 percent. This high percentage of placements and retentions may be, in part, a result of historical events taking place at the time of the study.

---

1 Only six trainees were unavailable for work because of ill health or pregnancy. One was deceased.

2 Placement of trainees was taking place shortly before and after the assassination of Martin Luther King, April, 1968.
### Table 4-24
Results of Follow-up of Trainees
45 to 90 Days After Graduation
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Sex and Race</th>
<th>Employed</th>
<th></th>
<th>Unemployed</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Related</td>
<td>Not Related</td>
<td>Total</td>
</tr>
<tr>
<td>Males Total (54)</td>
<td>45</td>
<td>20</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Males, White (30)</td>
<td>26</td>
<td>17</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Males, Negro (24)</td>
<td>19</td>
<td>13</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Females Total (46)</td>
<td>40</td>
<td></td>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td>Females, White (20)</td>
<td>20</td>
<td>19</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Females, Negro (26)</td>
<td>20</td>
<td>18</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>85</td>
<td>67</td>
<td>18</td>
<td>36</td>
</tr>
</tbody>
</table>

*Approximately 20 percent of those employed were in a second job at the time of follow-up.*

*bNumber in parenthesis denotes percent of total number of graduates in this sex and color category.*

*cOne of the graduates had been drafted and was counted as employed.*

**Source:** Lincoln Skills Center Follow-up Forms.

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Placement of trainees by trade groups is shown in Table 4-25. Custodial Maintenance and Clerical trainees ranked highest with 80 percent or more successful placements, with Machine Trades and Building Maintenance at the lower end of the scale with slightly over 50 percent placements.

Table 4-25
Employment Statistics 45 to 90 Days After Graduation
(Listed by Trade Groups)
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Trade Group</th>
<th>Number of Graduates</th>
<th>Number Employed</th>
<th>Percent Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Mechanics</td>
<td>7</td>
<td>5</td>
<td>70</td>
</tr>
<tr>
<td>Machine Shop</td>
<td>11</td>
<td>6</td>
<td>56</td>
</tr>
<tr>
<td>Welding</td>
<td>10</td>
<td>7</td>
<td>70</td>
</tr>
<tr>
<td>Maintenance A (Building)</td>
<td>17</td>
<td>10</td>
<td>59</td>
</tr>
<tr>
<td>Maintenance B (Custodial)</td>
<td>13</td>
<td>11</td>
<td>85</td>
</tr>
<tr>
<td>Food Preparation</td>
<td>17</td>
<td>9</td>
<td>53</td>
</tr>
<tr>
<td>Clerical</td>
<td>46</td>
<td>37</td>
<td>80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>121</td>
<td>85</td>
<td></td>
</tr>
</tbody>
</table>

Source: Lincoln Skills Center Follow-up Forms.
Table 4-26 shows that wage rates for females increased more than those for males. As reported earlier in this study, many females had been unable to accept employment because wages paid were lower than allowances under Aid to Dependent Children or other public assistance payments. The rate of wage increases for females (38 percent) and males (19 percent) was a significant factor in successful placements and continued employment of this group of trainees.

Table 4-26
Mean Wage Rates Before and After Training for Lincoln Skills Center Graduates

<table>
<thead>
<tr>
<th>Sex</th>
<th>Hourly Wage</th>
<th>Before</th>
<th>After</th>
<th>Net Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
<td>$1.99</td>
<td>$2.39</td>
<td>$+.38</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td>1.37</td>
<td>1.87</td>
<td>+.52</td>
</tr>
</tbody>
</table>

*Computed for those where wage rates were available.

Source: Lincoln Skills Center Follow-up Forms.

Table 4-27 shows the number of trainees unemployed by grade group and the reasons why some trainees were not available for employment at the time of follow-up for this study.
<table>
<thead>
<tr>
<th>Vocational Area</th>
<th>Number Unemployed</th>
<th>Number Unavailable</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Mechanics</td>
<td>-</td>
<td>-</td>
<td>2--Out of town (Bench Warrant posted on one)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Broken leg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Could not be located (Severe ulcers)</td>
</tr>
<tr>
<td>Machine Shop</td>
<td>4</td>
<td>4</td>
<td>1--Could not be located (Unstable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Could not be reached (In jail)</td>
</tr>
<tr>
<td>Welding</td>
<td>3</td>
<td>2</td>
<td>1--Broken hip</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Moved out of town</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Retired on Soc. Sec., unwilling to work full time</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Surgery, not able to work</td>
</tr>
<tr>
<td>Institutional</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Maintenance</td>
<td>3</td>
<td>3</td>
<td>2--Could not be located (Unstable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--In jail</td>
</tr>
<tr>
<td>Food Preparation</td>
<td>9</td>
<td>6</td>
<td>2--Unwilling, did not accept referrals</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Family of 8 children (Fatherless)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Deceased</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Hospitalized (Advised to discontinue working)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Recent maternity</td>
</tr>
<tr>
<td>Clerical</td>
<td>12</td>
<td>6</td>
<td>2--Pregnancy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3--Could not be located, may be employed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1--Attending KVCC</td>
</tr>
<tr>
<td>TOTALS</td>
<td>36</td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>

Attendance is a critical factor in continuing employment. Many of the trainees employed at the time of this study had been absent frequently while enrolled at the Skills Center. Although accurate attendance figures were not available from employers at the time of the study, there were indications that some trainees were following patterns similar to those evidenced at the Center. Only seven trainees maintained perfect attendance at the Lincoln Skills Center for the period of six months or less. As shown in Table 4-28, ninety-seven trainees (80 percent) were each absent five days or more during the training period.

Table 4-28

Numbers of Graduates Absent During Training  
Lincoln Skills Center  
September 5, 1967 to May 17, 1968

<table>
<thead>
<tr>
<th>Sex &amp; Race</th>
<th>N</th>
<th>Days Absent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Males Total</td>
<td>65</td>
<td>6</td>
</tr>
<tr>
<td>Males, White</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>Males, Negro</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>Females Total</td>
<td>56</td>
<td>1</td>
</tr>
<tr>
<td>Females, White</td>
<td>24</td>
<td>-</td>
</tr>
<tr>
<td>Females, Negro</td>
<td>32</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>121</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: Lincoln Skills Center Attendance Records.
One additional purpose of this study was to examine the relationship between the level of basic education achieved and job success. In this study, students scoring above the 5.5 grade level on the SAT were classified as higher in basic education achievement. Of the 102 graduates who were enrolled in the basic-education phase of the program (nineteen trainees did not attend during the basic education phase), there were 48 in the higher-scoring group and 54 in the lower. Of the higher group, 81 percent were placed in jobs while the lower group had 72 percent placement.

It should be noted that a majority in the lower-scoring group were enrolled in non-clerical training programs. Of the 59 non-clerical trainees, 17 had scored above grade 5.5 on the SAT and 42 had scored below. Of the higher-scoring group, 71 percent were placed in jobs against 67 percent placement for the lower-scoring group. As seen in Table 4-29, those with lower basic-education achievement skills make up a larger percentage of those not placed than those classified as higher-level.

Table 4-29
Placement of Trainees Based on Level of Basic-Education Achievement
Lincoln Skills Center
May, 1968

<table>
<thead>
<tr>
<th>Placement</th>
<th>N-102</th>
<th>Total</th>
<th>Other Than Clerical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Higher Level</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Placed</td>
<td>78</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Not Placed</td>
<td>24</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>TOTAL</td>
<td>102</td>
<td>48</td>
<td>54</td>
</tr>
</tbody>
</table>

Source: Test scores and Follow-up Forms.
Table 4-30
Terminations from Training Prior to Completion of Program a
Lincoln Skills Center

<table>
<thead>
<tr>
<th>Race &amp; Age</th>
<th>Reasons for Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor Attendance</td>
</tr>
<tr>
<td>Negro</td>
<td></td>
</tr>
<tr>
<td>Total Negro</td>
<td>7</td>
</tr>
<tr>
<td>Ages 17-21</td>
<td>5</td>
</tr>
<tr>
<td>22-44</td>
<td>2</td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>-</td>
</tr>
<tr>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Total White</td>
<td>4</td>
</tr>
<tr>
<td>Ages 17-21</td>
<td>2</td>
</tr>
<tr>
<td>22-44</td>
<td>2</td>
</tr>
<tr>
<td>45 &amp; over</td>
<td>-</td>
</tr>
</tbody>
</table>

a Does not include early terminations who completed program. These are counted as graduates.

b Many of those who took jobs did so because training allowances were insufficient to meet their financial needs.

Source: Derived from MT-101 and records of the W. E. Upjohn Institute for Employment Research.
Table 4-30 summarizes the data available at the time of this study relative to trainee terminations, voluntary and involuntary, from the Skills Center.

