Summer 1991

Using Socio-Demographic Characteristics to Evaluate the Program Outcome of Job Training Partnership Act Clients

Denise Vanasse Siegfelt

Old Dominion University

Follow this and additional works at: https://digitalcommons.odu.edu/urbanservices_management_etds

Part of the Public Administration Commons

Recommended Citation
Siegfeldt, Denise V.. "Using Socio-Demographic Characteristics to Evaluate the Program Outcome of Job Training Partnership Act Clients" (1991). Doctor of Philosophy (PhD), dissertation., Old Dominion University, DOI: 10.25777/6tw6-y139
https://digitalcommons.odu.edu/urbanservices_management_etds/35

This Dissertation is brought to you for free and open access by the College of Business (Strome) at ODU Digital Commons. It has been accepted for inclusion in Theses and Dissertations in Urban Services - Urban Management by an authorized administrator of ODU Digital Commons. For more information, please contact digitalcommons@odu.edu.
USING SOCIO-DEMOGRAPHIC CHARACTERISTICS
TO EVALUATE THE PROGRAM OUTCOME OF
JOB TRAINING PARTNERSHIP ACT CLIENTS

by

Denise Vanasse Siegfeldt

A.A. June 1977, Thomas Nelson Community College
B.S. December 1978, Old Dominion University
M.S. December 1980, Old Dominion University

A Dissertation Submitted to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirements for the Degree of

DOCTOR OF PHILOSOPHY

URBAN SERVICES

OLD DOMINION UNIVERSITY
July 1991

Approved By:

Wolfgang Findur, Ph.D.  G. Steven Rhiel, Ph.D, Member
Dissertation Chair

Concentration Area G.P.D.

Loretta Cornelius, D.P.A., Member

Dean, College of Business and
Public Administration
ACKNOWLEDGMENTS

I wish to express sincere appreciation to my dissertation committee for the direction and guidance that they provided as the study evolved. I am particularly grateful to Wolfgang Pindur, Ph.D., Director, who provided the inspiration for this dissertation and directed the entire process with his high academic standards. The support, encouragement and advice that he rendered was indispensable. A very special note of thanks must be extended to Steven Rhiel, Ph.D., Committee Member, who spent countless hours assisting with the computer application, statistical analysis, and data interpretation. I am also grateful to Loretta Cornelius, Ph.D., Committee Member, for the overall support and contributions that she provided.

I wish to thank Michael LaTour, Ph.D., of Old Dominion University for the information he shared on the LISREL method.

Curtis Johnson, former Director of the Job Training Services, made the study possible by granting permission to evaluate the agency and ensuring the fullest cooperation and assistance of his staff. The support that was provided by Mr. Johnson and his staff is greatly appreciated. Among those staff members who offered assistance, Gary Butler, Cathy Ellis, David Forthuber, and the late Shirley Lanier deserve special recognition.
The comments and information given by various members of the employment and training community are also appreciated. In particular, Nikki Castle provided useful information for the historical overview early on in the process.

Although many individuals provided technical assistance, I am especially grateful to Jeannie Bowers, Betty Blankenship, Jamie Jones, Brenda Kennamer, Teresa Schmidt, Michelle Sealey, and Scott Siegfeldt.

Most of all, I wish to thank my parents, Alan R. and Mary Ann Vanasse for the encouragement and assistance that they provided. Without their support, completion of the dissertation would have been impossible.
# TABLE OF CONTENTS

ACKNOWLEDGMENTS ................................................................. iii

LIST OF FIGURES ........................................................................ vii

LIST OF TABLES ............................................................................. viii

LIST OF ACRONYMS ................................................................ xi

ABSTRACT ................................................................................ xiii

Chapter

1. INTRODUCTION ................................................................. 1

   Purpose of the Study ......................................................... 1
   Introduction to the Problem ........................................... 2
   Research Objectives ..................................................... 9
   Assumptions of the Study .............................................. 11
   Limitations of the Study ............................................... 11
   Significance of the Study .............................................. 13

2. REVIEW OF THE LITERATURE ON FEDERAL MANPOWER PROGRAMS .................................................. 32

   Influence of Selected Client Socio-demographic Variables on Program Outcome ........................................... 58
   Welfare Status ..................................................................... 79

3. METHODOLOGY ..................................................................... 141

   Evaluation Methodology ................................................ 141
   Research Design .......................................................... 142
   Research Questions and Hypotheses .............................. 146
   Collection of Data ......................................................... 184
   Data Analysis ............................................................... 187

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Chapter

4. RESULTS ................................................................. 234
   Results: Positive and Negative Terminations .................. 234
   Results: Enrollments and N onenrollments .................. 260
   Summary of Results .............................................. 285

5. DISCUSSION OF RESULTS AND THEIR IMPLICATIONS .... 291

6. FINAL CONCLUSIONS AND RECOMMENDATIONS .......... 367
   Conclusions Based on Consideration of a Variety of Characteristics to
   Distinguish Between Groups ...................................... 367
   Conclusions Based on Consideration of Individual Socio-Demographic
   Characteristics to Distinguish Between Groups .............. 371
   Conclusions Based on Direction of Results for Individual Socio-
   Demographic Characteristics .................................. 372
   Summary Conclusion .............................................. 375
   Recommendations ................................................ 376

