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By- Miles, Guy H.

FINAL REPORT ON PRELIMINARY PHASE: EFFECTS OF VOCATIONAL TRAINING AND OTHER FACTORS ON EMPLOYMENT EXPERIENCE.

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Prior to a study to determine the degree to which vocational training is related to employability, a pilot project was conducted to test the proposed research method and determine the bias that might arise from using samples taken from the telephone directory. The selected pilot sample, 835 residences in Hennepin County, Minnesota, was drawn from city directories. Interviews with 502 nonprofessional and 74 professional members of the available work force who lived in the residences selected provided data on employment history, individual characteristics, and vocational training. Interview attempts indicated (1) 24.8 percent of the residences contained no eligible members, (2) 8.4 percent refused interviews, (3) 3.6 percent could not be contacted, and (4) All subjects were interviewed in 88 percent of the residence in which eligible members resided. The results of this preliminary phase suggested that some modification of the scoring system for employment experience was desirable, that validation of the statements made by subjects did not increase the accuracy of the results sufficiently to warrant the cost of such validation, that the sample for the major study should probably be selected from telephone directories, and that a few questions in the interview forms should be changed. (EM)

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NORTH STAR RESEARCH AND DEVELOPMENT INSTITUTE
3100 THIRTY-EIGHTH AVENUE SO. • MINNEAPOLIS, MINNESOTA • 55406

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to

OFFICE OF MANPOWER, AUTOMATION AND TRAINING

by

Guy H. Miles

from

NORTH STAR RESEARCH AND DEVELOPMENT INSTITUTE
3100 - 38th Avenue South, Minneapolis, Minnesota 55406
April 30, 1966

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INTRODUCTION

In general, past research has shown that people who have had vocational training (training for jobs not ordinarily requiring a college degree) are more apt to be employed than those who have not had such training. Recent evidence, however, indicates that much of this apparent relationship between vocational training and employability may be due to factors other than vocational training. Any evaluation of the effectiveness of vocational training in increasing employability will be meaningful only if these other relevant factors are taken into account.

North Star Research and Development Institute proposed a program of research to the Office of Manpower, Automation and Training, U. S. Department of Labor, (OMAT) to determine the degree to which vocational training is related to employability when the interactions and interdependencies between vocational training and a broad range of other factors relevant to employability are taken into account.

It was proposed also that prior to initiating this major study, a pilot project should be completed that would (1) test the feasibility of the research method that was outlined, and (2) determine the nature and extent of the bias that might arise if telephone directories were used as a source of names in the second, or major, phase of the project.

OMAT executed a contract with North Star to complete the pilot, or preliminary, phase of this project. Evaluation by OMAT of the results of this preliminary research would then indicate the wisdom of continued pursuit of this line of investigation.

The report covers only the preliminary phase of the over-all program.

SUMMARY

A preliminary study was completed in which 502 nonprofessional and 74 professional members of the available labor force living in a selected sample of 835 Hennepin County, Minnesota, residences were interviewed. Data were obtained from each subject concerning both his employment history over the past three years and a broad range of individual characteristics, including vocational training, that might affect his employability.

These data were evaluated to determine the feasibility of the research method to be used in a major study of the effect of vocational training on employment experience.

It was found that 24.8 percent of the residences sampled contained no members fitting the definition of the available labor force used in this study. In households containing eligible subjects, interviews were refused in 8.4 percent of the residences, and in another 3.6 percent, the residents could not be contacted. All subjects were interviewed in 88.0 percent of the households in which eligible subjects were known to reside.

Each subject's employment experience was scored on the "Employment Index" designed to reflect the quantitative and qualitative aspects of a subject's employment over a period of time. The frequency distribution of these Index scores was bimodal. The Employment Index was successful in separating out 37.8 percent of the subjects who were not fully employed at their highest skill level. Although the Index, as used, is probably adequate for the purposes of the major study, suggestions are incorporated in this report for modifications of scoring to make the Employment Index a more useful measuring instrument.

The validity of the subjects' statements concerning employment experience and vocational training was checked by contacting present and past employers and the alleged sources of vocational training. The number of subjects who made erroneous statements that affected the final evaluation of either their Employment Index score or the adequacy of their vocational training was extremely small.

The sample of residences used in this preliminary phase was drawn from city directories. Each subject interviewed was asked if he had a telephone, in order to determine the nature and extent of the bias that might result from using telephone directories as the source of the sample for the major study. Only 2.8 percent of the subjects interviewed did not have telephones. Households with telephones differed from those without telephones in racial distribution and, to a lesser degree, in employment experience and occupation. On the other hand, city directories proved to be an inaccurate source from which to select a sample; 11.2 percent of the residences sampled from city directories were found to be nonexistent. The results provide no reason to suppose that a sample selected from city directories is more representative of the general population than a sample selected from telephone directories.

The data obtained from 74 subjects who were employed in occupations ordinarily requiring a college degree were studied separately. These data indicate that this group differs from the larger, nonprofessional group to a degree that makes the inclusion of such subjects in the major study seem unwise.

The sample size was too small to justify data analysis by the multiple regression techniques proposed for use in the major study.

The results of this preliminary phase suggest that some modification of the scoring system for employment experience is desirable, that validation of the statements made by subjects will not increase the accuracy of the results sufficiently to warrant the cost of such validation, that the sample for the major study should probably be selected from telephone directories, and that a few questions in the interview forms should be changed. These proposed changes in method, scoring, and interview content are incorporated in an attached set of interview forms proposed for use in the major study.

METHOD OF RESEARCH

General Approach

In the proposed program of research that was presented to OMAT, a procedure was outlined in which three samples of subjects from agricultural, mining, and urban areas of Minnesota would be interviewed. Data would be obtained concerning vocational training and a broad range of other individual characteristics that may affect employability. Each individual's record of employment during the past 36 months would be scored on an Employment Index reflecting both the quantitative and qualitative aspects of the individual's employment. These Employment Index scores would be the dependent variable used in analyzing, by appropriate multiple regression techniques, the other data obtained.

In the preliminary phase of the program, which is covered by this report, a smaller sample of subjects from Hennepin County, Minnesota, is used for the purpose of testing the feasibility of the research method outlined above. The evaluation of this preliminary research, as presented in this report, emphasizes the following:

1. Response rate obtained.
2. Frequency distribution of the criterion measure.
3. Validity of the respondent's statements regarding past employment.
4. Validity of the respondent's statements concerning vocational training.
5. The differences between households with and without telephones.

The data have not been analyzed by the multiple regression technique proposed for use in the major study, since the number of subjects used in this preliminary phase is too small to arrive at clearcut conclusions from such an analysis.

The Sample

A sample of 835 residences was selected by the following procedure:

1. Hennepin County was divided into geographical units based on the areas covered by each of the latest editions of the available city and suburban directories.

2. The sample size (N) of residences required from each such geographical unit was determined on the basis of the 1960 population of the unit.

3. The total number of addresses listed in a given directory (T) was divided by the number (N) of residences required, and each $\frac{T}{N}$th listing was used as part of the sample if that listing was a residence. In the first round of selection all $\frac{T}{N}$th listings that were not residences were totaled (N_1), and a second selection was made from the same directory in which each $\frac{T}{N_1}$ th listing was added to the sample if that listing was a residence.

In cases where the $\frac{T}{N}$th listing was part of a multiple dwelling, only the single living unit selected was made part of the sample.

A breakdown of this sample by geographical unit is shown in Appendix A of this report.

The Interview

In each of the 835 residences selected, an attempt was made to interview every resident who was a member of the available work force. For the purposes of this study, a person is considered part of the available work force if he or she is 22 to 64 years of age and has been available for employment for at least 30 of the past 36 months. This eliminates from the study those who have been full-time students, housewives not looking for work, the retired, those in military service, and those institutionalized for more than six months, as well as a large proportion of the severely handicapped.

Initial contact with each residence was made by an introductory letter. A return postcard, to be filled out by the resident, was included with the letter. This postcard indicated the number of people between 22 and 64 years of age living at the address, and of these, the number who were retired, fully disabled, members of the Armed Forces, or institutionalized for more than six months during the past three years.

On the basis of the postcards returned, some living units were eliminated from the sample because all residents were outside the scope of the study. All households that indicated by postcard that some residents might be eligible, as well as all households that did not return the postcard, were listed for contact by interviewers.

Twelve men and one woman did the interviewing for the project. Each was given an individual training session by a member of the research team.

An initial visit was made by the interviewer to determine how many potentially eligible subjects were in the household, whether there was a telephone in the residence, if anyone outside the residence regularly borrowed the telephone, and when it would be convenient to have a longer personal interview with each potential subject. Sometimes the personal interview was conducted at the same time the initial contact was made. More often it was done later, usually by the same interviewer.

A refusal to be interviewed was treated by sending another letter which contained a page of explanation, instructions to call North Star if there were questions, a brochure describing North Star, and a page showing newspaper releases concerning the activities of North Star. This was followed in a few days by a telephone call from an interviewer selected for his past record of low refusal rate. In this way approximately half of those who originally refused to be interviewed were successfully interviewed.

The Method Used in Validating the Data

Validation of Employment History

Each subject was asked to describe in detail each job he or she had held during the past 36 months. The information obtained included: dates of employment, employer, employer's address, the job title, a job description, name of immediate supervisor, and whether the work was part- or full-time.

Each of the employers named was then mailed a return postcard on which this information obtained from the subject was listed. Spaces were provided for the employer to indicate whether the information concerning each aspect of the job was correct or was inaccurate.

Validation of Vocational Training

Each subject was asked whether he had ever received any vocational training in high school, in the armed forces, by correspondence course, in a technical school or trade school, through a recognized apprenticeship, or through a company-sponsored program that included regular classes.

Each time the subject answered "yes", he was then asked the training program title, where the training was obtained, dates of training, the occupation for which he was being trained, the subject matter studied, the length of the program, and whether he completed the program.

For each vocational training course claimed by the subject, a return postcard was sent to the source of the alleged training. Spaces were provided in which to indicate the correctness or inaccuracy of each of the following: dates, total program length, whether subject completed the program, occupation for which trained, and course content.