**Question 7:**

What are the implications of this study for future programs for vocational retraining of hard-core unemployed and underemployed?

Industry and government are today wrestling with the question of what to do with that segment of our population labeled hard-core unemployed. Institutions such as the Lincoln Skills Center may provide a portion of the solution of this problem. On the basis of the data collected for this study and subjective evaluation by the investigator, the following implications would appear to be relevant.

1. For those trainees who have a basic achievement level of less than grade six, a longer period of basic-education instruction is needed. Twelve weeks of four hour daily sessions are inadequate.

2. Closely related to point one, above, is the need for more accurate instruments for testing basic-education achievement. Planning educational programs for individuals or groups is based largely on test scores, and instruments for use specifically with that portion of the adult population which constitutes the hard-core unemployed are needed.

3. Basic-education classes should not be required for all trainees. Those with high school-level competence in basic-education skills would then be able to devote more time to vocational skills training.
4. Skills training sessions should be flexible in length. Some trainees may need more than fourteen weeks. The period of clerical training of twenty-five weeks was more realistic.

5. Trainees should not be denied the opportunity for vocational training on the basis of low scores in reading, arithmetic and language skills. The exception might be clerical or stenographic training.

6. Job-sampling, as used in the Lincoln Skills Center, should not be required for all trainees. Opportunities should be provided for those who wish to do so to sample a given vocational area before enrolling for intensive training.

7. Vocational counseling may be helpful in reducing the number of trainees who tend to move from one job to another after relatively short periods of time. A creative vocational-guidance program may be more beneficial than job-sampling techniques used in this program.

8. All basic-education and vocational-training classes should be located at one site. When possible, this location should be in close proximity to the hard-core unemployed or disadvantaged.

9. Present evaluation procedures for such centers stress employability. Care should therefore be exercised to avoid enrollment of trainees classified as alcoholics, those with psychological disorders or severe physical handicaps and those classified as mentally retarded as most employers are unwilling to employ trainees with such handicaps.

10. Attendance is a critical factor in training the hard-core unemployed. Some provision should be made for counseling services designed to improve attendance of trainees.

11. Child-care centers should be established for mothers on welfare.
Several of the most promising female trainees dropped from the program because training allowances did not cover living and child-care expenses.

Summary of Findings

In this study of a skills center for training and retraining of unemployed and underemployed adults, the basic-education program was relatively unsuccessful for the adult who entered the program with reading, writing and arithmetic skills at approximately the fifth grade level or below. For those who entered the program with basic skills above the fifth grade level, as measured by the Stanford Achievement Test, Advanced Form, there were significant gains in achievement in basic-education skills.

In vocational training, as measured by Proficiency Rating Scales and Tests, there was significant growth in vocational skills as measured by change scores in Welding, Food Preparation, Janitorial Maintenance and most areas of Clerical and Machine Tasks. Significant growth was not evident in Building Maintenance, Auto Mechanics, Blueprint Reading, Shop Mathematics, Filing, and Business Machine operation.

In those skill areas where re-tabulation was possible, those trainees with "higher" basic education did not show significantly higher scores in vocational proficiency, as measured by change scores, than those with "lower" basic education.

Employers were cooperative in accepting trainees and, at the time of this study, 70 percent of the graduates of the Lincoln Skills Center were employed at levels equal to or better than original placement. Wages of those employed were significantly higher than before training.
This chapter included a description of some socio-psychological characteristics in addition to age, sex and color characteristics of the trainees. Tables of pertinent data were presented and interpreted and implications of this study for future skills centers were enumerated.
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In reviewing programs designed to assist the hard-core unemployed and others in need of vocational training, it is apparent that the criteria of success for such programs vary. Some programs measure success in changes in the attitude of the subjects. Others are evaluated on smoothness of operation. Still others are rated on the basis of degree of community cooperation. It seems most rational, however, that success (or failure) should be measured in terms of what happened to those who have completed training programs. If the success of Manpower Development Training Act programs were based on the number of trainees retained in job positions, those selecting trainees would screen out all but high school graduates and those who have been working regularly. The Lincoln Skills Center did not have this type of population. Rather, the Lincoln trainees were heterogeneous in terms of age, color, sex, education level and work experience. Current emphasis of MDTA programs is on human resources development rather than on maintaining high percentages of placements and retentions. This study is one by which those responsible for planning future training programs could benefit.

Summary

The principal aim of this study was to determine whether the Lincoln Skills Center had been successful in helping trainees to improve significantly their basic education (arithmetic, language, reading) and vocational skills and, at the conclusion of training, find employment at
a level commensurate with educational achievement and vocational proficiency.

The other purposes of this study were to determine relationships that may exist between job-sampling opportunities and vocational choices, relationships between levels of basic education achieved and vocational proficiency and to determine job success forty-five to ninety days after completion of the program.

Other concerns were attendance patterns, employment history, rates of pay before and after training, and characteristics such as age, sex, color, and education of the trainees.

The instruments used to collect the data were an Interview Schedule, the Stanford Achievement Test, Advanced Form, the Fundamental Achievement Series: Form XB, and a Follow-up Form. Data were also collected using the Michigan Employment Security Commission's Manpower Training Form One (commonly referred to as MT 1).

The limitations of this study were indicated and a number of the terms important to the understanding of the written discussion were defined. A review of literature relevant to the subject was a part of the study.

The subjects of the study were 156 enrollees and 121 graduates of the Lincoln Skills Center.

The SAT and FAS were administered near the beginning and again at the conclusion of the twelve-week basic-education phase of the program. Classes in Auto Mechanics, Welding, Machine Trades, Food Preparation, Building Maintenance and Institutional Maintenance were conducted for fourteen weeks. Clerical Skills training sessions were operated for twenty-five weeks. Pre- and post-training Skills Proficiency Tests were
administered for each vocational area.

At the conclusion of the program, data were coded and sent to the Western Michigan University Computer Center for a computation of "t"-tests to determine significant differences. All differences of .05 or higher for one-tail tests were reported.

A follow-up form was sent to all employers of Skills Center trainees. Information received in response to the form was the basis for determining job success or failure of trainees.

Conclusions were derived in part from the data considered in this study and in part from additional information collected by the W. E. Upjohn Institute for Employment Research. The number of subjects at the Skills Center was small, but is adequate for support of these conclusions.

Conclusions

The following conclusions were based upon the findings of this study.

1. Basic-education instruction was highly profitable for those trainees whose educational performances were at or above the sixth-grade level, but was not adequate for those whose performances were below the sixth-grade level. A different approach to basic education is needed for those who score below sixth-grade level in basic-education skills.

2. The vocational-training program was profitable for a majority of the trainees. Additional time in some skill-training areas would have been profitable for a number of trainees.

3. The time and money used in job-sampling programs could have
been put to better use in additional skills training for all trainees and for additional basic-education instruction for those with low basic-education skills.

4. Trainees with a higher level of educational proficiency developed job-skill performance to a higher degree than those with lower educational proficiency.\(^1\)

5. Employers will accept and employ graduates of successful skill-training programs.

6. Non-whites made up the largest percentage of those unemployed, with non-white males apparently having the most difficulty in locating and maintaining employment.

7. The poor attendance patterns of a majority of whites and non-whites during training may indicate a lack of motivation or incentive to seek or retain employment.

8. Based on wage data reported, a training program of this kind is financially beneficial to trainees who remained in the program through graduation.

9. The program was successful in assisting trainees to find employment where previously they were not accepted due to a lack of experience or training.

10. The majority of trainees retain employment in occupations for which they were trained in the program. At the time of the follow-up study over half of the trainees held jobs related to the training program from which they had

\(^1\)As reported in this study, this conclusion can only be made for female trainees.
graduated.

11. Some of the trainees not employed at the time of the follow-up might be employable if remedial physical disabilities were corrected.

12. Training programs of this type probably cannot hope to have 90 to 100 percent successful placement. Among the hard-core unemployed, there will be some who will have difficulty adjusting to middle-class world-of-work ethics. Others, for various reasons, are easily discouraged and therefore will fail to complete work-training programs.

13. Non-whites, as a group, are more often involved with family problems which make it difficult to maintain attendance. The non-white female (with children and without a husband) among Skills Center trainees was often on welfare subsistence. Provision of child-care centers might enable such women to maintain regular attendance rather than to drop from the program.

14. The relatively large number of trainees who probably will drop out of a program because of poor attendance or apparent lack of interest should be a matter of concern to those planning or administering manpower training programs.

15. The Skills Center experience was beneficial for trainees in terms of increased confidence to find and hold better work positions. Some trainees with poor work records prior to enrollment at the Center were able to maintain jobs for periods of sixty days or more after graduation. Of those who moved to other jobs, all earned wages equal to or
better than those paid for the jobs in which originally placed.