APPENDIX ............................................................. 385

BIBLIOGRAPHY ....................................................... 389
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Federal Employment And Training Programs Implemented Since The Mid-1930's</td>
<td>33</td>
</tr>
<tr>
<td>2.</td>
<td>Major Changes In The Comprehensive Employment And Training Act Resulting From</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>The 1978 Amendments</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Titles of the JTPA Act of 1982 and as Amended Through December 31, 1988</td>
<td>47</td>
</tr>
<tr>
<td>4.</td>
<td>Amendments And Revisions To The Job Training Partnership Act</td>
<td>52</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of Clients Omitted From the Study for Various Reasons</td>
<td>182</td>
</tr>
<tr>
<td>2. Breakdown of the Study Population by Selected Socio-Demographic</td>
<td>193</td>
</tr>
<tr>
<td>3. Characteristics</td>
<td>194</td>
</tr>
<tr>
<td>4. Breakdown of the Positive and the Negative Terminations by Selected</td>
<td>195</td>
</tr>
<tr>
<td>Socio-Demographic Characteristics</td>
<td>196</td>
</tr>
<tr>
<td>5. Breakdown of the Positive and the Negative Terminations by Selected</td>
<td>196</td>
</tr>
<tr>
<td>Socio-Demographic Characteristics</td>
<td>196</td>
</tr>
<tr>
<td>6. Correlation Coefficients Between Continuous and Dichotomous</td>
<td>236</td>
</tr>
<tr>
<td>Variables for Positive and Negative Terminations</td>
<td>238</td>
</tr>
<tr>
<td>7. Pooled Within-Groups Correlation Matrix for the Positive and the</td>
<td>240</td>
</tr>
<tr>
<td>Negative Terminations</td>
<td>240</td>
</tr>
<tr>
<td>8. Test of Equality of Group Covariance Matrices Using Box's M</td>
<td>241</td>
</tr>
<tr>
<td>9. Wilks' Lambda (U-Statistic) and Univariate F-Ratio With 1 and 119</td>
<td>241</td>
</tr>
<tr>
<td>Degrees of Freedom</td>
<td>241</td>
</tr>
<tr>
<td>10. Summary Table for Significant Variables in the Discriminant Function</td>
<td>241</td>
</tr>
<tr>
<td>11. Canonical Discriminant Functions for the Positive and the Negative</td>
<td>242</td>
</tr>
<tr>
<td>Terminations</td>
<td>242</td>
</tr>
<tr>
<td>12. Structure Matrix: Pooled Within-Groups Correlations Between</td>
<td>243</td>
</tr>
<tr>
<td>Discriminating Variables and Canonical Discriminant Functions</td>
<td>243</td>
</tr>
<tr>
<td>13. Classification Results for the Positive and the Negative Terminations</td>
<td>245</td>
</tr>
<tr>
<td>14. Histogram for Group 1: Positive Terminations</td>
<td>250</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>15. Histogram for Group 2: Negative Terminations</td>
<td>251</td>
</tr>
<tr>
<td>16. All-Groups Stacked Histogram the Positive and the Negative Terminations</td>
<td>252</td>
</tr>
<tr>
<td>17. Group Means and Standard Deviations for the Positive and the Negative Terminations</td>
<td>254</td>
</tr>
<tr>
<td>18. Classification Function Coefficients (Fisher's Linear Discriminant Functions)</td>
<td>255</td>
</tr>
<tr>
<td>19. T-tests for Independent Samples, for the Positive and the Negative Terminations</td>
<td>257</td>
</tr>
<tr>
<td>20. Cross-Tabulations: Chi-Square Tests of Independence on Dichotomous Variables for the Positive and the Negative Terminations</td>
<td>258</td>
</tr>
<tr>
<td>21. Correlation Coefficients Between Continuous and Dichotomous Variables for Enrollments and Nonenrollments</td>
<td>262</td>
</tr>
<tr>
<td>22. Pooled Within-Groups Correlation Matrix for Enrollments vs Nonenrollments</td>
<td>263</td>
</tr>
<tr>
<td>23. Test of Equality of Group Covariance Matrices Using Box's M</td>
<td>265</td>
</tr>
<tr>
<td>24. Wilks' Lambda (U-Statistic) and Univariate F-Ratio with 1 and 287 Degrees of Freedom</td>
<td>265</td>
</tr>
<tr>
<td>25. Summary Table for Significant Variables in the Discriminant Function</td>
<td>267</td>
</tr>
<tr>
<td>26. Canonical Discriminant Functions for Enrollments vs Nonenrollments</td>
<td>268</td>
</tr>
<tr>
<td>27. Structure Matrix: Pooled Within-Groups Correlations Between Discriminating Variables and Canonical Discriminant Function</td>
<td>269</td>
</tr>
<tr>
<td>28. Classification Results for Enrollments and Nonenrollments</td>
<td>271</td>
</tr>
<tr>
<td>29. Histogram for Group 1: Enrollments</td>
<td>274</td>
</tr>
<tr>
<td>30. Histogram for Group 2: Nonenrollments</td>
<td>275</td>
</tr>
<tr>
<td>31. All-Groups Stacked Histogram: Enrollments and Nonenrollments</td>
<td>276</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>32. Group Means and Standard Deviations for Enrollments and Nonenrollments</td>
<td>279</td>
</tr>
<tr>
<td>33. Classification Function Coefficients (Fisher's Linear Discriminant Functions)</td>
<td>280</td>
</tr>
<tr>
<td>34. T-tests for Independent Samples, for Enrollments and Nonenrollments</td>
<td>281</td>
</tr>
<tr>
<td>35. Cross-Tabulations: Chi-Square Tests of Independence on Dichotomous Variables for Enrollments and Nonenrollments</td>
<td>283</td>
</tr>
</tbody>
</table>
LIST OF ACRONYMS