Attempts to validate courses obtained in the armed forces were unsuccessful and were discontinued with the approval of OMAT.

The Method Used in Analyzing the Data

The data obtained during the interviews are summarized in Appendix B, which provides important descriptive information. From it, the sample can be clearly defined in terms of its various characteristics.

Throughout the "Results Obtained" section of this report, simple relationships between variables are presented in the form of contingency tables. From these tables it is possible to determine, for example, if a person who receives one type of vocational training is more apt than other people to obtain a different type of vocational training and if a relationship exists between race and having a telephone.

The data presented in these forms do not, however, answer the questions that will be of primary concern in the major study. Vocational training obtained in a technical or trade school may be related to high Employment Index score. But, having this type of training is, in turn, related to having completed high school and to being a skilled worker. The apparent relationship between this type of training and Employment Index scores may be due, in part, to such additional variables. The major study will include analyses that will determine the independent effect that vocational training obtained in a technical or trade school has on the Employment Index score while holding constant the influence of the other variables.

RESULTS OBTAINED

The Response Rate Obtained

Interviews were obtained in 470 of the 835 residences originally selected. Of the 835 residences, 94 (11.2 percent) did not exist; either the address in the directory was incorrect, the residence was deserted, or had been torn down. In 207 residences (24.8 percent) there was no member of the work force, as defined, in the household. Thus, 534 (64.0 percent) of the original sample of 835 residences possibly contained eligible subjects. The people in 45 of these 534 residences (8.4 percent) refused to talk to the interviewer. In 19 of these 534 residences (3.6 percent) the residents could not be contacted even with repeated call-backs.

The 470 residences in which interviews were obtained contained 598 eligible subjects who were interviewed. Twenty-two of the interviews obtained were incomplete, and the interviewers were unable to obtain the missing information at a later date. Seventy-four of the subjects interviewed held jobs that ordinarily require a college degree. The final sample, therefore, contained 502 subjects.

Frequency Distribution of the Criterion Measure

The criterion measure (dependent variable) for this research program is an Employment Index score designed to reflect the quantitative and qualitative aspects of a subject's employment over a period of time. In a healthy economy, such as that in the United States, the usual practice of categorizing individuals as employed or unemployed results in a distribution of measures so extremely skewed as to be of little use for research purposes. Realistically, a person who is working on a job which is below his level of ability and skill is not fully employed. The index used in this study reflects this fact. As a result, the distribution of Index scores is not as skewed as the usual distribution of "employed-unemployed" scores, and is more useful as a research tool.

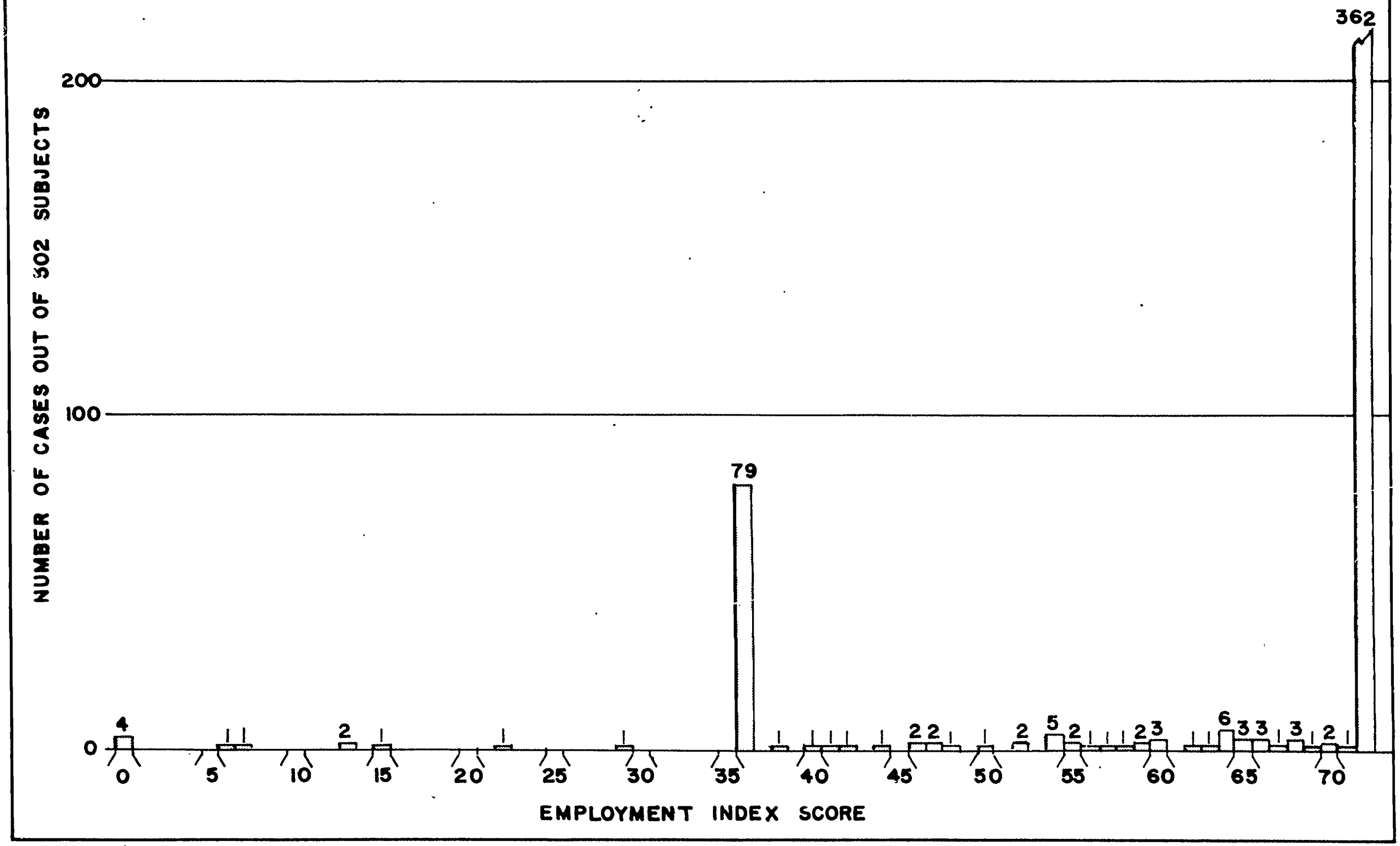
In determining the Employment Index score for an individual, "highest skill level" was defined as the most highly skilled work that the subject had ever performed for a period of six months or more.

A complete employment history for the past 36 months was obtained from each subject. These data were scored as follows:

Two points	a. For each month in which subject was fully employed at his highest skill level. b. For each month in which subject was part-time employed at his highest skill level and did not desire to be employed full-time. c. For each month in which subject had temporarily withdrawn from the labor force and did not desire either part-time or full-time employment.
One point	a. For each month in which subject was fully employed, but not at his highest skill level. b. For each month in which subject was part-time employed at his highest skill level, but desired to be employed full-time.
0 points	a. For each month subject was unemployed but desired to be employed.

The frequency distribution of the Employment Index scores obtained from the 502 subjects in the preliminary phase is shown in Figure 1.

FIGURE I. FREQUENCY DISTRIBUTION OF EMPLOYMENT INDEX SCORES OBTAINED BY THE 502 SUBJECTS IN THE PRELIMINARY PHASE OF THE STUDY



The distribution is bimodal; 362 (62.2 percent) of the respondents received scores of 72, and 79 (15.7 percent) received scores of 36. The remaining 12.1 percent of respondents had scores that were widely scattered.

This index separates out 37.8 percent of the sample who were not fully employed at their highest skill level. The spread of scores is probably sufficient so that the Index may be used meaningfully as the dependent variable for a multivariate analysis. Further refinement of the scoring system is, however, desirable for use in the major study in order to make the research results as meaningful as possible. Such refinements of the scoring system are suggested in the final section of this report.

Validity of the Respondents' Statements Regarding Past Employment

Verification of past employment was conducted on two levels: (1) verification of the most highly-skilled work ever performed by a respondent for six months or more, and (2) verification of each job held by the respondent during the past 36 months. In most cases, the respondent indicated that one of the jobs held during the past 36 months was also the most highly-skilled work he had ever performed, so that verification of one was also verification of the other.

Verification was not requested in many cases where the subjects were self-employed or were employed by a close relative. In some other cases, verification was not possible because the places of employment no longer existed or the respondents were unable to give an adequate mailing address.

Requests for verification of the most highly-skilled work were sent to 397 employers and former employers; 351 (88.4 percent) were answered. 606 requests were sent to employers and former employers for verification of employment during the past 36 months; 464 (76.6 percent) were answered.

On the whole, agreement was good between the respondents and their employers. Most inaccuracies tended to be in the dates of employment and these, for the most part, showed only slight variations from dates given by employers. For 20 (5.7 percent) of the jobs, the respondents gave the job a higher title than did the employer. In most cases where this occurred, however, the job descriptions given by the subjects were found by the employer to be accurate. These were tabulated as jobs having a lower skill level than that claimed by the subject although, of course, it was possible from the subject's job description to define quite accurately the skill level of the job.

Table 1 summarizes the results of validating the employment history of the subjects.

Table 1

Frequency Table Showing the Number of Verifications Requested, the Number Returned, and the Types of Discrepancies Between Subjects' Reports and Employment Records

	Most Highly Skilled Work	Employment-Past 36 Months	Total
Verification requests sent	397	606	1003
Completed verification replies received	351	464	815
No records kept by employer	24	9	33
Dates of employment correct	287	415	702
Dates of employment incorrect	40	40	80
Same skill-level as claimed by subject	306	430	736
Lower skill-level than claimed by subject	20	23	43
Higher skill-level than claimed by subject	1	2	3
Part-time or full-time work -- correct	324	447	771
Part-time or full-time work -- incorrect	3	8	11

The number of subjects who made errors that affected their final Employment Index score was extremely small.