16. In terms of the number of trainees employed at the time of follow-up, the first phase of the Lincoln Skills Center was a success.

Relationships to Other Studies

As reported in Chapter Two of this study, the Negro male frequently constitutes a disproportionate percentage of the unemployed. This study confirms the findings of Sheppard and Striner (pp. 16-17) regarding the need to upgrade the skills of the unemployed Negro. Also confirmed was the contention of Corbin and Crosby (p. 21) that a major problem in adult-literacy programs was the lack of clearly-defined objectives and goals for both teachers and trainees. Because of the small number of subjects and the lack of more definitive testing procedures, it was not possible to challenge the Greenleigh Associates (pp. 23-24) hypotheses regarding teachers of basic education, nor the findings of the Klausmeier and Goodwin study (p. 18) of teacher and student motivation.

The St. Louis study (p. 27) reporting trainees' reluctance to leave familiar neighborhoods was strongly confirmed during training, but the metropolitan area of Kalamazoo apparently was not sufficiently large to deter trainees from taking jobs throughout the area after training. The conclusions of the Palline study at South Bend (p. 27) and the Austin and Sommerfeld study at Muskegon (pp. 21-22) regarding
the need for more adequate testing programs for the disadvantaged were confirmed in this study. Also confirmed was the finding at South Bend and Muskegon of a lack of a strong relationship between attendance during training and occupational achievement. This study also confirms the findings of Jones (p. 28) in that a significant number of trainees were successfully placed after training.

One finding of this study is contradictory to one in the 1967 study reported by London (p. 33) wherein only one out of six trainees remained in his first job placement. A further contradiction can be cited to a Sheffield and Woodson (p. 30) conclusion that employers were interested in hiring Negroes only for jobs traditionally held by Negroes. Perhaps the difference in the social climate (See p. 75) was a factor here.

One final item of significance is seen in comparing the MDTA drop-out rates nation-wide with that at the Lincoln Skills Center. While the national average is approximately 33 percent, the Lincoln loss rate was less than 22 percent.

If re-funded, the program for additional trainees at Lincoln can provide a larger population from which to generalize to similar programs or population.

Recommendations

The following recommendations came not only from the findings revealed by the data of this study but are influenced by the investigator's involvement in the entire Skills Center operation, from pre-funding to follow-up. Close contact was maintained with all Skills Center personnel, the local office of the MESC, the Kalamazoo and
Portage Public School and personnel of the W. E. Upjohn Institute for Employment Research.

The recommendations are:

1. The follow-up of all Lincoln Skills Center trainees should be made six months or perhaps a year after graduation. Data collected then would be meaningful in terms of the long-range effects of training.

2. Further development of instruments to measure basic education and vocational proficiency of persons who have low-level competency in basic-education skills is needed. These instruments should be designed to compensate for lack of adequate reading and writing skills, should be "culture fair" and be relatively easy to administer in terms of instructions to the proctor. Test periods should be of short duration. Because of a relatively small market for such materials, it may be necessary to stimulate development of such instruments by means of federal grants.

3. Research is urgently needed on teaching techniques best suited to teaching various types of persons. Questions worthy of study include:
   a. What is the role of the Negro militant in educating or training the Negro?
   b. Are Negro trainees more successful when taught by Negro teachers?
   c. Should trainees be segregated by race and sex during all phases of such training programs?
   d. What is the value of the para-professional in training
centers of this kind?
The answers to these and similar questions should be of value
to teacher-training institutions and those planning similar
programs.

4. Instructional materials now available for use with the cultur­
ally disadvantaged are inadequate. Very little is available
for teaching word-recognition skills to adults with reading
levels below grade five. Materials which integrate several
subject areas such as reading, arithmetic and language, would
be helpful. The hard-core or disadvantaged person is espec­
ially difficult to motivate. High-interest and culturally-
loaded materials would help to motivate such persons.

5. In selecting teachers for training centers, care should be
exercised to employ, if available, those who have had satis­
factory experience with the type of persons who will be
enrolling for training. Inexperienced teachers will need
careful and prolonged orientation to the world of the disad­
vantaged. In selecting teachers, major emphasis should be
placed on the process of teaching rather than background in
subject content. The color of the teacher's skin should not
be the deciding factor in whether or not he is employed.

6. The duration of any manpower training program should be influ­
enced by the characteristics and needs of the trainees as
well as of the prospective employers. Training for jobs
at higher skill levels is needed, particularly for the non­
whites. Society has been eliminating low-level literacy
jobs but not those who held the jobs. The non-white person
frequently slips to a lower level job after job placement or drops from work entirely because of a lack of self-regard. Training for higher-skill jobs (regardless of the length of time needed) would be helpful in restoring a sense of personal worth to all trainees.

7. Every useful medium should be used to notify potential trainees of the availability of training programs. Door-to-door campaigns by those who are acquainted with the neighborhood should be conducted in target areas. The State employment office should emphasize the availability of such training programs to all who would appear to be eligible by virtue of their poverty status and lack of job skills. Other means which should be utilized would include all social agencies and schools as well as publicity by means of television and other mass media.

8. Attempts should be made to alleviate any pressure for early termination unless such a termination is considered by responsible officials to be in the best interest of the trainee. Adequate training allowances could relieve pressure on the trainee to drop out of training in order to take a fairly high-paying but futureless job.

9. Vocational counseling should be a part of any Skills Center operation. Personal counseling is also necessary, but unless the trainee is fully aware of the vocational demands of the occupation of his choice there may be difficulty after job placement. Trainees should have opportunities to visit places of employment where the vocational skills under study are
being practiced. Personnel directors or their staff should be
invited to make regular visits to the Skills Center.

10. A national clearing house for manpower research and publications
would be helpful. At the present time those who are respon-
sible for development of manpower programs do not have infor-
mation readily available on the research-identified strengths
and weaknesses of similar programs. In addition to such a
national center, each large community should consider the
establishment of an Education Coordinating Center to assist
employers and others in the establishment of training centers
and the placement of trainees.

11. On-the-Job-Training Programs should be coupled with Skills
Centers in order to insure availability of related basic-
education instruction for those who lack such skills.

12. Provision for adequate health services is essential to any
programs for the disadvantaged. Some trainees at Lincoln
completed the entire program before it was determined that
they were not employable because of health deficiencies.
The federal government does not allow the use of Manpower
funds for health examinations or corrective surgery.
Establishment of voluntary or community health services
in cooperation with training programs could result in
more efficient use of training funds.

13. Instruction at training centers might be improved by:
a. Keeping the ratio of trainees to teacher as low as
possible. Basic-education instruction with groups
of fifteen to twenty trainees is a waste of money and
b. Utilization of self-instructional devices and creative
teaching techniques, particularly in basic education.
This may be costly but not as costly as wasting the time
of trainees and teachers through failure to provide such
opportunities and materials.
c. Keeping the trainee apprised of his progress at every step
of the training program.
d. Having the basic-education and vocational-training pro­
grams carefully planned for teachers and monitors. The
need for flexibility is no excuse for lack of planning.

14. Trade union participation in training programs should be
encouraged. By means of union involvement, it may be possible
to place apprentices in more of the highly-skilled trades.

15. Related to recommendation fourteen (above) is the need for
government subsidy of trainees when placed in low-paying
apprentice programs. A man or woman who is the chief support
of a large family cannot afford to take less than welfare­
level income in order to hold a job.

16. A major consideration in development or continuation of a
center such as that at Lincoln School is the need for ade­
quate facilities. Classrooms, group and individual counseling
spaces, along with shops, should be easily accessible to
trainees. The Lincoln Skills Center should be housed in a
separate building located in what is commonly called the
"target area." Such a facility could be built or adapted to
satisfy the needs of the trainees and the program. The Skills
Center as housed in the Lincoln Elementary School does not have the space or flexibility necessary for such a program.

17. Exit or follow-up interviews should be conducted with as many drop-outs as can be contacted. It may be necessary to knock on some doors to make the contacts. Determination should be made as to why the person dropped and what changes in program might reduce the drop-out rate.

18. As a part of planning a training center, provision should be made for an evaluation team. This team would be responsible for assisting skills center personnel in determining what programs and procedures would be of most benefit to trainees. This team should be composed of representatives from a public school (instruction), a college or university (research), a person from business or industry (vocational), and at least three trainees who could speak for those enrolled in the program. Ideally, changes could then be made in existing programs when and if needed.

19. The local office of the Michigan Employment Security Commission should have a counselor assigned to the Skills Center to provide regular vocational counseling, help those who have training-allowance problems and to assist with placement services as they are needed. The counselor should be chosen for his patience and ability to work with the disadvantaged person.