ADC - Aid to Dependent Children
AFDC - Aid for Families with Dependent Children
BSU - Business Services Unit
CCC - Civilian Conservation Corps
CETA - Comprehensive Employment and Training Act
CLMS - Continuous Longitudinal Manpower Survey
CRU - Central Records Unit
CT - Classroom Training
DOL - Department of Labor
FY - Fiscal Year
GETD - Governor's Employment and Training Department
JSA - Job Search Assistance
JTLS - Job Training Longitudinal Survey
JTPA - Job Training Partnership Act
JTS - Job Training Services
MDTA - Manpower Development and Training Act
MIS - Management Information System
OJT - On-the-Job Training
OMB - Office of Management and Budget
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIC</td>
<td>Private Industry Council</td>
</tr>
<tr>
<td>PSE</td>
<td>Public Service Employment</td>
</tr>
<tr>
<td>PY</td>
<td>Program Year</td>
</tr>
<tr>
<td>SDA</td>
<td>Service Delivery Area</td>
</tr>
<tr>
<td>SJTCC</td>
<td>State Job Training Coordinating Council</td>
</tr>
<tr>
<td>TCC</td>
<td>Training Control Center</td>
</tr>
<tr>
<td>WIN</td>
<td>Work Incentive Program</td>
</tr>
<tr>
<td>WPA</td>
<td>Works Progress Administration</td>
</tr>
</tbody>
</table>
ABSTRACT

USING SOCIO-DEMOGRAPHIC CHARACTERISTICS TO EVALUATE THE PROGRAM OUTCOME OF JOB TRAINING PARTNERSHIP ACT CLIENTS

Denise Vanasse Siegfoldt
Old Dominion University, 1991
Director: Dr. Wolfgang Pindur

The study was conducted to determine if there is a relationship between selected socio-demographic characteristics of Job Training Partnership Act (JTPA) Title II-A applicants who were determined JTPA eligible, assessed and counseled, and subsequently referred by a counselor for on-the-job training (OJT), and their program outcome at termination or cessation of services, as designated by (1) positive and negative terminations; and (2) enrollments and nonenrollments. The study was conducted on clients served by the Job Training Services (JTS), one of the Service Delivery Areas (SDA-13) in the State of Virginia. JTS is located in a largely urban area of the state.
Prior to undertaking the study, JTS program administrators and staff had expressed concern that too many of these applicants failed to enroll in OJT positions, or to obtain unsubsidized employment through Job Search Assistance. Program administrators and staff had also discussed the concern that many of the applicants who did enroll in OJT positions either dropped out of training or were terminated by the employers before completing the subsidized period, and did not enter unsubsidized employment. Their concern was largely associated with the relationship between the client’s completion of training and entrance into unsubsidized employment, and the program’s ability to meet or exceed JTPA performance standards.

The program outcome evaluation consisted of two components. Selected socio-demographic characteristics were analyzed, using discriminant function analysis, to discriminate between the positive and negative terminations for the program. Following this procedure, the positive and negative termination groups were merged into an enrollment group. The second component of the study analyzed selected socio-demographic characteristics through the use of discriminant function analysis, to discriminate between program enrollments and nonenrollments. Both components of the evaluation included univariate analyses, consisting of t-tests and chi-square tests of independence, to address hypotheses that were postulated for individual selected socio-demographic variables.

With the exception of race, none of the selected socio-demographic variables was found to have a significant influence on program outcome, as represented by positive and negative terminations. Race was the only socio-demographic variable...
that was found to be a significant discriminator between these two program outcome
groups, using discriminant function analysis. Furthermore, race was closer to being
statistically significant for the positive and negative terminations than any of the
other selected variables, according to chi-square test of independence, and t-tests. Of
the same variables which were also used to analyze the enrollment and
nonenrollment groups, welfare grant status, mathematics score, and number of weeks
unemployed formed a linear combination of variables to maximize the difference
between these two program outcome groups. These three socio-demographic
variables were also the strongest discriminators between the enrollments and
nonenrollments. Reading score was also highly significant, according to univariate
tests for the analysis, but did not enter the discriminant function due to
multicollinearity.