Validity of the Respondents' Statements Regarding - Vocational Training

In most cases it was possible to contact the schools or other organizations from which the subjects reported they had received vocational training. There were, however, cases in which the school no longer exists and cases in which the subjects were unable to give an adequate mailing address for the school.

Vocational training received in the armed forces was not verified. Such training was reported by only 11 percent of the subjects interviewed. Because the addresses given were vague, dates of attendance often unknown, and most of the service schools involved no longer exist, verification was in most cases impossible.

294 requests for verification were sent to the organizations from which subjects indicated they had received training; 210 (74.8 percent) of these requests were answered. On the whole, agreement between school records and subjects' statements was good. High school records and technical or trade school records indicated, in a few cases, that although there was no record of the subjects' attendance, the course content and length of the course were accurately described by the subject. The dates of attendance given by the subjects differed from the dates shown by school records in about 23 percent of the cases. In no case, however, was the discrepancy sufficient to affect the evaluation of the adequacy of the training; in most cases, only the year of attendance was in error.

In most cases there was no apparent relationship between an inaccurate report concerning one aspect of vocational training and inaccurate reporting of other data concerning either vocational training or employment history. The only exception was when the subject inaccurately reported the course content of training received in high school (this occurred in three cases). In these cases the skill level of the job presently held was accurate but preceding employment skill level tended to be exaggerated.

Table 2 summarizes these validation results for each type of vocational training.

Table 2

Frequency Table Showing the Number of Verifications Requested, The Number Returned, and The Types of Discrepancies Between Subjects' Reports and School Records

	Type of Training					
	High School	Correspondence	Technical or Trade School	Apprenticeship	Company Sponsored	Total
Verification Requests Sent	48	27	137	34	48	294
Completed Verification Cards Returned	41	15	100	22	32	210
Course Attendance Verified	34	10	85	19	28	176
No Record of Attendance	5	4	8	1	1	19
No Attendance Records Kept by School	2	1	7	2	3	15
Course Content Verified	32	9	82	17	28	168
Course Content Differs from Subject's Report	3	1	2	2	0	8
No Record of Course Content	2	0	3	0	4	9
Dates of Attendance Verified	24	5	56	15	24	124
Dates of Attendance Differs from Subject's Report	10	5	28	3	2	48
No Record of Dates of Attendance	3	0	3	1	2	9

Differences Between Households With and Without Telephones

Of 502 subjects in the final sample, 14 (2.8 percent) came from households without telephones. Of the additional 74 subjects who held positions ordinarily requiring a college degree, only one had no telephone.

207 of the residences in the sample contained no members of the labor force. Sixty-seven of these residences were eliminated from the sample on the basis of information obtained from the residents by means of the initial return postcard. No telephone information is available on these 67 residences. In the remaining 140 residences without eligible subjects, 10 (7.1 percent) were without telephones.

In 64 residences the subjects refused to be interviewed or could not be contacted. In 15 of these residences it was not possible to find out whether or not they had telephones. In the other 49, only one (2.0 percent) did not have a telephone.

It is difficult to determine whether or not households with telephones differ systematically from households without telephones because so few households are without telephones. The tables below show the more systematic appearing relationships between having a telephone and other variables. Statistical tests of these relationships cannot be conducted by the usual techniques such as chi-square because the small number of homes without telephones leads to expected cell frequencies too small for the proper use of chi-square. The expected cell frequencies are shown in parentheses; the cell frequencies actually obtained, without parentheses.

Table 3 shows the apparent relationship existing between being a telephone subscriber and race. Only 14 subjects were nonwhite (2.8 percent) and only 14 subjects had no telephones, so the expected cell frequencies are very small for nonwhites having no telephones. The actual frequency of such cases is small, but much larger than the expected frequencies. Only 1.7 percent of the white subjects were without phones, but 27 percent of the Negroes and all the other nonwhites had no telephones.

Table 3

Frequency Table of Telephone Ownership by Race

	White	Negro	Other	
Phone	480 (474.39)	8 (10.69)	0 (2.92)	488
No Phone	8 (13.61)	3 (0.31)	3 (0.80)	14
	488	11	3	502

Table 4 shows an apparent relationship existing between unskilled, semiskilled, and skilled occupational classification and telephone subscription. Again, the expected cell frequencies are too small to allow for statistical test of the significance of this relationship. The relationship does appear, however, to be of interest. No such clearcut relationship was found to exist among service or clerical and sales workers, who might be expected to overlap these three groups in income level.

Table 4

Frequency Table of Telephone Subscription by Occupation

	Unskilled	Semiskilled	Skilled	Other Occupations	
Phones	17 (18.470)	42 (44.717)	97 (99.155)	332 (325.658)	488
No Phones	2 (0.530)	4 (1.283)	5 (2.845)	3 (9.342)	14
	19	46	102	335	502

Table 5 shows the frequency distribution of Employment Index scores obtained by subjects living in households without telephones.

Table 5

Frequency Distribution of Employment Index Scores of Subjects Without Telephones

Index Score	Number of Subjects
72	8
70	1
68	1
40	1
36	2
0	1

None of the other factors studied showed a systematic relationship to telephone ownership.

These results appear to indicate that if the sample had been selected from telephone directories instead of from city directories, it is probable that nonwhites would have been somewhat underrepresented. Perhaps the number of subjects in certain occupational categories and those with lower Employment Index scores would have been slightly fewer also, but this is not entirely clear from the results obtained.

On the other hand, by selecting the sample from city directories, 11.2 percent of the sample was lost because the residences selected did not exist. Since older homes and those in slum areas tend to be torn down more frequently than others, it seems probable that a large proportion of the sample that was lost may have been lower socioeconomic level subjects.

The results of this preliminary study suggest that a sample drawn from telephone directories would not have differed significantly from one drawn from the city directories. There is no reason to suppose that one method would have provided a more representative sample of the general population than the other.

Relationships Between Vocational Training and Other Independent Variables

A discussion of the relationships found between vocational training data and the other data obtained is not entirely appropriate to the objectives of this preliminary study. It does seem appropriate, however, to look at these relationships in order to evaluate the utility of the scoring system used for vocational training and to determine if it is meaningful to consider each type of vocational training separately.

Six types of vocational training were evaluated. The percentage of subjects who had taken each type of training was as follows: technical or trade school, 27.6 percent; armed forces, 11.0 percent; high school, 9.9 percent; company-sponsored, 9.5 percent; correspondence, 6.2 percent; recognized apprenticeship, 6.4 percent. Many subjects had received more than one kind of vocational training.

A subject was scored as having received an adequate course of vocational training if he had completed a course of sufficient length and quality to fit him for gainful employment in a recognized occupation that is not generally considered to require a baccalaureate or higher degree.

A subject was scored as having received inadequate training if: (a) he attended the course for at least 50 percent of the total time required for completion but did not complete the course; (b) attended a course of inadequate duration to fit him for gainful employment in the related occupation; (c) received training from a source that was inadequate to fit him for gainful employment in the related occupation; or (d) received training that is only incidentally related to a recognized civilian occupation.

A subject was scored as having no vocational training if: (a) he did not receive training, (b) he received training for other than a recognized civilian occupation, (c) he received training for a profession generally considered to require a baccalaureate or higher degree, (d) he attended a training course but completed less than 50 percent of the course, or (e) he received avocational training in vocational subjects.

Each vocational training course reported by each subject was evaluated by Robert Van Tries, Assistant State Director of Vocational Education, Minnesota Department of Education, in terms of course content, length of course, and source of training, to determine their adequacy in relation to the occupation for which the subject was being trained.

Subjects were finally classified on each of the six types of vocational training as: (a) received no training, (b) received inadequate training, (c) received adequate training, or (d) completed two or more courses of adequate training.

Scoring vocational training as being adequate or inadequate appears from the results of this study to be useful since the two levels of training are found to be differentially related to the other variables studied. Classifying subjects who have completed two or more adequate programs separately from those who have completed a single adequate program does not appear to be useful, except possibly in company-sponsored programs.

Except for company-sponsored and technical or trade school programs, almost no subjects had received two or more adequate vocational training courses. Ten subjects (2.0 percent) had taken two or more programs in technical or trade school; they did not differ systematically in their answers to other questions from those who had completed a single program.

Twelve subjects (2.4 percent) had completed two or more adequate company-sponsored programs; 34 subjects (6.7 percent) completed a single adequate program. Having completed one adequate program showed a significant correlation with only one other variable -- having a father whose occupation is professional or managerial. Having completed two or more such programs was significantly correlated with membership in the 36 - 40 age category and with having completed adequate vocational training in the armed forces.

Fourteen subjects (2.8 percent) had received adequate training through a correspondence course; 15 subjects (3.0 percent), inadequate training from this source. Despite the small numbers, some interesting and statistically significant correlations were found to exist. Those with inadequate training tend also to fall into the following categories: having been raised in a home with marginal income, having lived in a town of less than 5,000 in their childhood, having completed 1-7 years of education, and having an estimated IQ between 80 and 89. Adequate training through a correspondence course is associated with membership in the 41-45 age range, having a professional or managerial father, completing five or more years of college, having inadequate training in a technical or trade school, and having inadequate training in an apprenticeship.

For vocational training in high school, the following relationships were statistically significant: those with inadequate training tended to fall in the 46-50 age range, to have completed 9 to 11 years of schooling, and to have an estimated IQ of 80 to 89; those with adequate training, to fall into a clerical or sales occupation, to have completed twelve years of schooling, and to have been raised in a large city.

Subjects with adequate training in a technical or trade school tended also to have received adequate training in the armed forces, through an apprenticeship, or through a company-sponsored program.

This last finding suggests that perhaps there may be enough interrelationship among the various types of vocational training so that a division into six kinds of vocational training is not warranted. This, however, does not appear to be the case. When the data are analyzed further it is indeed found that there is a significant tendency for those taking one kind of vocational training to take certain other types of vocational training also. This tendency, however, does not hold true for all combinations of vocational training.