20. A training facility such as the Lincoln Skills Center should be continuous in operation. By allowing programs to terminate, most of the experienced teaching and counseling staff members are lost to other employers. Attempts should be made to enlist
the financial support of local industrial, business and civic groups in order to make a Skills Center a continuing operation, regardless of the mood of the Congress or the funds which are made available by federal agencies.
BIBLIOGRAPHY

Books


Periodicals


"Who Are the Unemployables?" *Business Week*, Number 1745, (February 1963), 68-70.

Bulletins, Manuals and Reports


Public Documents


Unpublished Material


Other Sources

APPENDIX A

Employee Rating Form
for Follow-up on Lincoln Skills Center Graduates
Employee Rating Form
For Follow-up on Lincoln Skills Center Graduates

Date _____________________________ Interviewer ________________________

Trainee's Name ______________________________________________________

Employer __________________________________________________________

Employer's Address __________________________________________________

Information supplied by __________________________ Title _________________

1. Is this person still working for you? Yes ________ No ________

   Name of current employer: __________________________________________

2. Do you know where he/she is now employed? Yes ________ No ________

   Name of current employer: __________________________________________

3. For what reason did this person leave your firm? ______________________

4. As an employee of your firm, what was this person's--
   a. Dates of job: From ____________________
      Approx. Day-Month-Year
      to ____________________
      Approx. Day-Month-Year
   b. Beginning hourly wage: ____________
      Present or highest wage: ____________
   c. Beginning job title: __________________
   d. Present or last job title: __________________
      Duties: _________________________________
   e. (For Interviewer: Was the job training-related?)
      Yes ________ No ________

5. What are, or were, the employee's strengths?
   a. In work habits: _________________________________
   b. In skills: _____________________________________
6. What are, or were, the employee's weaknesses
   a. In work habits: ____________________________
   b. In skills: ____________________________

7. What degree of skill do you feel the trainee has?
   ____________________________
   ____________________________

Would you have hired him without skills training?
Yes _______ No _______ (Why? ____________________________)

8. Do you have suggestions for improving the training of people under this type of program?
   ____________________________
APPENDIX B

Job-History Questionnaire
Questionnaire *
Lincoln Skills Center
Kalamazoo, Michigan

Name ___________________________________________ Date __________________
City of Residence __________________________________________________________

1. How long have you lived at that location? _________________________________

2. When did you first come to Kalamazoo? _________________________________

3. USE THIS AS LAST QUESTION IN INTERVIEW, IF APPROPRIATE.
   Do you think most people who are successful got that way by luck, by hard work, or by knowing people who could help them?

4. Were you employed at the time the Skills Center opened or was offered to you?
   (IF "YES") Full-time or part-time?
   Full-time: Part-time (SKIP TO Q. 6a) No, not employed (SKIP TO Q. 8a); (IF RESPONDENT EMPLOYED FULL-TIME, ASK QUESTIONS 5a to 5d)
   5a. When did you start on the job you have now? __________________________
   5b. What is your rate of pay? _________________________________
   5c. What kind of work do you do on your job? ____________________________
   5d. What is the name of the Company or business, and what type of business was it?

(SKIP TO Q. 7a)

(IF RESPONDENT WAS WORKING PART-TIME, ASK QUESTIONS 6a to 6h)

6a. When did you start on the job you had? _________________________

6b. What was your rate of pay? _________________________

6c. What kind of work did you do on your job?

6d. What is the name of the Company or business and what type of business was it?

6e. What was the last full-time job you had? What did you do on that job?

6f. When did you start that job and when did it end?

6g. What was your rate of pay at the time the job ended? _________

6h. What was the name of the Company or business, and what type of business was it?

(IF RESPONDENT IS NOW UNEMPLOYED, ASK QUESTIONS 7a to 7f)

7a. When did you start the last job you had? _________________________

7b. What was your rate of pay at the time the job ended? _________

7c. Was that job full-time or part-time? _________________________

7d. What did you do on the last job you had? _________________________

7e. What was the name of the Company or business and what type of business was it?
7f. Why did you leave the Company or business?

NOW I'D LIKE YOU TO TELL ME ABOUT ALL THE JOBS YOU'VE HAD DURING THE PAST TWO YEARS.

(FOR EACH JOB, ASK QUESTIONS 8a to 8f)

8a. When did you start that job? ________________________________

When did it end? __________________________________________

8b. What was your rate of pay at the time the job ended? _________

8c. Was that job full-time or part-time? ________________________

8d. What did you do on that job?

8e. What was the name of the Company, and what type of business was it?

8f. Why did you leave the Company or job?

(Use remainder of sheet if more than one job)
9. Why do you think you have not been able to find a job?

10. In the past two years, have you ever held more than one job at
    the same time — you know, like an extra job in the evening or
    on weekends? Yes ____ No ____
    (If "No", SKIP TO Q. 12)

11. (IF "YES") How many hours per week? _____________________________

12. Since the beginning of this year — since January 1 — how many
    weeks were you out of work and looking for a job?

13. Was that all at one time or was it at different times?

14. Compare your last regular full-time job with the one held previously.
    Which one, would you say, was the best, and why?

15. Have there been any times in the past year when you heard about a
    job you thought you could do, but for one reason or another, you
    didn't apply for it?

16. (IF "YES") Why didn't you apply for this job?

17. In the past year, have you ever turned down any jobs that were
    actually offered to you?

18. (IF "YES") Why did you turn them down?

19. (ASK ALL RESPONDENTS) When you've been looking for a new job, do
    you have some hourly wage or weekly salary that you won't go below —
    that is, do you have in mind some minimum wage or salary?
20. What kinds of jobs have you been looking for since you've been out of work? (RECORD NO MORE THAN THREE JOBS)

21. How do you feel about your chances of getting another job now that you have been out of work for a while?

22. How do you usually hear or learn about companies that are looking for people to hire? (DO NOT READ ITEMS. CIRCLE ALL THOSE CITED BY R.)
1. State Employment Service
2. Private employment agency
3. Newspaper ads
4. Union
5. Friends or relatives
6. Other worker in same company
7. Religious groups, veterans, etc. (Specify)
8. Other (Specify)

23. When you did start looking, did you check at the State Employment Service office to look for another job? YES (SKIP TO Q. 25) NO

24. (IF "NO") Why not?

25. (IF "YES") How long ago did you last check with the Employment Service?
26. Did the Employment Service:
   1. Refer you to an employer for a job?
   2. Give you any kind of test?
   3. Give you any kind of counseling? _____________
   If "YES" ask Question 27.
   4. Help prepare you for a job interview?

27. What did the Employment Service tell you when you (were counseled)
   (when helping you to be interviewed by an employer) for a job?

28. After you lost your last regular job, did you apply directly at
   the hiring gate or personnel office of companies to look for a job?

29. About how many companies have you checked at, altogether?

30. How long ago was the last time you checked? ___________________

31. Did you go to most of these companies because you heard beforehand
   they were hiring people -- or did you go just to find out
   whether or not they were hiring?
   1. Heard beforehand
   2. To find out if hiring
   3. Both apply
   4. Can't answer

32. Are there any companies or employers in the area that you just
   don't bother to check when looking for a job?

33. Have you checked through the newspaper ads? Yes _____ No _____

34. When looking for a job, have you ever asked people in other
   organizations such as religious groups, welfare agencies,
fraternal lodges, veterans groups, political organization, or nationality clubs — to help you find a job? Yes _____ No ____

35. Are there any other ways you have used, or other places you went to to ask about or to find employment? Yes _____ No ____

35a. (IF "YES") What are they?

36. Do you think this re-training program will improve your chances of getting a better job? (RECORD ALL REMARKS) PROBE EXPECTATIONS

37. How far, or where, would you be willing to move for a better job?
   1. Miles
   2. Places
   3. Still not willing to move

38. What High School did you attend? ________________________________

INTERVIEWER - RECORD:

39. RACE OF RESPONDENT
40. MALE OR FEMALE

41. DOES R SPEAK ENGLISH: FLUENTLY? SLIGHT DIFFICULTY IN UNDERSTANDING OR ANSWERING? CONSIDERABLE DIFFICULTY?

42. RECORD IMPRESSIONS OF INTERVIEW AND OF RESPONDENT,
APPENDIX C

Skills Proficiency Rating Forms

Auto Mechanics
Maintenance
Food Preparation
Welding
Clerical
Machine Trades
Proficiency Rating Form
Automobile Service Mechanic
Lincoln Skills Center

Objective
To train men capable of performing the tasks required of large service station employees; mechanics, new car preparation, tire service, muffler replacement, brake service, and tune-up operations.