Since socio-demographic variables other than race do not appear to have a
significant influence on the attainment of a positive termination, the results imply
that selectivity, or "creamming," among applicants, and the use of discrimination, is
unreasonable. Furthermore, discrimination on the basis of race and several other
variables in the study is prohibited under JTPA, and by provisions of other Acts and
amendments. The study provided an indication that welfare recipients with lower
mathematics scores and more weeks of unemployment were least likely to be enrolled
in training. None of these variables were significant discriminators between the
positive and negative terminations. The JTS program staff and private sector
employers should be encouraged to give the applicants equal consideration.
Further research is needed before the findings can be generalized to applicants in earlier stages of the selection process, to include intake, assessment, and counseling.

Univariate tests were used to determine the strength of the results for the individual selected socio-demographic variables, for both program outcome analyses, and the direction of the results was inspected. The results provided evidence suggesting that for some socio-demographic variables, selectivity or discrimination may have occurred.

The study culminates with a synthesis of the results, and recommendations for the program, policy, and future research. Included among the recommendations is a need for additional research that includes latent variables, (such as client attitude, motivation, physical appearance, family problems, and staff attitude), which may intervene between socio-demographic variables and program outcome. The LISREL method of analyzing data is suggested.

xvi
To my parents, Alan R. and Mary Ann Vanasse
and my daughter, Amber.
CHAPTER 1
INTRODUCTION

Purpose of the Study

The purpose of this study is to determine if there is a relationship between selected socio-demographic characteristics of JTS Title II-A applicants who were determined JTPA eligible, then assessed and counseled, and subsequently referred by a counselor to the BSU for placement in an OJT position, and their training outcome at termination or cessation of services, as represented by (1) positive and negative terminations; and (2) enrollments and nonenrollments. The target population for the study consisted of all of the JTS JTPA Title II-A applicants for PY-85 and PY-86 who were determined JTPA eligible at Intake, then referred to the Training Control Center (TCC) where they were assessed, counseled, and subsequently referred to the BSU by an assessment counselor for placement in an OJT position by one of business services specialists.

The study consists of two components. The first component analyzed selected socio-demographic variables through the use of discriminant analysis to discriminate between those clients who were positive terminations and those who were negative terminations. Following this process, the positive termination group and the negative termination group were merged into an enrollment group so that the second component of the study could be carried out. The second component of the study
analyzed selected socio-demographic variables through the use of discriminant function analysis, to discriminate between those clients who were enrollments and those who were nonenrollments.

**Introduction to the Problem**

The focus of this study is on Job Training Services' (JTS') Job Training Partnership Act (JTPA) Title II-A applicants who were determined JTPA eligible, then assessed and counseled, and subsequently referred by a counselor to the JTS Business Services Unit (BSU) for placement in an on-the-job training (OJT) position. Prior to undertaking the study, JTS program administrators and staff had discussed the concern that too many of these applicants did not enroll in OJT positions, nor did they enter unsubsidized employment through Job Search Assistance. Job Search Assistance was another training activity which was provided through the BSU, and was used about as frequently as OJT. Program administrators and staff had also discussed, both formally and informally, that too many of the applicants who did enroll in OJT positions either dropped out of training or were terminated by the employers during the subsidized period, and did not enter unsubsidized employment.

Prior to further discussion, one should note that even though all of the cases in the study were referred to the BSU for OJT, many of them were provided with Job Search Assistance as a training activity, instead of OJT. Enrollment of clients in an OJT position was much riskier to the JTS than Job Search Assistance because if participants dropped out of OJT without entering unsubsidized employment, they became negative terminations for the agency. The applicants who enrolled in OJT were officially labeled as "enrollments" when they were placed in an OJT position. In
contrast, applicants who were provided with Job Search Assistance as a training activity were not officially considered to be "enrollments" until they entered unsubsidized employment as direct placements (as a direct result of BSU job placement specialists' efforts). These particular clients could not become negative terminations because they were not considered to be "officially enrolled" until they entered unsubsidized employment. Once they entered unsubsidized employment, they became positive terminations for the JTS.

The one drawback to providing Job Search Assistance was that if the clients happened to obtain their own unsubsidized employment without any assistance from the job placement specialists while on referral to the BSU, or while in a "holding pool" waiting to be placed, the JTS could not take credit in the form of a positive termination. These clients were among those that formed the nonplacement group for this study. One-third of the nonplacement group in the study either informed the job placement specialists that they were no longer interested in training because they found their own full-time or part-time employment, or had friends or family members that relayed such information. However, in many cases their attainment of employment was unconfirmed.