Subjects who had taken vocational training in high school, for example, tended to participate in company-sponsored programs more often than other subjects, but were no more apt than other subjects to have taken other types

of vocational training.

Those who participated in company-sponsored programs tended to have also had vocational training in a technical or trade school or in high school.

If a subject received vocational training in trade school, he was more apt than other subjects to have received vocational training in an apprenticeship, or a company-sponsored program.

Apprenticeship training was taken more often by those with trade school or correspondence school training than by other subjects.

Table 6 shows a series of contingency tables for various combinations of vocational training. In each cell the expected frequency is shown in parentheses; the actual frequency obtained, without parentheses.

An interesting relationship is found between vocational training and occupation. The largest number of subjects who obtained vocational training did so in a trade or technical school (27.6 percent of all subjects). Table 7 is a contingency table in which subjects having different levels of trade school training are broken down according to the number holding various types of jobs. The expected frequencies in each cell are shown in parentheses; the actual frequencies obtained, without parentheses.

TABLE 6

CONTINGENCY TABLES FOR VARIOUS COMBINATIONS OF VOCATIONAL TRAINING*

Armed Forces

High School	No Training	Training	
No Trng.	401 (402.48)	51 (49.52)	452
Trng.	46 (44.52)	4 (5.48)	50
	447	55	502

chi-squared = 0.49
p = <0.50

Trade School

High School	No Training	Training	
No Trng.	324 (326.84)	128 (125.16)	452
Trng.	39 (36.16)	11 (13.84)	50
	363	139	502

chi-squared = 0.89
p = <0.50

Correspondence

High School	No Training	Training	
No Trng.	425 (424.09)	27 (27.91)	452
Trng.	46 (46.91)	4 (3.09)	50
	471	31	502

chi-squared = 0.31
p = <0.70

Apprenticeship

High School	No Training	Training	
No Trng.	421 (422.29)	31 (29.71)	452
Trng.	48 (46.71)	2 (3.29)	50
	469	33	502

chi-squared = 0.59
p = <0.50

Company-Sponsored

High School	No Training	Training	
No Trng.	414 (408.78)	38 (43.22)	452
Trng.	40 (45.22)	10 (4.78)	50
	454	48	502

chi-squared = 6.99
p = <0.01

Apprenticeship

Trade School	No Training	Training	
No Trng.	350 (339.14)	13 (23.86)	363
Trng.	119 (129.86)	20 (9.14)	139
	469	33	502

chi-squared = 19.11
p = <0.01

Armed Forces

Trade School	No Training	Training	
No Trng.	326 (323.23)	37 (39.77)	363
Trng.	121 (123.77)	18 (15.23)	139
	447	55	502

chi-squared = 0.78
p = <0.50

Correspondence

Trade School	No Training	Training	
No Trng.	344 (340.58)	19 (22.42)	363
Trng.	127 (130.42)	12 (8.58)	139
	471	31	502

chi-squared = 2.00
p = <0.20

*"p" is the probability of these relationships occurring by chance.

TABLE 6

Trade School × Company-Sponsored

		No Training	Training	
No Trng.		342 (328.29)	21 (34.71)	363
Trng.		112 (125.71)	27 (13.29)	139
		454	48	502

chi-squared = 21.62
p = <0.001

Correspondence × Company-Sponsored

		No Training	Training	
No Trng.		425 (425.96)	46 (45.04)	471
Trng.		29 (28.04)	2 (2.96)	31
		454	48	502

chi-squared = 0.36
p = <0.70

Correspondence × Apprenticeship

		No Training	Training	
No Trng.		444 (440.04)	27 (30.96)	471
Trng.		25 (28.96)	6 (2.04)	31
		469	33	502

chi-squared = 8.78
p = <0.01

Correspondence × Armed Forces

		No Training	Training	
No Trng.		421 (419.40)	50 (51.60)	471
Trng.		26 (27.60)	5 (3.40)	31
		447	55	502

chi-squared = 0.90
p = <0.50

Armed Forces × Apprenticeship

		No Training	Training	
No Trng.		422 (417.62)	25 (29.38)	447
Trng.		47 (51.38)	8 (3.62)	55
		469	33	502

chi-squared = 6.39
p = <0.02

Armed Forces × Company-Sponsored

		No Training	Training	
No Trng.		404 (404.26)	43 (42.74)	447
Trng.		50 (49.74)	5 (5.26)	55
		454	48	502

chi-squared = 0.01
p = <0.95

Apprenticeship × Company-Sponsored

		No Training	Training	
No Trng.		425 (424.16)	44 (44.84)	469
Trng.		29 (29.84)	4 (3.16)	33
		454	48	502

chi-squared = 0.26
p = <0.70

Table 7

Contingency Table of Trade School Training X Occupation

	Occupation				
	Unskilled	Semi-skilled	Skilled	Other Occupation	
None	16 (13.74)	43 (33.26)	64 (73.76)	240 (242.24)	363
Inadequate	0 (0.94)	1 (2.29)	11 (5.08)	13 (16.69)	25
Adequate	3 (3.94)	2 (9.53)	25 (21.13)	74 (69.40)	104
Two or More Adequate Courses	0 (0.38)	0 (0.92)	2 (2.03)	8 (6.67)	10
	19	46	102	335	502

chi-squared = 22.08 with 9 degrees of freedom

$p = <0.01$

This table shows that those subjects without trade or technical school training are found more frequently than would be expected in unskilled and semi-skilled jobs; those with training, more often than would be expected in skilled or in other occupations (sales, service, managerial, or professional). An inadequate technical or trade school program appears to be strongly related to having a skilled occupational status; an adequate course, to entering either a skilled occupation or one of the other occupations.

Since the mean Employment Index Score is different for different occupations, part of the effect of vocational training on the Index score may be an indirect one; vocational training leads to entry into an occupation in which a high Index score is characteristic. If this is true, then a multivariate analysis in which both vocational training and occupation are included as independent variables will tend to underemphasize the importance of vocational training. It is proposed that, in the major study, two

multivariate analyses be performed; one including both vocational training and occupation, the other only vocational training.

Relationships Between the Employment Index and the Independent Variables

The Employment Index

As described in an earlier section of this report the frequency distribution of scores obtained on the Employment Index is extremely skewed. All but 37.8 percent of the subjects interviewed had been fully employed at their highest skill level for the past three years.

It seems valid to assume, however, that employability is a characteristic that is more or less continuously distributed in the general population. Even among those who are presently fully employed at their highest skill level there would be marked individual differences in susceptibility to lowered employment under adverse economic conditions.

The effect that this skewed distribution has on the results of the study is best explained by an analogy. Instead of an Employment Index, we have scores on a rifle range. We want to know what factors affect firing accuracy. The subjects are tested under ideal conditions; they are only ten feet away from the target. All but 37.8 percent of the subjects hit the bulls-eye on every shot. Because of the conditions under which the test was made, much of the variability in accuracy is not measured. Suppose that two factors, practice and steadiness, really account for 90 percent of the total actual variation in accuracy. It is possible that these factors would explain only 30 percent of the measured variance. Subjects scoring bulls-eyes under these conditions would include those with a broad range of practice and steadiness; the correlations between these two factors and measured accuracy would be small. One could assume, however, that if these correlations were statistically significant despite the "favorable" test conditions, then these are indeed important factors in determining firing accuracy.

A more realistic estimate of accuracy would be obtained if the bulls-eye were made smaller. The variance in scores would be larger, with the probable result that the correlations obtained between the independent variables and these scores would be greater. It is also probable that a much larger proportion of the total measured variance would be accounted for by the independent variables being studied.

In the final section of this report there are suggestions for changing the scoring of the Employment Index which will, in effect, make the "bulls-eye" smaller for the major study.

The effect that the proposed scoring system would have on the Employment Index scores is indicated by the table presented in Appendix E in which the employment histories of the subjects in the preliminary study have been scored by the proposed system and these scores presented as a frequency distribution.

Correlations Obtained

The Employment Index scores did not have a high correlation with any of the independent variables although several correlation coefficients did attain significance beyond the 0.01 level. The relationships between the Index and the independent variables indicate that many factors contribute to a subject's Employment Index score rather than just a few major factors.

The two variables that correlated highest with the Index were the subject's socioeconomic background during childhood and the subject's occupation. Two graphs are included to illustrate these observed relationships.

Figure 2 indicates that a subject is more likely to have a higher Employment Index rating if he comes from a financially comfortable or luxurious background rather than a submarginal or marginal situation.