SKILLS TESTS
In the following skills tests, the rater will circle the X on the line designating the proficiency of the trainee at the time of rating. The terms used are defined as follows:

Poor - The trainee shows either an absence of the skill or operates at a level which indicates insufficient ability to carry on the skill task.

Below Average - The trainee has a minimum skill necessary to perform but not at a level whereby the trainee could be recommended for job placement.

Average - The skill level is that of a worker who operates with close supervision and performs the task routinely without evidence of creativity.

Above Average - The trainee is performing at a level commensurate with those working in the skill area. Works with a minimum of supervision and is capable of some individual responsibility.

Superior - A trainee who appears to be capable of not only operating at a high skill level, but shows imagination and resourcefulness in creative situations.
Automobile Service Mechanic

1. Task - Lubrication

Supplied with an automobile, proper lubrication equipment, lubrication manual, and having already been instructed in the use of hoist, student is expected to properly and completely lubricate automobile with exception of changing oil and oil filter.

2. Task - Brakes

Given use of automobile and proper tools, student should adjust brakes for proper braking, pedal movement, and brake shoe clearance.

3. Task - Carburetor

Student being supplied with automobile, vacuum gauge, tach-dwell gauge, and proper tools, he will properly adjust low speed jet, idle R.P.M., automatic choke and fast idle.

4. Task - Ignition

Given automobile, spark plug cleaner, dwell gauge, timing light, and access to proper tools, student will, in proper sequence, adjust timing, clean plugs, and adjust gap, check and adjust points.
5. **Task - Coolant System**

Supplied with automobile, hydrometer, temperature gauge, radiator cap pressure gauge and proper tools, student will properly check hoses, thermostat operating temperature, radiator cap pressure and freezing point of coolant.

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<tr>
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<th>Above Average</th>
<th>Superior</th>
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6. **Task - Engine**

Given disassembled engine with tagged-numbered parts and parts sheet, trainee will identify numbered part with proper name on parts sheet.

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<tr>
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<th>Above Average</th>
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7. **Task - Tools**

Given various numbered tools and a tool list, trainee will identify tools with proper part name on parts sheet.

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**Attitude of Trainee**

Circle the word below which best describes the attitude of the trainee as evidenced in your class or training situation.

POOR  | FAIR  | GOOD  | VERY GOOD
Objective

To train men capable of routine maintenance and custodial services, including minor electrical repair, basic carpentry and plumbing, along with painting, cleaning, paper hanging, furnace maintenance and grounds care.

SKILLS TESTS

In the following skills tests, the rater will circle the X on the line designating the proficiency of the trainee at the time of rating. The terms used are defined as follows:

Poor - The trainee shows either an absence of the skill or operates at a level which indicates insufficient ability to carry on the skill task.

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Superior - A trainee who appears to be capable of not only operating at a high skill level, but shows imagination and resourcefulness in creative situations.
Maintenance Skills

Name ____________________________ Date ________________________
Instructor ________________________

1. Task - Basic Carpentry

The trainee shows knowledge of layout techniques and devices, knows what tools to use for a given task, has a general idea of finishing or painting, etc., and uses both hand and power tools.

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2. Task - Electricity

The trainee is able to make simple splices, install one and two way switches, has general information on safety measures while working with electricity and has basic knowledge of local codes.

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3. Task - Basic Plumbing

The trainee has ability to make common fitting, repair leaky faucets, gaskets, is able to thread pipe, make simple toilet adjustments, clean traps and evidences sure knowledge of local codes.

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4. Task - Floor Care and Cleaning

The trainee is able to strip and refinish floors of all kinds, knows types of materials and solvents which can and cannot be used on specific floors, shows ability to give routine care of floors and is able to operate power and hand equipment used.

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5. **Task - Use of Plaster and Concrete**

The trainee is able to make simple plaster and concrete repairs on floors and walls, mixes ingredients properly and is able to prepare the surface for use.

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6. **Task - Maintenance of Cafeteria or Food Equipment**

The trainee shows an understanding of health standards in cleaning equipment, knows how to make minor adjustments where necessary and gives evidence of knowledge of safe practices.

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7. **Task - Maintenance of Grounds**

The trainee gives evidence of an understanding of the proper care of lawns, trees, shrubs, flowers, routine ground care of athletic fields or playgrounds and is proficient in the use of winter care equipment.

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8. **Task - Health and Sanitation Maintenance**

The trainee shows a knowledge of health standards in cleaning rest rooms, shower rooms, and is knowledgeable in the areas of rodent and pest control.

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Objective

To train food service workers in the basic manipulative skills necessary to prepare or assist in the preparation and serving of food under moderate supervision. Skills preparation should enable the trainee to serve as workers in restaurants, hospitals, nursing homes, schools and other food service occupations.

SKILLS TESTS

In the following skills tests, the rater will circle the X on the line designating the proficiency of the trainee at the time of rating. The terms used are defined as follows:

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Superior - A trainee who appears to be capable of not only operating at a high skill level, but shows imagination and resourcefulness in creative situations.
Food Preparation

Name ___________________________ Date ___________________________

Instructor ____________________

1. *Task - Use of a given recipe

The trainee shows skill in the proper reading of recipes, uses accurate measurements, mixes ingredients at proper temperatures and uses skill in utilization of time during each phase of the recipe.

Poor Below Average Above Superior
Average

2. *Task - Care and use of equipment

The trainee knows the names and proper uses of each piece of equipment and keeps tools sharp. Trainee is aware of and uses proper habits of cleanliness.

Poor Below Average Above Superior
Average

3. Task - Preparation of a salad plate

The trainee is asked to select the proper items from those furnished to set up the plate on the basis of overall appeal and color.

Poor Below Average Above Superior
Average

* Tasks 1 and 2 are observed in other assigned procedures.
4. **Task - Preparation of a hot one-dish meal**

To prepare the meats, seasonings and vegetables in the designated proportions and use proper timing procedures where necessary.

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<th>Attitude of Trainee</th>
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Circle the word which best describes the attitude of the trainee as evidenced in your class or training situation.

POOR  FAIR  GOOD  VERY GOOD
Proficiency Rating Form
Welding
Lincoln Skills Center

Objective

To train welders in the basic fundamentals and manipulative skills of oxyacetylene, arc, tig and mig welding.

SKILLS TESTS

In the following skills tests, the rater will circle the X on the line designating the proficiency of the trainee at the time of rating. The terms used are defined as follows:

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Superior - A trainee who appears to be capable of not only operating at a high skill level, but shows imagination and resourcefulness in creative situations.
Welding

Name ______________________________ Date ________________________

Instructor _________________________

1. **Task - Heat Pattern with Acetylene**

   Given several pieces of light gage sheet-metal and the proper equipment, the trainee will run several beads without rod across the metal.

   The trainee is asked to submit his best looking heat pattern for evaluation.

   X X X X X

   Poor Average Above Superior

   Below Average

2. **Task - Electric Arc Butt Weld**

   Given several pieces of 1/2" mild steel plate and the proper arc welding equipment, the trainee will perform a butt weld in the downhand position with an electric arc machine.

   The trainee will turn in his best looking weld for evaluation.

   X X X X

   Poor Average Above Superior

   Below Average

3. **Task - Setting up a Portable Acetylene Rig**

   Given the necessary equipment, the trainee will set up the acetylene rig and light and adjust for a neutral flame. The instructor will check set-up and shut-down procedures.

   X X X X

   Poor Average Above Superior

   Below Average

4. **Task - Acetylene Overhead Fillet Weld**

   Given several pieces of light gage sheet metal and the proper equipment, the trainee will perform an overhead fillet weld acetylene and rod.

   X X X X

   Poor Average Above Superior

   Below Average
5. **Task - Overhead Lap W/Electric Arc**

Given several pieces of 1/8" mild steel plate and the proper and necessary equipment, the trainee will run several overhead lap welds with the electric arc machine.

The trainee will turn in his best looking weld for instructor's evaluation.

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- Poor
- Below Average
- Average
- Above Average
- Superior

6. **Task - Downhead Butt W/Rod and Acetylene**

Given several pieces of light gage sheet metal and the proper equipment, the trainee will perform a butt weld in the downhead position with rod and acetylene.

The trainee will turn in his best looking weld for instructor's evaluation.

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- Poor
- Below Average
- Average
- Above Average
- Superior

**Attitude of Trainee**

Circle the word below which best describes the attitude of the trainee as evidenced in your class or training situation.

- POOR
- FAIR
- GOOD
- VERY GOOD
Objective

To train recording and clerical personnel to handle general typing required on the job. Such typing activity involves business letters, tabulating, typing data in special spaces on a page, filling in forms, typing information on cards, typing from rough copies. In addition, practice in the routine operation of office machines, such as 10-key adding machine calculators, stenorette, full-key adding machines, comptometers and duplicating machines of various types. Also, instruction in business English, business arithmetic, stenograph or shorthand (depending on ability), indexing, filing, recording, telephoning, receiving callers, attending the mail, and miscellaneous clerical duties. Formal instruction and acceptable office behavior and what is expected of a beginning worker.