The study concentrates on clients who were either terminated (positive terminations, negative terminations and enrollments), or for whom JTPA services ceased (nonenrollments) during program years (PY) 1985 and 1986. Program Year 1985 ranged from July 1, 1985 to June 30, 1986. Program year 1986 covered July 1, 1986 through June 30, 1987.
Those clients who met one of the following criteria were positive terminations:

1. Entered unsubsidized employment after enrolling in OJT.
2. Entered unsubsidized employment as a direct result of Job Search Assistance provided through the BSU by business services specialists.

Those clients who met the following criterion were negative terminations:

1. Failed to enter unsubsidized employment after enrolling in OJT.

Those clients who conformed with one of the following criteria were enrollments:

1. Enrolled in OJT
2. Enrolled in Job Search Assistance

Any client who enrolled in one of the above-mentioned training activities were officially terminated from the program. Those who enrolled in OJT became either positive or negative termination. Those who entered unsubsidized employment as direct placements through Job Search Assistance were considered to be positive terminations.

Finally, those clients who met both of the criteria listed below were nonenrollments:

1. Did not enroll in OJT.
2. Did not enter unsubsidized employment as a direct result of Job Search Assistance provided through the BSU by Business Services Specialists.

Clients who were nonenrollments were not terminated from the JTS because they never officially enrolled. The JTS services simply ceased for these particular individuals.
Job Training Services (SDA 13) is a federally funded program which operates under JTPA and represents one of the fourteen SDAs in Virginia. Included in the consortium of local government jurisdictions represented by SDA 13 are the Cities of Hampton, Newport News, Poquoson and Williamsburg and the Counties of Gloucester, James City and York. With the exception of Gloucester County, the local government units which form the consortium are the same jurisdictions which operated as the CETA Prime Sponsor geographical area for the Virginia Peninsula under the former Comprehensive Employment and Training Act (CETA). SDA 13 is located in an area of Virginia that is largely urban. Although JTS operates on funds provided by JTPA Titles II-A and II-B, this study is limited to Title II-A.

Each SDA in Virginia receives a formula grant under JTPA, based upon variables such as the SDA’s unemployment rate and population density. In addition, each SDA is eligible to receive monies from the 6 percent Incentive Funds which are awarded for meeting or exceeding the performance standards. During the program years covered by this study (PY-85 and PY-86), seven performance standards were in existence. The only way in which Virginia SDAs could be provided with Incentive Funds for their programs was to successfully meet or exceed the three mandated performance standards, and any one of the additional performance standards, as listed below:
There is a direct relationship between the termination status (program outcome) of trainees upon leaving JTPA programs and the ability of SDA’s such as JTS to meet their performance standards for adults and youth. The only positive outcome from the OJT component for both adults and youth following enrollment in OJT is entrance into unsubsidized employment, which results in a positive termination. Similarly, the "only" outcome for enrollment in Job Search Assistance as a training activity is entrance into unsubsidized employment, which produces a positive termination for the JTS. Once enrolled in OJT, clients who fail to complete the training and do not enter unsubsidized employment become negative terminations. Negative terminations have an adverse impact on meeting performance standards that have been established for JTPA programs. The governor of each state is required to prescribe a reorganization plan when SDA’s do not meet performance standards that have been established by the Secretary of Labor, and at times varied by the governor, "within parameters established by the Secretary," for two years in a row.²

The inability to meet performance standards is a problem that has confronted many of the SDAs in Virginia. As an example, during PY-84, SDA 13 (JTS) was
successful in either meeting or surpassing five of the seven performance standards that had been established "but failed to meet its cost per (adult) entered employment and cost per positive (youth) termination standards." SDA 13 exceeded the cost per (adult) entered employment standard by $3,571.58, and exceeded the cost per positive (youth) termination standard by $1,231.78. As a result, SDA 13 was faced with the threat of falling under sanctions if it was unsuccessful in meeting one or more of the "required standards" for PY-85. One of the primary reasons that SDA 13 failed to meet the cost per entered employment standard for adults, and cost per positive termination standard for youth, was that too many of the enrollees dropped out of the system and did not enter unsubsidized employment. The nonenrollments contributed to the failure to meet these performance standards because in many cases, program funds and staff efforts spent on them could have been better spent on clients more likely to enroll in a training activity and to enter unsubsidized employment.

Although the JTS Business Services Unit was recently disbanded and its OJT responsibilities have been contracted out to the Job Shop, which is a new JTS subcontractor, this study still has relevance for the JTS and the employment and training community. The Job Shop serves the same clientele that the JTS Business Services Unit would have continued serving had it not been disbanded. Further discussion on the relevance of the study will be presented later in this chapter.
Research Questions

Research Question Number One:

What is the best combination of selected socio-demographic variables to maximize the difference between the positive terminations and the negative terminations?

Research Question Number Two:

Which of the selected socio-demographic variables provide the greatest distinction between the positive terminations and the negative terminations?

Research Question Number Three:

How well do the selected socio-demographic variables distinguish between the positive terminations and the negative terminations?

Research Question Number Four:

What is the best combination of selected socio-demographic variables to maximize the difference between the enrollments and the nonenrollments?