FIGURE 8

MEAN EMPLOYMENT INDEX SCORES OF SUBJECTS FROM DIFFERENT CHILDHOOD SOCIOECONOMIC LEVELS

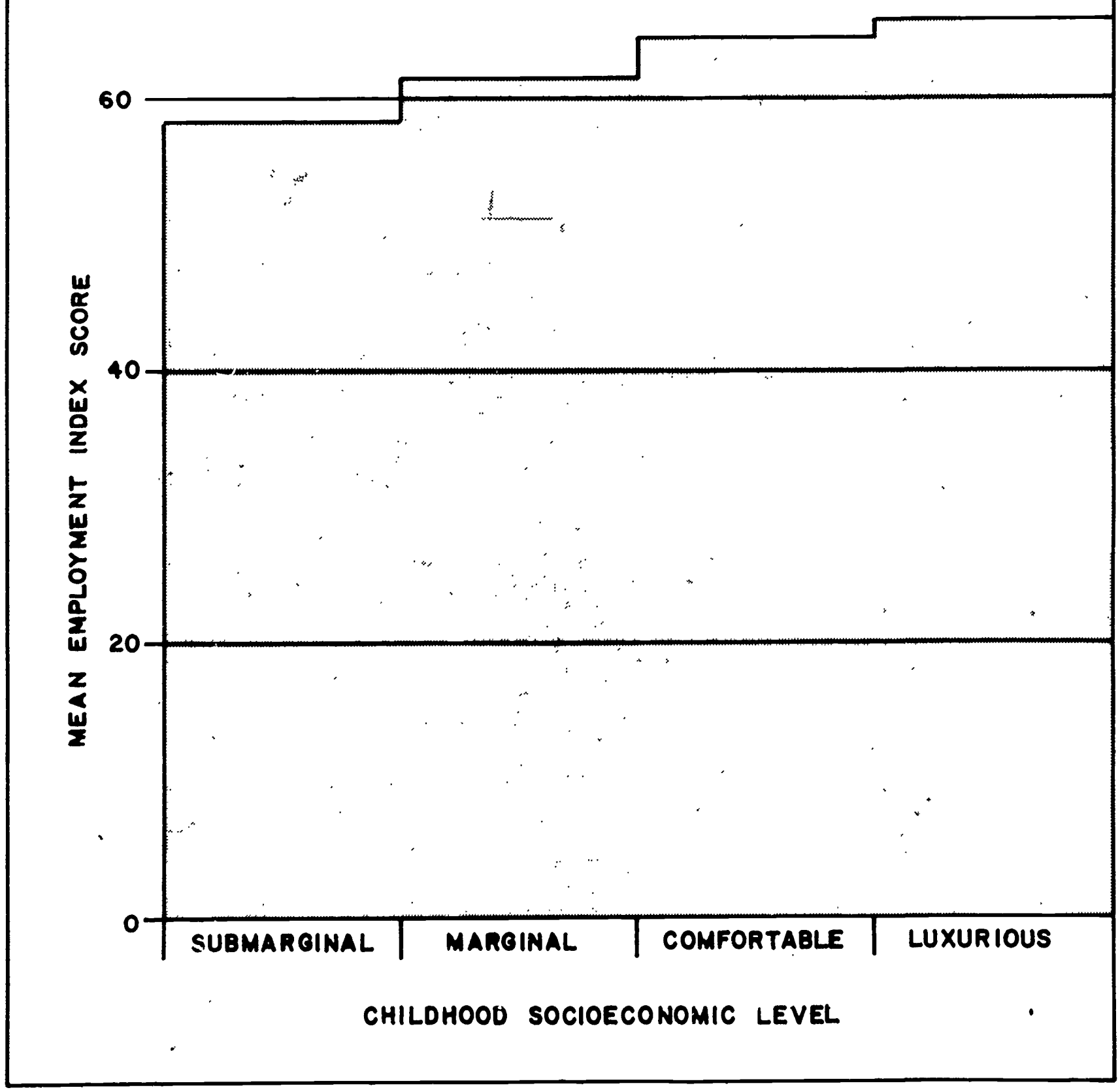


Figure 3 illustrates the fact that the jobs with higher skill level have the higher Employment Index scores. Those working in a highly skilled occupation are, of course, less likely to be working below their highest skill level than those working in less skilled occupations. Since the Index reflects this effect, perhaps this demonstrated relationship is to be expected. Several other relationships between employment and the independent variables exist. One is that a male subject is more apt to have a high Employment Index rating than a female subject. Another is that the factor of father's presence in the home when the subject was between 10 and 15 years old appears more often among those with higher Index scores than among those with lower scores.

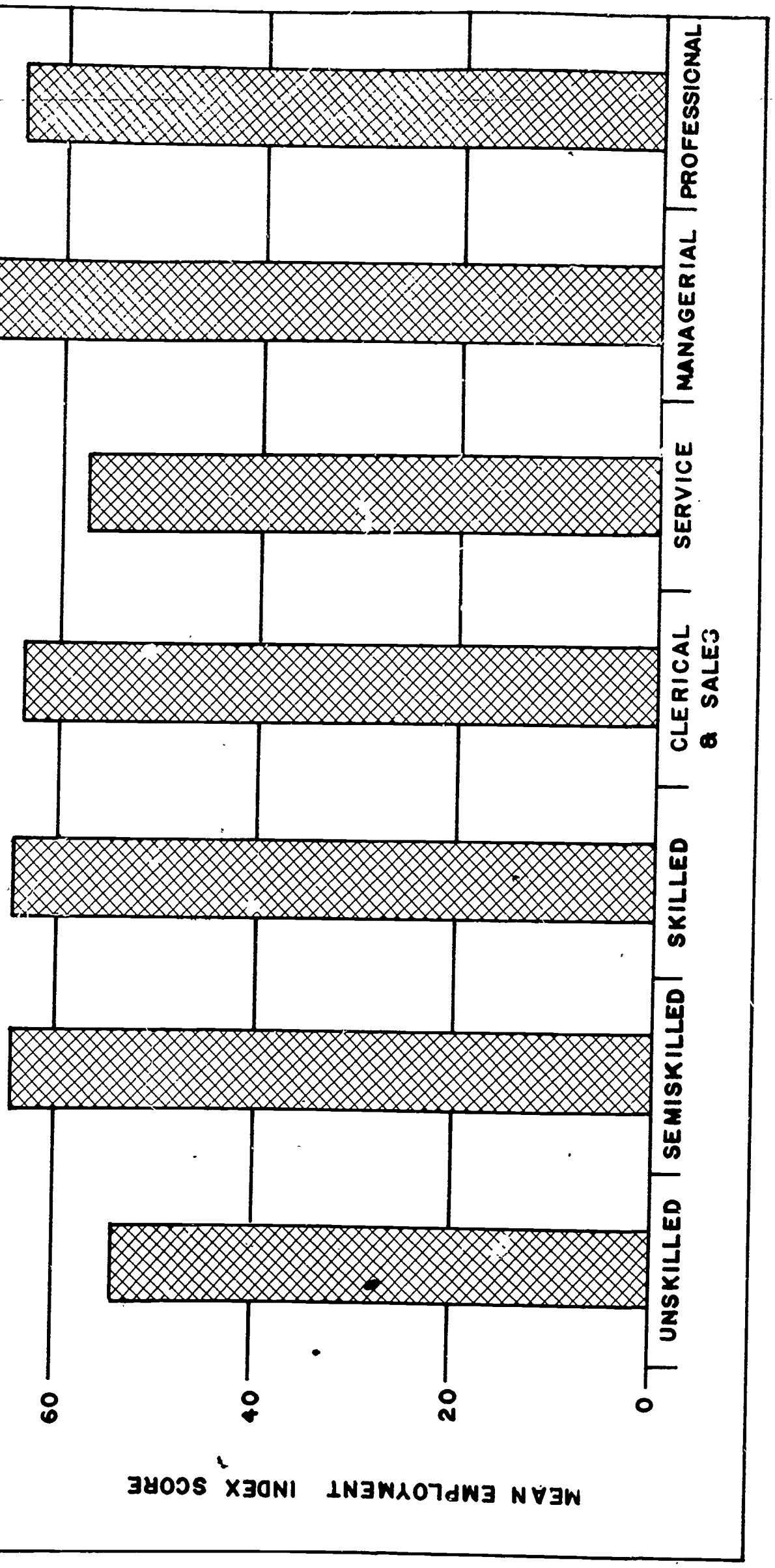
When a subject has no dependents to support he tends to have a lower Index rating than does a person with two or three dependents. Another type of subject who often falls into the lower score-level of the Employment Index is the person who lived on a farm during most of the last three years and has now come to the city to live.

The only type of vocational training that was significantly correlated with the Employment Index was adequate training in a technical or trade school. All other kinds of vocational training had very low correlations with Index scores.

Finally, a person who was rated by the interviewer as being slovenly and sloppy is less likely to have a high Employability Index than a subject who was not.

Two points must be emphasized. First, the Employment Index scores would be less skewed in an area of higher unemployment such as the Iron Range area proposed for the major study. Second, an apparent correlation can be due to the underlying effects of other related variables and an apparent lack of correlation can be due to suppression by other related variables; this can be ascertained only through multivariate analytical techniques such as those proposed for the major study.

FIGURE 9
MEAN EMPLOYMENT INDEX SCORES OF SUBJECTS IN EACH OCCUPATIONAL GROUP



The Professional Sample

All subjects who were employed in jobs that ordinarily require a college degree were set aside for separate study. Not all occupations listed as "professional" in the Dictionary of Occupational Titles ordinarily require a college degree. The selection of this group of subjects was made on the basis of the concensus of the opinions of four judges working independently.

Seventy-four subjects were judged to hold positions that ordinarily require a college degree. The answers given by these subjects during the interview are summarized in Appendix A. The number of "professional" subjects was too small to allow the same type of statistical analysis that was performed on the data obtained from the larger, nonprofessional sample.

The professional sample appears to differ from the nonprofessional sample in the following manner:

1. Contains a larger proportion of the sample in the 31-50 age category.
2. Contains a larger proportion of males.
3. Eighty-two percent are college graduates, compared with 8.2 percent of the nonprofessional group.
4. Contains a larger proportion of veterans.
5. Subjects are more apt to live in the suburbs.
6. Contains a larger proportion of high-IQ subjects.
7. More subjects were rated as being meticulously groomed.
8. Subjects' fathers were more apt to have had professional or managerial occupations.
9. Fewer subjects grew up in rural areas.
10. Childhood socioeconomic status was more apt to be "luxurious".
11. Aside from training in the armed forces or through company-sponsored programs, they were less apt to have had vocational training.
12. The mean Employment Index score for the professional group was 69.2; the mean for the nonprofessional group, 63.4.

These differences are of sufficient magnitude to indicate that such subjects should not be included in the major study. It is apparent that factors other than vocational training underlie the high Employment Index scores obtained by this group. The inclusion of this group in the major sample might lead to false conclusions regarding the effect of vocational training on the Employment Index scores of those for whom vocational training is intended -- that is, the person taking training for an occupation that does not ordinarily require a college degree.

SUGGESTED CHANGES IN PROCEDURE FOR USE IN THE MAJOR STUDY

Validation of Respondents' Statements

The results of this preliminary study indicate that very little is gained by validating the statements of the subjects concerning their employment history and their vocational training. The number of subjects who made errors that affected the final evaluation of either their Employment Index score or the adequacy of their vocational training was extremely small.

It is proposed that this validation step be eliminated from the major study. The slight improvement in accuracy that might result from such validation does not appear to warrant the cost and effort involved.