Time Segments for Each Skills Test

Note: If only one or two are not finished, call time prior to the time period as set in each case.

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<tr>
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<th>Time</th>
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<tr>
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<tr>
<td>Filing</td>
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<td>Calculator</td>
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<td>Business English</td>
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<tr>
<td>Typing</td>
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Total: 58 minutes
### Spelling

Lincoln Skills Center

(5 Minutes)

PLACE A CHECK IN THE SPACE MARKED RIGHT IF THE WORD IS SPELLED CORRECTLY AND IN THE SPACE MARKED WRONG IF NOT SPELLED CORRECTLY.

YOU WILL BE TOLD WHEN TO START.

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<td>39.</td>
<td>sueing</td>
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<td>40.</td>
<td>recommendations</td>
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<td>41.</td>
<td>occurrence</td>
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<td>42.</td>
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<td>43.</td>
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<td>44.</td>
<td>representative</td>
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<td>45.</td>
<td>campaign</td>
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<td>RIGHT</td>
<td>WRONG</td>
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<td>46.</td>
<td>cercular</td>
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<td>47.</td>
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<td>48.</td>
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<td>49.</td>
<td>ommitted</td>
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<tr>
<td>50.</td>
<td>describe</td>
<td></td>
</tr>
</tbody>
</table>
YOU WILL BE TOLD WHEN TO START AND WHEN TO STOP. WAIT FOR INSTRUCTION.

Add the columns below:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th></th>
<th>(2)</th>
<th></th>
<th>(3)</th>
<th></th>
<th>(4)</th>
<th></th>
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<td>16</td>
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<td>96</td>
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<td>15</td>
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<td>68</td>
<td></td>
<td>24</td>
<td></td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

Make the following subtractions:

<table>
<thead>
<tr>
<th></th>
<th>(5) 7,259</th>
<th>(6) 19,864</th>
<th>(7) $18,965.25</th>
<th>(8) $47,863.12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>367</td>
<td>5,976</td>
<td>9,876.37</td>
<td>7,974.15</td>
</tr>
</tbody>
</table>

Solve the following multiplications:

9. 2.63 x 403 =
10. 12.7 x 3.22 =
11. 24.6 x 40.8 =
12. 70.4 x 1.65 =

Round each of the following to the nearest cent:

13. $8.349 __________
14. $7.564 __________
15. $9.75 __________
16. $3.54 __________

Do the following division problems:

17. 762 ÷ 10 =
18. 1,235 ÷ 1,000 =
19. 3.8 ÷ 1,000 =
20. 3.8 ÷ 10 =
Find the cost of the fractional quantities in the following problems:

21. Mrs. Grace Barber purchases the following items at the Greylock Market. Find the cost of each item and the total cost of the purchase, writing the results in the spaces provided:

a. 3/4 lb. butter @ $.79 = $ ______________

b. 7/8 lb. steak @ $.93 = $ ______________

c. 5/8 lb. pork chops @ $.75 = $ ______________

d. 3/4 lb. bacon @ $.69 = $ ______________

22. For an electrical repair job, Lee Martin, an electrician, purchases the following materials at the prices indicated. Find the cost of each item and the total cost of the purchase, writing the results in the spaces provided.

a. 16 1/2 ft. service cable @ $1.43 = $ ______________

b. 22 3/4 ft. trench wire @ $.64 = $ ______________

c. 13 connectors @ 21 1/2¢ = $ ______________

d. 15 switch boxes @ 21 1/2¢ = $ ______________

In the columns provided, express the following numbers as both common and decimal fractions:

<table>
<thead>
<tr>
<th>Common Fraction</th>
<th>Decimal Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. Seven tenths:</td>
<td></td>
</tr>
<tr>
<td>24. Twenty-five hundredths</td>
<td></td>
</tr>
<tr>
<td>25. Three tenths</td>
<td></td>
</tr>
<tr>
<td>26. Twelve hundredths</td>
<td></td>
</tr>
</tbody>
</table>
### Filing
Lincoln Skills Center

(5 Minutes)

<table>
<thead>
<tr>
<th>Name</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WRITE NAMES IN CORRECT FILING ALPHABETICAL ORDER.</strong></td>
<td></td>
</tr>
<tr>
<td>1. Robert Vander Veen</td>
<td></td>
</tr>
<tr>
<td>2. Alli Ahmit</td>
<td></td>
</tr>
<tr>
<td>3. Girard St. Pierre</td>
<td></td>
</tr>
<tr>
<td>4. Dr. Michael D. O'Dell</td>
<td></td>
</tr>
<tr>
<td>5. Prince Maynard</td>
<td></td>
</tr>
<tr>
<td>7. Miss Patricia Buxton-Smith</td>
<td></td>
</tr>
<tr>
<td>9. Girard St. Pierre</td>
<td></td>
</tr>
<tr>
<td>10. Mrs. Clifford J. Moore (Ann Jenks)</td>
<td></td>
</tr>
</tbody>
</table>
Business Machines
Lincoln Skills Center

(18 Minutes)

Name _____________________________ Instructor _____________________________

TASK: Business Machine Skills *

Given a list of problems involving addition, subtraction, multiplication and division, the trainee is asked to work out solutions using either a ten key or full keyboard adding machine or calculator. The trainee's work is rated on speed and accuracy.

X X X X X
Poor Below Average Above Superior
Average

* Because of the variety of machines available at the Center, a proficiency rating was used in place of the number right as a score. Small groups of students were tested at a given time with the instructor observing technique which, along with the number of problems worked correctly, were used as a basis for rating.
Business Machines
Lincoln Skills Center
(18 Minutes)

Name ___________________________________ Instructor __________________

USE A CALCULATOR TO WORK THE FOLLOWING PROBLEMS. YOU WILL BE TOLD WHEN TO START AND WHEN TO STOP.

Addition:

(1) 4.45  
7.78
1.56
3.21
5.57
4.03
6.65
7.88
6.02
4.88
(2) 5.05  
4.78
6.33
1.98
7.62
4.08
6.11
3.20
1.09
5.28
(3) 4.66  
.79
3.05
4.70
6.21
3.97
8.48
9.12
4.05
7.88
(4) 1.55  
.74
3.03
6.88
5.79
2.50
4.98
3.27
6.25
3.76

(5) 8.88
6.74
3.50
9.62
1.25
4.59
.62
3.07
5.21
7.08
Subtraction:

(1) 38.46  
-25.86
-21.63
(2) 39.05
(3) 125.64
-96.21
(4) 65.88
-59.04
(5) 75.84
-63.96
(6) 112.88
-94.70
-198.26
(7) 284.60
-184.69
(8) 266.54
-184.69

Multiplication:

(1) 468 x .13 =  
(2) .73 x 515 =  
(3) 1516 x .36 =
(4) 431 x .21 =  
(5) 643 x .08 =  
(6) .76 x 345 =
(7) 743 x 1.26 =  
(8) .55 x 451 =  
(9) 683 x .75 =

Division:

(1) 630 \div 14 =  
(2) 37.7 \div 29 =  
(3) 64.58 \div 25.1 =
(4) 96 \div 404 =  
(5) 33 \div 165 =  
(6) 79.56 \div .127 =
(7) 3056 \div 1.63 =  
(8) 42 \div 3.5 =

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YOU WILL BE TOLD WHEN TO START AND WHEN TO STOP.

CAPITALIZATION: In the space provided, write the word or words that should be capitalized in each sentence.

1. we plan to conduct an advertising campaign throughout the south and the west this fall.

2. John R. Jones, president of our company, will speak at the Rotary club meeting today.

3. she said, "of the vacation sports, I prefer glacier national park."

4. Miss Phillips, your promotion will become effective on the 15th of June.

PLURALS: Write the plural form or forms of each noun in the space provided.

5. attorney

6. company

7. valley

8. soprano

PRONOUNS: Choose the correct pronoun (in parenthesis) and write it in the space provided.

9. Our department planned (its, their) budget for next year.

10. Neither he nor (I, me) think that your plan will work.

11. Would you please remind Miss Thomas and (her, she).
12. To (whom, who) should the letter have been addressed? __________________________

13. Neither (them, they) nor John felt the decision was wise. __________________________

VERBS: Choose the correct verb (in parenthesis) and write it in the space provided.