Research Question Number Five:

Which of the selected socio-demographic variables provide the greatest distinction between the enrollments and the nonenrollments?

Research Question Number Six:

How well do the selected socio-demographic variables distinguish between the enrollments and the nonenrollments?
Research Objectives

1. To determine which of the selected client socio-demographic variables are the strongest predictors of program outcome following referral to the BSU for placement in OJT. Program outcome is represented by positive terminations verses negative terminations, and enrollments verses nonenrollments. The results that are generated will provide evidence on which client socio-demographic characteristics are most strongly associated with the attainment of a successful program outcome, as well as an unsuccessful program outcome. In addition, the results will provide an indication as to which client groups may need special treatment or assistance in order to enroll in a training activity offered through the BSU. The study results will also provide some indication as to whether or not "creaming" or discrimination may have occurred for certain client socio-demographic characteristics, either by program administrators or private sector employers. However, results in this area will not be definitive. Finally, study results will suggest which client socio-demographic characteristics are most strongly related to an inability or an unwillingness to enroll in a training activity offered through the BSU, or to enter unsubsidized employment.

2. The study represents an initial attempt to development two models of program outcome following referral to the BSU for OJT that can be used by the JTS (SDA 13) and its OJT subcontractor, similar SDAs and OJT subcontracting vendors in Virginia, and the Governor's Employment and Training Department (GETD) in Virginia. One of the models of program
outcome will represent positive terminations verses negative terminations. The other model will represent enrollments verses nonenrollments. The model for positive terminations in contrast to negative terminations can be used by the Department of Labor (DOL) to evaluate JTPA programs. Furthermore, if individual data on applicants can be obtained which links their socio-demographic characteristics to program outcome, the DOL can also use the model for enrollments verses nonenrollments to evaluate similar JTPA programs.

3. To develop a profile of positive terminations and negative terminations, based upon their average scores for socio-demographic characteristics. The JTS and its OJT subcontractor will be able to use the profile by inserting the selected socio-demographic characteristics of any one applicant that was assessed, counseled, and referred for OJT, to predict whether the individual will become a positive termination or a negative termination for the program.

4. To develop a profile of enrollments and nonenrollments, based upon their average scores for socio-demographic characteristics. The JTS and the Job Shop will be able to use the profile by inserting the selected socio-demographic characteristics of any one applicant that was assessed, counseled, and referred for OJT, in order predict whether the individual will become an enrollment or a nonenrollment for the program.
Assumptions of the Study

1. The study assumed that all client socio-demographic data which were gleaned from client file folders in the JTS' Training Control Center (TCC) and the Central Records Unit (CRU) were accurate.

2. The study assumed that all client socio-demographic data which were obtained for the study were accurately entered into the computer while creating the data base for the analysis.

3. The study assumed that client socio-demographic characteristics do influence program outcome.

Limitations of the Study

1. The study was limited to clients that were determined JTPA eligible at intake, and subsequently assessed and counseled, and referred by a counselor to the BSU for placement in an OJT position by a business services specialist. Therefore, the study was limited to a portion of the JTS program as it operated during the period of time covered by the study. There is a strong possibility that numerous applicants who were interested in entering an OJT position were screened out during one of the earlier stages of the program, including intake, assessment, and counseling.

2. The study was limited to clients for whom OJT was the final type of training program referred to. As an example, clients who were referred to the BSU for placement in OJT, but shortly thereafter, were routed by the BSU to the Buckroe Skills Center where they enrolled in classroom training instead, were not included in the study.
3. The reading and/or mathematics scores either were not available for some clients or could not be used, for the following reasons:

- Some clients were not tested in reading and/or mathematics.
- A few clients who were tested earlier on in the program were tested on a different reading test than the other clients.
- In some cases, clients had been tested on a different reading and/or mathematics test by another agency, and the counselors used those scores in lieu of the tests administered by the JTS.

4. The study utilized the most recent data that were available on the clients. For clients who had remained on referral to the BSU long enough to require updating of their paperwork to ensure that they were still JTPA eligible, the updated data was used for the study.

5. The variables of client motivation, attitude, and personal appearance were not included among the socio-demographic characteristics selected for this ex post facto study, because data on one or more of these variables were frequently not available in client folders. Some of the client assessment reports prepared by the counselors did include the counselor's perception of client motivation, attitude, and personal appearance (i.e. grooming and attire) but a large portion of the client reports excluded discussion on one or more of these variables. Even if the study had included these particular variables, there would be serious questions concerning inter-rater reliability of the counselors' subjective evaluations of client motivation, attitude, and personal appearance. Due to the ex post facto nature of the study, inter-rater reliability could not be established. However, variables such as motivation, attitude and personal appearance have been linked to program outcome, and the ability to obtain
employment. As Sandell and Rupp pointed out, participant motivation is especially important under JTPA because motivators such as stipends and supportive services, which were available under CETA, are limited under JTPA.6

Significance of the Study

Significance for the JTS and its OJT Subcontractor

A discussion was presented earlier in this chapter indicating that JTS clients who have been determined JTPA eligible, assessed and counseled, and then referred to the BSU for placement in OJT, and ultimately became negative terminations and nonenrollments have been a major problem for the program.