Sample Selection

This preliminary study has indicated that available city directories are an inaccurate source from which to generate a sample of subjects. It seems probable that such directories will not exist for many of the rural areas to be covered in the major study.

There were some systematic differences between data obtained in households with telephones and households without telephones in this preliminary phase. Very small numbers of subjects, however, were involved. The results do not clearly indicate that a sample drawn from city directories is more representative of the general population than one drawn from telephone directories.

In view of the probable incomplete coverage of city directories outside the metropolitan area, it is proposed that the sample for the major study be drawn from telephone books.

The Employment Index Score

The following changes are suggested in scoring the 36-month employment history of each subject:

1. Distinguish between those with full-time employment and those who by choice do not work full-time.
2. Correct the total score of a subject on the basis of his employment stability.

These changes would tend to make the Employment Index score a more accurate measure of actual employability. These changes would also result in a frequency distribution of scores that would be less skewed and have a wider range of values.

The scoring system used in this preliminary phase was as follows:

	No. of Months		Score
-- fully employed at highest skill level	_____	X 2 =	_____
-- Part-time at highest skill level and did not desire full-time employment	_____	X 2 =	_____
-- unemployed and did not desire employment[1]	_____	X 2 =	_____
-- fully employed but not at highest skill level	_____	X 1 =	_____
-- part-time at highest skill level but desired full-time	_____	X 1 =	_____
-- part-time at less than highest skill level; did not desire full-time	_____	X 1 =	_____
-- unemployed; desired employment	_____	X 0 =	_____
TOTALS	36		_____

[1]For six months or less out of past 36 months, as described earlier.

The scoring system[1] proposed for use in the major study is as follows:

	No. of Months		Score
-- fully employed at highest skill level	_____	X 5 =	_____
-- fully employed in seasonal occupation at highest skill level and did not seek other employment in off-season	_____	X 4 =	_____
-- part-time at highest skill level; did not desire full-time employment	_____	X 4 =	_____
-- unemployed; did not desire employment[2]	_____	X 4 =	_____
-- fully employed, but not at highest skill level	_____	X 3 =	_____
-- fully employed in seasonal occupation at less than highest skill level and did not seek other employment in off-season	_____	X 2 =	_____
-- part-time at highest skill level; desired full-time employment	_____	X 2 =	_____
-- part-time at less than highest skill level; did not desire full-time employment	_____	X 2 =	_____
-- part-time at less than highest skill level; desired full-time employment	_____	X 1 =	_____
-- unemployed; desired employment	_____	X 0 =	_____
	_____		
Minus number of jobs left for any reason except a better job	TOTALS 36	X1 =	_____
		TOTAL SCORE =	_____

[1]For an example of the effects of this changed scoring system see Appendix F, which is a frequency distribution of the scores obtained when the scoring system is used on the employment data of the subjects in this preliminary phase.

[2]For six months or less out of past 36 months, as described earlier.

Other Proposed Changes

1. Include a category for those who lived on reservations during their childhood under item 6 on the questionnaire.
2. Omit item No. 10, "Are you the head of a family or household?" This was found to be related primarily to sex and age; its purpose is adequately covered by the next question, "How many people are dependent on you for their support?"
3. Ask only, "Have you received treatment for nervousness, a nervous breakdown, anxiety, depression, or some psychiatric disorder?" without asking the type of treatment received. A breakdown in terms of treatment results in frequencies too small to be useful.
4. Delete "Completed two or more programs of adequate training" from the scoring system for vocational training.
5. Combine all physical appearance judgments (items 39, 40, and 41) into a single question requiring a judgment for a specific purpose.

All of these proposed changes in procedure, scoring, and content are incorporated in the proposed interview forms for the major study that are attached to this report as Appendix D.

APPENDIX A

NUMBER OF RESIDENCES SAMPLED FROM EACH SECTOR OF HENNEPIN COUNTY

APPENDIX A

NUMBER OF RESIDENCES SAMPLED FROM EACH SECTOR OF HENNEPIN COUNTY

Sector	1960 Population	Number of Residences in Sample	Source of Sample
Minneapolis	482,872	483	Minneapolis City Director, 1963-64, R. L. Polk & Company
Bloomington	50,498	50	Bloomington Director, 1965, Suburbanite Publications, Inc.
St. Louis Park	43,310	43	St. Louis Park Director, 1964, St. Louis Park Dispatch
Richfield	42,523	43	Richfield Directory, 1964, Minneapolis Suburban Newspapers, Inc.
Edina	28,501	29	Edina Directory, 1965, Edina-Morningside Courier
Minnetonka	25,037	25	Suburban West Directory, 1964-65, Suburban Directories, Inc.
Brooklyn Center	24,356	24	Brooklyn Center Directory, 1965, Nicholson Associates
Crystal	24,283	24	Robbinsdale-Crystal Directory, 1965, Nicholson Associates
Robbinsdale	16,318	16	Robbinsdale-Crystal Directory, 1965, Nicholson Associates
Golden Valley	14,559	15	Golden Valley Directory, 1964, The Golden Valley Press
New Hope-Plymouth	13,451	13	New Hope-Plymouth Directory, 1964, Nicholson Associates
Hopkins	11,370	11	Hopkins Directory, 1965, Hennepin County Review
Brooklyn Park	10,197	10	Brooklyn Park Directory, 1964, Brooklyn Park Lions Club
Long Lake-Orono-Minnetonka Beach	7,851	8	Lake Minnetonka Directory, 1964-65, Suburban Directories, Inc.
Shorewood-Tonka Bay-Excelsior-Greenwood	6,941	7	Lake Minnetonka Directory, 1964-65, Suburban Directories, Inc.
Mound	5,440	5	Lake Minnetonka Directory, 1964-65, Suburban Directories, Inc.
St. Anthony	4,744	5	Minneapolis Suburban Directory, 1964, R. L. Polk & Company
Champlin-Dayton, Hassan	4,508	5	Hennepin County Tax Records, 1965
Maple Grove-Osseo	4,317	4	Hennepin County Tax Records, 1965
Woodland-Deephaven	3,735	4	Lake Minnetonka Directory, 1964-65, Suburban Directories, Inc.
Eden Prairie	3,233	3	Suburban West Directory, 1964-65, Suburban Directories, Inc.
Wayzata	3,219	3	Lake Minnetonka Directory, 1964-65, Suburban Directories, Inc.
Minnetrista-St. Bonifacius	2,787	3	Lake Minnetonka Directory, 1964-65, Suburban Directories, Inc.
Morningside	1,981	2	Morningside Directory, 1965, Edina-Morningside Courier
Fort Snelling	898	1	Fort Snelling map
Totals[1]	836,929	835	

[1]The population of Hennepin County according to the 1960 United States Census was 842,854. 5,925 people lived in areas for which city directories were not available.

APPENDIX B

SUMMARY OF DATA OBTAINED IN THE INTERVIEWS

APPENDIX B

SUMMARY OF DATA OBTAINED IN THE INTERVIEWS

Current Status of Subjects	Nonprofessional Sample		Professional Sample	
	No.	Percent	No.	Percent
Telephone in home	488	97.2	73	98.6
No telephone	14	2.8	1	1.4
Age				
22-25	43	8.6	4	5.4
26-30	40	8.0	3	4.1
31-35	42	8.4	14	18.9
36-40	62	12.3	14	18.9
41-45	80	15.9	12	16.2
46-50	78	15.5	19	25.7
51-55	64	12.7	3	4.1
56-60	40	8.0	4	5.4
61-64	40	8.0	1	1.4
Refused	1	0.2	0	0
Unknown	12	2.4	0	0
Sex				
Male	297	59.2	58	78.4
Female	205	40.8	16	21.6
Race				
White	484	96.4	70	94.6
Negro	11	2.2	2	2.7
Other	3	0.6	1	1.4
Unknown	4	0.8	1	1.4

	Nonprofessional Sample		Professional Sample	
	No.	Percent	No.	Percent
Education				
None	1	0.2	0	0
Grade: 1-7	13	2.6	0	0
8	65	12.9	0	0
9-11	88	17.5	0	0
12	216	43.0	2	2.7
College: 1	25	5.0	3	4.1
2-3	53	10.6	9	12.2
4	27	5.4	27	36.5
5 or more	14	2.8	33	44.6
Head of Household				
Yes	346	68.9	58	78.4
No	156	31.1	16	21.6
Dependents				
None	170	33.9	16	21.6
1	105	20.9	5	6.8
2-3	103	20.5	24	32.4
4-5	93	18.5	20	27.0
6 or more	31	6.2	9	12.2
Veteran				
Yes	181	36.1	43	58.1
No	321	63.9	31	41.9
Occupation (when employed)				
Never employed	0	0	0	0
Unskilled	19	3.8	0	0
Semiskilled	46	9.2	0	0
Skilled	102	20.2	0	0
Agricultural	7	1.4	0	0
Clerical & Sales	179	35.6	0	0
Service	46	9.2	0	0
Managerial	48	9.6	6	8.1
Professional	54	10.8	68	91.9
Unknown	1	0.2	0	0

	Nonprofessional Sample		Professional Sample	
	No.	Percent	No.	Percent
Lived Last Three Years				
In a large city	312	62.1	37	50.0
In a suburb	171	34.1	37	50.0
In city of 25,000-99,999	7	1.4	0	0
In town of 5,000-24,999	4	0.8	0	0
Less than 5,000	6	1.2	0	0
On a farm	2	0.4	0	0
I. Q. Estimate				
Refused test	42	8.4	1	1.4
Did not complete test	56	11.2	3	4.1
130+ above	27	5.4	27	36.5
120-129	111	22.1	26	35.1
110-119	62	12.4	12	16.2
90-109	133	26.4	4	5.4
80-89	43	8.5	1	1.4
70-79	18	3.6	0	0
69 and below	10	2.0	0	0
Physical Handicaps				
None apparent	426	84.9	64	86.5
Eyeglasses only	64	12.7	10	13.5
Has perceivable handicap	11	2.2	0	0
Unknown	1	0.2	0	0
Appearance				
Unusually handsome	19	3.8	4	5.4
Average	467	93.0	70	94.6
Below average	15	3.0	0	0
Atypical	1	0.2	0	0
Grooming				
Meticulous	64	12.7	17	23.0
Average	429	85.5	57	77.0
Slovenly	9	1.8	0	0