14. We promise that we (shall, will) arrive early tomorrow morning. __________________________

15. The car skidded on the ice and now (lays, lies) in the ditch. __________________________

16. There (are, is) a number of factors that we must consider. __________________________

17. (Almost, Most) anybody would be willing to go with us. __________________________

18. This model is different (from, than) the earlier one. __________________________

PUNCTUATION: If the punctuation of each of these sentences is correct, write correct in the space provided. If the sentence is incorrectly punctuated, indicate the correct punctuation by writing in the answer column the word and the appropriate punctuation mark that should precede or follow it.

19. How many times have you been in this predicament Paul __________________________

20. The discount however applies only to payments mailed within the discount period. __________________________

21. First congratulations to you and Jim. __________________________

22. If possible take the ten o'clock train. __________________________

23. Please sign date and return four copies. __________________________
NUMBERS: Find all incorrectly written numbers in the following sentences. Then, in the space provided, write each of the numbers correctly.

24. I shall need 20 five-cent stamps. ________________
25. He owns 1/3 of the property. ________________
26. You ordered style no. 20. ________________
27. $25 is the amount of the claim. ________________

VOCABULARY: In the space provided, indicate which of the words in parenthesis correctly completes each of the following statements.

28. That is the (principal, principle) reason for the delay. ________________
29. Please address the (envelop, envelope) for me. ________________
30. We were (eager, anxious) to hear the score. ________________
31. Didn't you (receive, recieve) my message? ________________
32. The (proofs, prooves) were carefully checked. ________________
33. Is he one of those "unsung (heros, heroes)"? ________________
34. It doesn't seem to be a (practicable, practical) solution. ________________
35. A number of inquiries (was, were) received. ________________
Continuity of typing is important in building speed. The poor typist types by starts and stops instead of making the effort to keep the carriage moving. You may recall the old story of the race between the hare and the tortoise. With the sound of the gun the hare was off like a shot; the race for him was half won when he stopped for a rest. The tortoise didn't stop to rest; he just kept plodding along. He finally caught the hare napping and, as everyone knows, went on to win in a walk.

That is the way it is in typewriting, too. The typist who types without pauses or jerks, the typist who keeps the carriage moving, the typist who types without waste motions, usually will be the typist who will end up with the best speed. In order to type with continuity, learn to turn loose of a word as it is typed, and then be ready for the next word. This means, also, that you space quickly between words. Make your goal that of typing with continuity. You will be surprised and pleased with the results.

Proficiency Rating Form  
Machine Operator, Production  
Lincoln Skills Center

Objective

To train machine tool operators in the basic manipulative skills of layout, benchwork, precision measurement, heat treatment and the set-up and operation of engine lathes, turret lathe, tracer lathe, drill press, vertical and horizontal milling machine, surface and cylindrical grinder, and boring machine. This will be supplemented with metallurgy, tooling theory, and shop safety.

SKILLS TESTS

In the following skills tests, the rater will circle the X on the line designating the proficiency of the trainee at the time of rating. The terms used are defined as follows:

Poor - The trainee shows either an absence of the skill or operates at a level which indicates insufficient ability to carry on the skill task.

Below Average - The trainee has a minimum skill necessary to perform but not at a level whereby the trainee could be recommended for job placement.

Average - The skill level is that of a worker who operates with close supervision and performs the task routinely without evidence of creativity.

Above Average - The trainee is performing at a level commensurate with those working in the skill area. Works with a minimum of supervision and is capable of some individual responsibility.

Superior - A trainee who appears to be capable of not only operating at a high skill level, but shows imagination and resourcefulness in creative situations.
Machine Operator, Production

Name ____________________________ Date ____________________________

Instructor _________________________

1. Task - Lathe operation (external cutting)

Given rough cut stock, trainee will perform the operations needed to produce a part meeting the specifications for job Number One. The instructor may bypass certain operations if high level proficiency is apparent.

X X X X X

<table>
<thead>
<tr>
<th>Poor</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
</tr>
</thead>
</table>

2. Task - Lathe operation (boring)

Given rough cut stock, trainee will align stock in a four-jaw independent lathe chuck and operate lathe to produce job Number Two.

X X X X X

<table>
<thead>
<tr>
<th>Poor</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
</tr>
</thead>
</table>


Given rough cut stock, trainee will perform the operations needed to produce a part meeting the specifications of job Number Three.

X X X X X

<table>
<thead>
<tr>
<th>Poor</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
</tr>
</thead>
</table>

4. Task - Measurement

Given a steel rule, depth gauge, spring calipers, combination set, micrometer, vernier gauges, fixed gauges and plug gauges, trainee will measure various dimensions of objects as presented by the instructor.

*Parts One, Two and Three are described on a specification sheet and blueprint supplied to the trainee.
<table>
<thead>
<tr>
<th>Poor</th>
<th>Below Average</th>
<th>Average</th>
<th>Above Average</th>
<th>Superior</th>
</tr>
</thead>
</table>

**Attitude of Trainee**

Circle the word which best describes the attitude of the trainee as evidenced in your class or training situation.

POOR  FAIR  GOOD  VERY GOOD
ALLOWANCES ±.005 OR AS SPECIFIED
Lincoln Skills Center
Machine Trades
Job No. 3.

MAT. CRS 1020
ALLOWANCES ± .005 L'S ± 1°
The following test is intended to sample the trainee's knowledge of tools, materials and operations in the machine shop.

**Instructions**

Do not begin until told to do so by your instructor.

Print your name on the top of all test papers given you.

Enter all answers in the space provided for that answer or you will not receive credit.

Print or write all answers CLEARLY or you may not receive credit.

If during the exam you have any questions, raise your hand.

Do not hurry: adequate time will be allowed for completing the test.
1. List the parts of this South Bend Engine lathe according to the supplied chart.

_____________ a. _______________ u.
_____________ b. _______________ v.
_____________ c. _______________ w.
_____________ d. _______________ x.
_____________ e. _______________ y.
_____________ f. _______________ z.
_____________ g. _______________ 
_____________ h. _______________ 
_____________ i. _______________ 
_____________ j. _______________ 
_____________ k. _______________ 
_____________ l. _______________ 
_____________ m. _______________ 
_____________ n. _______________ 
_____________ o. _______________ 
_____________ p. _______________ 
_____________ q. _______________ 
_____________ r. _______________ 
_____________ s. _______________ 
_____________ t. _______________ 
Machine Trades I, Columbus: Division of Vocational Education, Ohio State Department of Education, (No date given) p. 115. Reproduced with permission.
2. List the parts of the upright drill press which I hold out for inspection.

   a.
   b.

3. List the names of the parts of the milling machine as held out for observation by your instructor.

   a.
   b.
   c.
   d.
   e.
   f.

4. Give the vernier readings as best you can from the charts supplied.

   a.
   b.
   c.
   d.
   e.
   f.
   g.
   h.
   i.

5. In the following section, write the word "true" if the statement is true. If the statement is false, write the word "false."

   a. Hot rolled steel has a shiny surface.
   b. Bronze is a free-machining nonferrous metal.
c. Annealing is a process of heating and cooling to obtain softness in metals.
d. Normalizing is heating steel above the critical temperature and cooling in ashes or sand.
e. Cyaniding is a heat treating process.
f. Drawing and tempering are the same thing.

6. Fill in the blanks with the answers to the questions asked.

a. Name the two most important elements in steel.

b. List two steps in hardening steel.

c. List three means of quenching.

d. What color is recommended when tempering center punch points?

e. A simple way to test hardness in a piece of steel is with a ________.
The following test is intended to sample the trainee's command of elementary arithmetic.

The operations tested are:

Whole Numbers
   a. Addition
   b. Subtraction
   c. Division
   d. Multiplication

Fractions
   a. Addition
   b. Subtraction
   c. Multiplication
   d. Division
   e. Conversion to decimal

Decimals
   a. Addition
   b. Subtraction
   c. Multiplication
   d. Division
   e. Conversion to fraction

Square and Square Root
   a. Principles of squaring
   b. Principles of square root

Student Instructions

1. Do not do any writing until instructed to do so.
2. Print name on top of all papers.
3. Do all work in manner that can be retraced to determine method used. The correct method, but wrong answer, may earn partial credit.
4. Do as much as possible on each problem.
5. Place all answers in the proper place on the answer sheet and double check this.

6. You will have adequate time to complete this test but do not spend too much time on any one problem.

7. You may begin when instructor says, "Begin."
Whole Numbers

Name ___________________________ Date __________________________

Instructor _______________________

SOLVE THE FOLLOWING PROBLEMS AS INDICATED. DO ALL WORK ON THE
ANSWER-WORK SHEET PROVIDED. BE SURE TO PUT ALL ANSWERS IN THE PROPER
SPACE IN THE ANSWER COLUMN OR YOU WILL NOT RECEIVE CREDIT.