A discussion was presented earlier in this chapter indicating that JTS clients who have been determined JTPA eligible, assessed and counseled, and then referred to the BSU for placement in OJT, and ultimately became negative terminations and nonenrollments have been a major problem for the program. These clients contribute to the program's difficulty in attaining certain JTPA performance standards. In many ways, these clients represent wasted funds and program efforts. The staff time, and funds spent on administrative, training and supportive services could have been better spent on other clients who would have followed through with the program and entered unsubsidized employment. This assertion is especially relevant for the negative terminations because JTS has more invested in them, primarily in terms of the cost for OJT subsidies, than the nonenrollments. Nevertheless, it is reasonable to assume that both the negative terminations and the nonenrollments may have reaped some benefits from the program. The JTS
provided both of these groups with in-depth assessment and counseling services, and enabled them to discover which occupations they were best suited for. The JTS counselors and the job placement specialists may even have facilitated the motivation, self-confidence, and job seeking skills needed by some of these clients to obtain employment on their own. Furthermore, since the negative terminations were enrolled in OJT for at least a short period of time, they may have acquired job skills that could be used to obtain more gainful employment in the future than would have been obtained without the program.

The study will reveal which client socio-demographic characteristics for PY-85 and PY-86 were the strongest discriminators between positive terminations and negative terminations for the JTS Business Services Unit. Furthermore, the findings will provide the JTS and its newly established subcontractor, the Job Shop, with an indication as to which socio-demographic characteristics are associated with program success (positive terminations), and therefore, represent the least amount of risk to the attainment of performance standards. The JTS and the Job Shop may wish to either enroll more of these individuals, or may decide to provide more intense services to others less likely to succeed. Study results that reveal which client socio-demographic characteristics are most strongly associated with program failure (negative terminations) will also be beneficial to the JTS and the Job Shop, because negative terminations have an adverse impact on the attainment of JTPA performance standards. Client groups with socio-demographic characteristics that are found to be most strongly related to the attainment of a negative termination are the groups that the JTS and the Job Shop could provide additional, or more intense
services to in an effort to minimize the negative termination rate. Greater coordination with other service agencies may be in order for clients with these characteristics. Alternatively, it is possible that the JTPA OJT program has simply not met the needs of clients with characteristics that may be found in the study to be strongly related to program failure (negative terminations) and the OJT program should be geared toward other clients more likely to succeed.

Findings from the study will also reveal which client socio-demographic characteristics are the strongest discriminators between enrollments and nonenrollments. The JTS and its OJT subcontractors could use these results to determine which client groups may need additional or more intense services, or may not be suitable candidates for the training activities provided by the BSU; namely, OJT, Job Search Assistance or Training Support. The results will also provide the JTS and its subcontractors with information they could use to determine which public service agencies they should coordinate with in order to increase the enrollment of certain client groups in a training activity and/or to facilitate their entrance into unsubsidized employment. Alternatively, it is entirely possible that the training activities provided by the BSU were not suitable for the individuals with characteristics most closely related to nonenrollments, and program efforts should be directed toward other client groups more likely to succeed.

The study will yield some evidence as to whether or not "creaming" for the most marketable clients has occurred, while excluding more hard-to-serve applicants. The GAO reported that "creaming" has been a concern that has been expressed by "many in the employment and training community."

Furthermore, according to
evidence from a study of the JTPA program in Illinois by Orfield and Slessarev, "private sector OJT largely serves the more advantaged workers." The study will also provide some indication as to whether or not employment discrimination has occurred by either the BSU job placement specialists, the private sector employers, or both. Orfield and Slessarev pointed out that employment discrimination is scarcely monitored within JTPA programs, and asserted that "antidiscrimination policies" need to be directly connected to these programs. Finally, the study will yield some evidence as to which client socio-demographic characteristics may be predictors of an unwillingness to enter JTPA training or unsubsidized employment. Various factors contribute to whether or not an individual participates in JTPA training programs. As Sandell and Rupp have stated, "the pattern of participation in JTPA programs reflects the interaction of several decisions: the specific requirements of the Act, the decision of eligible persons to seek JTPA training, and the client-selection decisions of program administrators and operators."

The study will provide JTS and its subcontractor, the Job Shop, with two models which can be used to evaluate program outcome, based upon client socio-demographic characteristics. One of these models can be used to evaluate positive terminations in comparison to negative terminations. The second model can be used to evaluate enrollments verses nonenrollments.

Finally, the study will result in the development of a profile for positive terminations and negative terminations, and another profile for enrollments and nonenrollments, based upon the average scores for selected socio-demographic characteristics. The JTS and the Job Shop can use the models by inserting the
socio-demographic characteristics of any one future applicant referred for OJT into each of the profiles, and predicting their program outcome, based upon those characteristics.