Childhood Background of Subjects	Nonprofessional Sample		Professional Sample	
	No.	Percent	No.	Percent
Father's Occupation				
Unknown	9	1.8	0	0
Unemployed	5	1.0	0	0
Unskilled	34	6.8	5	6.8
Semiskilled	28	5.6	3	4.1
Skilled	119	23.7	9	12.2
Agricultural	130	25.9	8	10.8
Clerical & Sales	43	8.6	8	10.8
Service	15	3.0	6	8.1
Professional or Managerial	80	15.9	31	41.9
Retired	1	0.2	0	0
Not in home	38	7.5	4	5.4
Childhood Residence				
West	5	1.0	1	1.4
North Central	469	93.4	63	85.1
Northeast	5	1.0	5	6.8
South	6	1.2	2	2.7
Outside U. S.	17	3.4	3	4.1
Size of Community During Childhood				
Large city	203	40.4	31	41.9
Suburb near a city	28	5.6	1	1.4
25,000-99,000 city	26	5.2	8	10.8
5,000-24,999	55	11.0	13	17.6
Less than 5,000	113	22.5	17	23.0
On a farm	74	14.7	4	5.4
Unknown	3	0.6	0	0
Language Spoken in Home				
English only	368	73.3	61	82.4
English and other	109	21.7	9	12.2
English not used	25	5.0	4	5.4

	Nonprofessional Sample		Professional Sample	
	No.	Percent	No.	Percent
Childhood Economic Status				
Submarginal	21	4.2	1	1.4
Marginal	206	41.0	20	27.0
Comfortable	90	17.9	11	14.9
Luxurious	185	36.9	42	56.8
Health of Subjects				
How Many Visits to Doctor During Past Three Years				
None	362	72.1	63	85.1
1-2	101	20.1	9	12.2
3-4	20	4.0	1	1.4
5 or more	19	3.8	1	1.4
Weeks in Hospital During Past Three Years				
None	370	73.7	59	79.9
1-2	83	16.5	13	17.6
3-6	26	5.2	2	2.7
7-16	21	4.2	0	0
17-25	2	0.4	0	0
Mental Health				
No treatment	471	93.8	68	91.9
Hospitalized - less than 3 months	6	1.2	4	5.4
3 or more months	5	1.0	0	0
Treated by physician	16	3.2	2	2.7
Treated by psychiatrist	4	0.8	0	0

Vocational Training Received by Subjects

	Nonprofessional Sample		Professional Sample	
	No.	Percent	No.	Percent
Recognized Apprenticeship				
Inadequate	4	0.8	0	0
Adequate	29	5.8	2	2.7
Completed 2 or more	0	0	0	0
Company-Sponsored Program				
Inadequate	2	0.4	0	0
Adequate	34	6.8	6	8.1
Two or more	12	2.4	2	2.7
High School Training				
Inadequate	14	2.8	0	0
Adequate	35	7.0	1	1.4
Two or more	1	0.2	1	1.4
Armed Forces				
Inadequate	29	5.8	3	4.1
Adequate	26	5.2	6	8.1
Two or more	0	0	0	0
Correspondence Course				
Inadequate	15	3.0	1	1.4
Adequate	14	2.8	1	1.4
Completed 2 or more	2	0.4	0	0
Technical or Trade School				
Inadequate	25	5.0	2	2.7
Adequate	104	20.7	5	6.8
Completed 2 or more	10	2.0	3	4.1

APPENDIX C

DEFINITION OF FOUR REGIONS

APPENDIX C

DEFINITION OF FOUR REGIONS

Northeast	North Central	West
Connecticut	Illinois	Arizona
Delaware	Indiana	California
Maine	Iowa	Colorado
Massachusetts	Kansas	Idaho
New Hampshire	Michigan	Montana
New Jersey	Minnesota	Nevada
New York	Missouri	New Mexico
Pennsylvania	Nebraska	Oregon
Rhode Island	North Dakota	Utah
Vermont	Ohio	Washington
	South Dakota	Wyoming
	Wisconsin	

South

Alabama
Arkansas
District of Columbia
Florida
Georgia
Kentucky
Louisiana
Maryland
Mississippi
North Carolina
Oklahoma
South Carolina
Tennessee
Texas
Virginia
West Virginia

APPENDIX D

PROPOSED INTERVIEW FORMS FOR USE IN THE MAJOR STUDY

APPENDIX D

Residence No. _____ Budget Bureau #44-6527

Approval Expires March 31, 1968

VOCATIONAL TRAINING SURVEY

SUBJECT IDENTIFICATION FORM
(FORM A)

Address _____ _____
Street City

Telephone _____ Interviewer _____

Total No. of Eligible Subjects _____ (To be filled in by interviewer)

Hello, Mrs. (Mr.) _____. My name is _____

I am an interviewer for North Star Research and Development Institute. You received a letter describing the study we are doing for the government. I would like to talk with you if I may. Here are my credentials.

This residence has been selected as part of a random sample of living units to be surveyed in this study. We are interviewing each person in these selected residences who is between 22 and 64 years of age and who is part of the available labor force.

(The following items are to be completed only once for each residence)

1. How many people between the ages of 22 and 64 live here? _____
2. Who are they? (List on Form A_1)
3. Does anyone in the neighborhood use your telephone regularly because they don't have a telephone of their own? Yes ____ No ____
4. What are their names and addresses?

   Name _____

   Address _____

   Name _____

   Address _____

SUPPLEMENTAL SHEET

(FORM A_1)

Budget Bureau #44-6527

Approval Expires
March 31, 1968

Residence No. _____

Subject No. _____ NAME _____

a) Sex: Male _____ Female _____ b) Age: _____ years

c) Has he (she) worked for salary or wages at any time during the last three years? Yes ____ No ____

d) (If "no") was he (she) available for employment? Yes ___ No ___

e) Was there any period of six months or more during the last three years when he (she) was not working? Yes ____ No ____

f) Why was he (she) not working during this period?

_____
(Specify)

(If these answers indicate that the subject may be eligible for this study)

g) When would be the best time to interview him (her)?

_____ _____
Time of Day Day of Week

Subject No. _____ NAME _____

a) Sex: Male _____ Female _____ b) Age: _____ years

c) Has he (she) worked for salary or wages at any time during the last three years? Yes ____ No ____

d) (If "no") was he (she) available for employment? Yes ___ No ___

e) Was there any period of six months or more during the last three years when he (she) was not working? Yes ____ No ____

f) Why was he (she) not working during this period?

_____
(Specify)

(If these answers indicate that the subject may be eligible for this study)

g) When would be the best time to interview him (her)?

_____ _____
Time of Day Day of Week

Budget Bureau #44-6527
Approval expires
March 31, 1968

VOCATIONAL TRAINING SURVEY

INTERVIEW FORM
(FORM B)

Residence No. _____ C/1,2,3

Subject No. _____ C/4 (of ____ subjects)

Card No. 1 C/5

Interviewer _____ C/6,7

Telephone No. _____

Name of Subject _____

Street Address _____

City _____

Hello, Mrs. (Mr.) _____. My name is _____. I am an interviewer for North Star Research and Development Institute. You received a letter describing the study we are doing for the government. I would like to talk with you if I may. Here are my credentials.

This residence has been selected as part of a random sample of living units to be surveyed in this study. We are interviewing each person in these selected residences who is between 22 and 64 years of age and who is part of the available labor force.

The following items are to be completed for every subject.

		Key Punch	Col.
1. Age last birthday.			
_____ years	22-25		9
	26-30		10
	31-35		11
	36-40		12
	41-45		13
	46-50		14
	51-55		15
	56-60		16
	61-64		17
	Refused		18
2. Sex	Male		19
	Female		20
3. Race	White (Caucasian)		21
	Negro (including those of mixed races)		22
	Other (Mongolian, American Indian, etc.)		23

4. When you were between 10 and 15 years old, what was your father's major occupation?

_____
(Job title)

What, exactly, did he do on this job?

_____
_____
_____
_____
_____

Occupation unknown		24
Unemployed		25
Unskilled		26
Semiskilled		27
Skilled		28
Agricultural		29
Clerical & Sales		30
Service		31
Professional or Managerial		32
Retired		33
Father not in home		34

	Key Punch	Col.

5. Where did you live during the major part of your childhood? (ages 5 to 17)

_____ City _____ State (or Country)

West		35
N.C.		36
N.E.		37
South		38
Outside U.S.		39

6. In what size community did you live?

In a large city (100,000 or more)		40
In a suburb near a large city		41
In a town or city, but not a suburb of a large city		
25,000 - 99,000		42
5,000 - 24,999		43
Less than 5,000		44
On a farm		45
On a government installation or reservation		46

7. When you were a child, what languages were spoken in your home?

English spoken exclusively in ordinary conversation		47
English and another language used in ordinary conversation		48
English not used in ordinary conversation		49

8. During the major part of your childhood:

a. Did you usually have adequate food, clothing, and a warm place to live? Yes _____ No _____

b. Was there some surplus money left over for extras? Yes _____ No _____

Key Punch Col.

c. Was there enough surplus money for vacations, education, travel, cars, savings, and investment? Yes____ No____

Submarginal	a.	no	
	b.	no	
	c.	no	50
Marginal	a.	yes	
	b.	no	
	c.	no	51
Comfortable	a.	yes	
	b.	yes	
	c.	no	52
Luxurious	a.	yes	
	b.	yes	
	c.	yes	53

9. What was the last grade or year* that you completed in school? Never attended school___ 54

*Note: Does not include technical or trade schools.