Addition:

(1) 4,585,285  
     792  
     _____ 
     73,214 

(2) 96
     41
     _____
     37

(3) 5003
     304
     _____
     296

(4) 75 + 36 + 942 + 1003 = 1186

Subtraction:

(1) 91,543
    2,231
    _____
    89,312

(2) 343
    277
    _____
    66

(3) 984
    392
    _____
    592

(4) 10,001 - 777 = 9,224

Multiplication:

(1) 78
     x 40
     _____

(2) 381 x 344 = 131,624

Division:

(1) 5 ) 175

(2) 3 ) 362

(3) 25 ) 18550

(4) 86952 ÷ 7246 = 20.00

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Shop Mathematics
Lincoln Skills Center

Answer Sheet for
Whole Number Test

Name _________________________________ Date __________________

Instructor _________________________________

Answer Column

Addition

1. __________________
2. __________________
3. __________________
4. __________________

Subtraction

1. __________________
2. __________________
3. __________________
4. __________________

Multiplication

1. __________________
2. __________________

Division

1. __________________
2. __________________
3. __________________
4. __________________

If more paper is needed, use the back of the test sheet.

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SOLVE THE FOLLOWING PROBLEMS USING THE OPERATION INDICATED BY THE DIRECTIONS. REDUCE ALL ANSWERS TO LOWEST TERMS UNLESS INSTRUCTED TO DO OTHERWISE.

Addition

1. $\frac{1}{8} + \frac{3}{4} =$
2. $2 \frac{9}{16} + 3 \frac{5}{64} + 3 \frac{29}{32} =$

Subtraction

3. $\frac{7}{8} - \frac{9}{16} =$
4. $16 \frac{17}{32} - 8 \frac{3}{4} =$

Multiplication

5. $\frac{3}{8} \times \frac{4}{5} =$
6. $3 \frac{1}{4} \times 7 \frac{3}{16} =$

Division

7. $24 \div \frac{1}{8} =$
8. $5 \frac{1}{2} \div \frac{1}{2} =$
9. $\frac{5}{2} \div \frac{5}{6} =$
10. $\frac{5}{8} \div \frac{3}{4} =$

Practical Applications of Fraction Problems

11. How many pieces can be cut from a bar of stock 12 feet long if each piece is 3 1/2 inches long? (Disregard waste caused by width of saw cut.)
12. How many 10 foot bars of stock are required to produce 20,000 pieces 5/16 inches long? (Disregard material wasted in cut-off process.)

Complete the following tailstock set-over problem.

Use this formula if possible.

Set-over = \( \frac{D - d \times L}{2} \)

13.

Large diameter = 7/8
Small diameter = 5/8
Length of piece = 6
Length of taper = 3

Use the dividing head formula of 40N on the following problems.

Plates for the dividing head will be supplied to the student when and if he needs them.

14. Five divisions or equal cuts would require \( \_ \_ \) turns and \( \_ \_ \) holes in a \( \_ \_ \) hole circle.

15. 32 divisions or equal cuts would require \( \_ \_ \) turns and \( \_ \_ \) holes in a \( \_ \_ \) hole circle.
Shop Mathematics  
Lincoln Skills Center  
Decimal Fraction Test

Name ________________________________ Date ____________________

Instructor __________________________

Addition
(1) \( \frac{7}{341} + 3.1 + .076 + 3.1549 = \) 
(2) \( 731 + 7.31 + 73.1 + .731 = \)

Subtraction
(3) \( 98.01 - 71.874 = \)
(4) \( 99.66 - 66.99 = \)

Multiplication
(5) \( 17.5 \times 6 = \)
(6) \( 4.8 \times 0.067 = \)

Division
(7) \( 18 \div 58.32 \)
(8) \( .08 \div 512 \)

Change from a common fraction to a decimal (Nearest ten-thousandth).
(9) \( \frac{1}{16} = \)
(10) \( \frac{9}{160} = \)
(11) \( \frac{1}{20} = \)
(12) \( \frac{9}{1000} = \)

Change from a decimal to a fraction in lowest terms.
(13) \( 0.4 = \)
(14) \( 0.65 = \)
(15) \( 1.300 = \)
(16) \( 3/875 = \)
Principles of Squaring and Square Root

Square the following
(17) $9^2 = \underline{___}$
(18) $12^2 = \underline{___}$

Give the square root of the following
(19) $36 = \underline{___}$
(20) $625 = \underline{___}$
ACHIEVEMENT TEST, CHAPTER II*
(Based on Plates 1-3)

Student's Name __________________ Instructor's Name __________________

I. VISUALIZATION TEST. Plate No. 1 shows nine three-view drawings of simple objects. Each of these drawings corresponds to one of the isometric drawings shown below. In the blank space below each isometric drawing you are to place the letter of the three-view drawing from Plate No. 1 which is correctly represented by the isometric drawing.

PLATE 1

*loc. cit., p. 21.

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# Machine Trades Blueprint Reading

## Lincoln Skills Center

### QUESTION SHEET FOR PRINT NO. 100*

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Instructor</th>
<th></th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Surface C is represented by what surface in the right end view?</td>
<td>1.</td>
</tr>
<tr>
<td>2. Surface D is represented by what surface in the top view?</td>
<td>2.</td>
</tr>
<tr>
<td>3. Surface I is represented by what surface in the top view?</td>
<td>3.</td>
</tr>
<tr>
<td>4. Surface H is represented by what surface in the right end view?</td>
<td>4.</td>
</tr>
<tr>
<td>5. Surface C is represented by what line in the top view?</td>
<td>5.</td>
</tr>
<tr>
<td>7. Surface I is represented by what line in the front view?</td>
<td>7.</td>
</tr>
<tr>
<td>8. Surface H is represented by what line in the top view?</td>
<td>8.</td>
</tr>
<tr>
<td>9. Surface I is represented by what line in the right end view?</td>
<td>9.</td>
</tr>
<tr>
<td>10. Surface D is represented by what line in the right end view?</td>
<td>10.</td>
</tr>
<tr>
<td>11. Edge A is represented by what line in the front view?</td>
<td>11.</td>
</tr>
<tr>
<td>12. Edge B is represented by what line in the right end view?</td>
<td>12.</td>
</tr>
</tbody>
</table>

*loc. cit., p. 88.
loc. cit., p. 89.
# Machine Trades Blueprint Reading

**Lincoln Skills Center**

**QUESTION SHEET FOR PRINT NO. 104**

| Name ______________________ | Date ______________________ |
| Instructor _______________________ |

## Questions

<table>
<thead>
<tr>
<th>No. 1</th>
<th>Questions</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Give dimensions A, B, C, D, E, and F.</td>
<td>A____ B____ C____ D____ E____ F____</td>
</tr>
<tr>
<td>2.</td>
<td>Line G is represented by what line in the right end view?</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>Line H is represented by what line in the right end view?</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>Surface L is represented by what line in the right end view?</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>Give the width and depth of the square hold.</td>
<td>5.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. 2</th>
<th>Questions</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Give dimensions A, B, C, D, E, and F.</td>
<td>A____ B____ C____ D____ E____ F____</td>
</tr>
<tr>
<td>7.</td>
<td>Give the length, width, and height dimensions of the object.</td>
<td>7.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. 3</th>
<th>Questions</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Give the length, width, and height dimensions of the object.</td>
<td>9.</td>
</tr>
</tbody>
</table>

*loc. cit., p. 92.*
10. How many views are necessary to describe this object?

11. Give the dimension A.

12. Give the width and depth of the square hole.
### Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Give the dimensions of radius A.</td>
<td>1.</td>
</tr>
<tr>
<td>2. Give the maximum length of dimensions B, D, and F.</td>
<td>2. B   D   F</td>
</tr>
<tr>
<td>3. What do dashed lines, indicated by E, represent?</td>
<td>3.</td>
</tr>
<tr>
<td>4. Can the total length of the object be given accurately from the drawing?</td>
<td>4.</td>
</tr>
<tr>
<td>5. Could there be other dashed circles in the right end view?</td>
<td>5.</td>
</tr>
<tr>
<td>6. What do the horizontal dashed lines in the end view represent, a screw driver slot or a hole?</td>
<td>6.</td>
</tr>
<tr>
<td>7. What is the outside diameter of the threaded part?</td>
<td>7.</td>
</tr>
<tr>
<td>8. What is the angle of the chamfer?</td>
<td>8.</td>
</tr>
<tr>
<td>9. What is the minimum diameter of the largest part?</td>
<td>9.</td>
</tr>
<tr>
<td>10. What tolerance is allowed on the largest diameter?</td>
<td>10.</td>
</tr>
</tbody>
</table>

*loc. cit., p. 25.*
CLEAN STUD AFTER HEAT TREATING

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