Grades:
- 1-7 ____ 55
- 8 ____ 56
- 9-11 ____ 57
- 12 ____ 58

College years:
- 1 ____ 59
- 2-3 ____ 60
- 4 ____ 61
- 5 or more ____ 62

10. How many people are dependent on you for their support? (including yourself)
- none ____ 63
- 1 ____ 64
- 2-3 ____ 65
- 4-5 ____ 66
- 6 or more ____ 67

11. Are you a veteran?
(If yes) Branch of service____
- yes ____ 68
- no ____ 69

Key Punch Col.

12. During the past three years, have you been on active duty with the armed forces?

yes_____
no_____

(If yes)
For how many months during the past three years?

*less than 6 months_____
*6 or more months_____

*(Subject is outside the scope of the study. Do not continue the interview.)

13. During the past three years, how many weeks have you been hospitalized or bedridden?

	Key Punch Col.
none_____	70
1-2_____	71
3-6_____	72
7-16_____	73
17-25_____	74
*26 or more____	

*(Subject is outside the scope of the study. Do not continue the interview.)

14. During the past three months, how many times have you seen a doctor for physical illness or injury?

none_____	75
1-2_____	76
3-4_____	77
5 or more_____	78

2

	Key Punch	Col.
Residence No. —		1,2,3
Subject No.		4
Card No.	2	5
Interviewer		6,7

15. Have you ever received treatment for nervousness, a nervous breakdown, anxiety, depression, or some psychiatric disorder?

yes		9
no		10

16. Where have you lived for the major portion of the past three years?

City _____ State (or Country) _____

17. What size community was this?

In a large city (100,000 or more)		11
In a suburb near a large city		12
In a town or city, but not a suburb of a large city		
25,000 - 99,999		13
5,000 - 24,999		14
Less than 5,000		15
On a farm or reservation		16

18. For whom do you work? _____

What kind of business or industry is this? _____

What kind of work do you do? (When employed) _____

_____
Specify in detail

Never employed		17
Unskilled		18
Semiskilled		19
Skilled		20
Agricultural		21
Clerical and Sales		22
Service		23
Managerial		24
Professional		25

Key Punch | Col.

(If "retired")

a. Do you work part-time? (Less than 35 hour/week) yes____ no____

b. Would you be available for work if you were offered a job that interested you? yes____ no____

c. How long have you been retired?
Less than 6 months____
*6 months or over____

*(If retired 6 months or over, and answers to 18a and 18b "no", subject is outside scope of study. Discontinue interview.)

The following questions deal with the vocational training you have had. This is an important part of the study, so let's do this section slowly and as accurately as possible.

Vocational training refers to training for a specific occupation. It does not include courses in homemaking, industrial arts, personal typing, or courses taken to learn something about a hobby.

Keeping in mind that we are talking about training that would fit you for employment in a recognized occupation, let's answer these questions.

19. Did you receive any vocational training in high school? yes____ no____

(If "yes", fill in one Form B-1 for each training program).

No training____	26
Inadequate training____	27
Adequate training____	28

20. Did you receive any vocational training in the armed forces? yes____ no____

(If "yes", fill in one Form B-1 for each training program)

No training____	29
Inadequate training____	30
Adequate training____	31

	Key Punch	Col.

21. Did you receive any vocational training by correspondence course? yes_____ no_____

(If "yes", fill in one Form B-1 for each training program)

No training_____	_____	32
Inadequate training_____	_____	33
Adequate training_____	_____	34

22. Did you receive any vocational training in a technical school or trade school? yes_____ no_____

(If "yes", fill in one Form B-1 for each training program)

No training_____	_____	35
Inadequate training_____	_____	36
Adequate training_____	_____	37

23. Did you receive any vocational training through a recognized apprenticeship? yes_____ no_____

(If "yes", fill out one Form B-1 for each training program)

No training_____	_____	38
Inadequate training_____	_____	39
Adequate training_____	_____	40

24. Did you receive any vocational training through a company-sponsored program that included regular classes? yes_____ no_____

(If "yes", fill out one Form B-1 for each training program)

No training_____	_____	41
Inadequate training_____	_____	42
Adequate training_____	_____	43

25. What is the most highly skilled work that you have ever performed for a period of six months or more?

_____
Job Title

26. When did you do this work?

From _____ to _____
Date Date

Key Punch	Col.

27. For whom were you working?

_____
Company

_____
Street Address

_____
City State

What kind of business or industry was this? _____

What kind of work did you do? _____

_____

28. The purpose of this study is to find out how all of these factors are related to your employment experience. We need a complete and accurate account of your work history during the past three years. Will you tell me the company for which you were working in _____ of 1963.
month

(Use as many form B-2's as are needed to account for subject's work experience during the past 36 months. Account for all periods of unemployment as well as all periods of employment.)

3-year employment score:

	No. of Months		Score
- fully employed at highest skill level (see Item 26)	_____	x 5 =	_____
- fully employed in seasonal occupation at highest skill level and did not seek other employment in off season	_____	x 4 =	_____
- part-time at highest skill level and did not desire full-time employment	_____	x 4 =	_____
- unemployed and did not desire employment	_____	x 4 =	_____
- fully employed but not at highest skill level	_____	x 3 =	_____
- fully employed in seasonal occupation at less than highest skill level and did not seek other employment in off season	_____	x 2 =	_____
- part-time at highest skill level but desired full-time	_____	x 2 =	_____
- part-time at less than highest skill level; did not desire full-time	_____	x 2 =	_____
- part-time at less than highest skill level and desired full-time	_____	x 1 =	_____
- unemployed; desired employment	_____	x 0 =	0
Totals	36		
Minus No. of jobs left involuntarily	_____	x 1 =	_____

GRAND TOTAL _____ _____ 44,45,46

Key Punch	Col.

29. The last part of this interview is a form that you fill out. We want to know if your employment experience is related to certain kinds of skills. This form measures these skills.

On one side of the form is a word-recognition test; on the other side, a group of items each with one blank to be filled in. You can complete each side as quickly as you wish. However, you cannot take more than 10 minutes to complete one side of the sheet.

If you don't know the answers, guess. The instructions are at the top of the page. Will you read the instructions please? Do you have any questions? All right, begin.

Refused to take test	_____	47
Quit before completing test (did not look at all items)	___	48
Attempted to complete entire test (looked at all items)	___	

Test Score:

V = _____

A = _____ x 2 = _____

Total = _____

Est. IQ = _____

VS	130 and above	_____	49
S	120-129	_____	50
BN	110-119	_____	51
A	90-109	_____	52
DN	80-89	_____	53
B	70-79	_____	54
MD	69 and below	_____	55

TO BE FILLED OUT AFTER COMPLETION OF INTERVIEW

30. Appearance

Would the respondent's physical appearance tend to influence a potential employer in deciding whether to hire this person for a position involving contact with the public? (Consider physical handicaps, physical appearance, and grooming.)

Appearance would influence <u>against</u> hiring	_____	56
Appearance would influence <u>toward</u> hiring	_____	57

TO BE FILLED OUT AFTER COMPLETION OF INTERVIEW

BY INTERVIEWER:

Interviewer's Name _____

Date and Time of Interview _____

Approximate Length of Interview _____

Are all interviews at this residence now complete? yes _____ no _____

Comments pertinent to study _____

_____

_____

BY PERSON MAKING TELEPHONE CALL-BACK:

Name of Caller _____

Date and Time of Call _____

Respondent's Reaction to Interview: Favorable__Neutral__unfavorable__

Comments by Respondent _____

_____

_____

_____

BY EDITOR AND KEY-PUNCH OPERATOR:

Name of Editor _____ Date _____

Name of key-punch operator _____ Date _____

Budget Bureau #44-6527
Approval Expires
March 31, 1968

Residence No. _____
Subject No. _____
Source of Training:
High School_____
Technical or Trade_____
Apprenticeship_____
Armed Forces_____
Correspondence_____
Company-sponsored_____

SUPPLEMENTAL SHEET
(FORM B-1)
Vocational Training Programs
(Use one form for each program attended)

1. Training Program Title _____

2. Where did you obtain this training?

_____
Name of school, training unit, company, etc.

_____
City State

3. When did you obtain this training? _____
Dates Attended

4. For what occupation were you being trained?

Job Title _____ Description of job _____

_____
(Specify in detail)

5. Do you believe this program provided the kind of training that would adequately prepare you for this occupation? yes ____ no ____

(If "no") Why not? _____

_____

6. What subject matter did you study?

_____

_____

7. Was there any on-the-job training involved in the training program? yes__ no__

8. How long was the complete training program? _____
Number of weeks

9. How long did you remain in the training program? _____
Number of weeks

10. Why did you take the training? _____

_____

11. Have you ever tried to obtain employment in this occupation? yes____ no____

12. (If "no") Why not? _____

Residence No. _____

Subject No. _____

Budget Bureau #44-6527
Approval Expires
March 31, 1968

SUPPLEMENTAL SHEET
(FORM B-2)

Employment History

Dates Unemployed _____

Employed by:

_____ to _____
Name of Company

_____ _____
Street Address

_____
City State

Job Title _____

What kind of work did you do? (In detail) _____

_____

_____

_____

Part-time _____ Full-time _____
(Less than 35 hours per week)

Why did you leave this job? _____

(If unemployed or employed part-time) Were you looking for full-time employment during this period? Yes _____ No _____

Dates Unemployed _____

Employed by:

_____ to _____
Name of Company

_____ _____
Street Address

_____
City State

Job Title _____

What kind of work did you do? (In detail) _____

_____

_____

Part-time _____ Full-time _____
(Less than 35 hours per week)

Why did you leave this job? _____

(If unemployed or employed part-time) Were you looking for full-time employment during this period? Yes _____ No _____

APPENDIX E

FREQUENCY DISTRIBUTION OF EMPLOYMENT INDEX SCORES OBTAINED IN THE PRELIMINARY STUDY WHEN THE EMPLOYMENT DATA ARE SCORED BY THE METHOD PROPOSED FOR THE MAJOR STUDY

APPENDIX E: DISTRIBUTION OF EMPLOYMENT INDEX SCORES OBTAINED BY 502 SUBJECTS USING TWO DIFFERENT SCORING METHODS