**Significance for Other SDAs in Virginia**

Results from the study cannot be generalized to other Virginia SDAs. However, the results could generate increased knowledge and awareness of the existence of varying program outcomes for clients, based upon differing socio-demographic characteristics. This increased knowledge and awareness may prove beneficial to other SDAs in Virginia that operate similarly to the JTS, especially in terms of program configuration for PY-85 and PY-86. The study will provide two initial models for program outcome following referral to OJT that similar SDAs could use to evaluate their programs. The models could be revised, if necessary, by adding or deleting certain client socio-demographic characteristics, to meet the needs of these SDAs.

**Significance for the Virginia GETD**

The Governor's Employment and Training Department (GETD) is responsible for administering the JTPA program in Virginia. The study will provide the GETD with the results of a program outcome evaluation for the JTS OJT program for PY-85 and PY-86, based upon applicant, enrollee and terminee data. The JTS is one of the GETD's fourteen SDAs in Virginia. The study will be unique for the GETD because the department has not required SDAs to report applicant data, until recently. The apparent dearth of studies similar to this one, which includes applicant data, can most likely be attributed to the time-consuming effort.
required to gather this data from client folders. Furthermore, it is highly probable that applicant data were not always readily assessable, even if they were available.

Results from the study will provide the GETD with an indication as to which JTS client socio-demographic characteristics were most strongly related to a difficulty in enrolling in training and entering unsubsidized employment, during PY-85 and PY-86. These findings will contribute towards information the GETD needs to determine which agencies JTS and its new OJT subcontractor should develop greater coordination efforts with, in the provision of JTPA OJT services. The GETD could use the findings as an initial starting point to determine where greater coordination efforts are needed for similar SDAs in Virginia that provide OJT services. The study could be replicated in other Virginia SDAs. One of the twenty-eight recommendations made to the DOL by the JTPA Advisory Committee in 1989 was the need to establish "expanded public-private partnership arrangements to achieve linkages between JTPA and other human resource programs in order to serve a larger proportion of the eligible population more effectively with a broader range of services."¹¹ In addition, the Commission on Workforce Quality and Labor Market Efficiency, which was created by the DOL in 1988, recently endorsed amendments to JTPA that would enhance its coordination "with other human resource systems."¹²

The GETD could include results from the study with other relevant information needed to determine which client groups may need to be targeted for JTPA services in Virginia, in addition to the two target groups currently established under JTPA; namely, school dropouts and welfare recipients.¹³ However, it must be reiterated that findings from the study cannot be generalized to other SDAs in
Virginia, so the study should be either be replicated in other SDAs or combined with results from other studies, prior to drawing final conclusions on which client groups need to be targeted for JTPA services in the state. The Commission on Workforce Quality and Labor Market Efficiency indicated their support in 1989 of amendments to JTPA which would "increase targeting of resources on those in need of remedial education." During that same year, the JTPA Advisory Committee recommended that, due to the "limited resources available under JTPA," greater program emphasis should be placed on those among the economically disadvantaged population who have "serious skills deficiencies." This recommendation was one of several proposals that the committee believed would be influential in maximizing the impact of JTPA's resources "on the nation's emerging labor market problems."

Study results will contribute crucial information that the GETD can use in formulating JTPA program policy in Virginia, including that which pertains to directing JTPA services toward certain groups of hard-to-serve clients. This change in emphasis appears to be forthcoming in the near future, as a result of proposed JTPA Amendments now being considered. As an example, one of the principles behind the proposed changes to JTPA that Former Secretary of Labor Elizabeth Dole was scheduled to present before the House Education and Labor Committee in 1989 was the need to "target assistance" to members of the JTPA eligible population who are least likely to succeed in the labor market. One of the proposed changes was the recommendation that not only must JTPA enrollees be disadvantaged, but that 100 percent of the youth and 50 percent of the adults must also suffer from "multiple disadvantages," or multiple barriers to employment, in order to be enrolled,
including being dependent on welfare, a teen parent, homeless, or having poor basic skills.17

The study will supply the GETD with two initial models that can be used to evaluate program outcome of JTPA clients referred for OJT programs in Virginia SDAs that have similar program processes to the JTS for PY-85 and PY-86. The models could also be used to evaluate program outcome for JTPA clients served by JTPA OJT subcontracting vendors. SDAs that operate similar OJT programs can be evaluated separately, or the data can be combined to evaluate program outcome for the overall OJT program in Virginia, providing that the SDAs attached the same definitions to agency terminology and carried out similar procedures. The same is true for SDAs that contract out their OJT and Job Search Assistance to subcontractors. In this case, the program outcome for clients served by subcontractors could be evaluated, to get an indication of whether or not selectivity or discriminatory practices may be occurring. If the GETD desires, the models could be revised by adding or deleting certain client socio-demographic characteristics, or by altering the point in the program process at which clients are included in the study, to meet the department needs for evaluation.

Significance at the National Level

The study will be significant in many respects for the U.S. Congress, the U.S. General Accounting Office (GAO), the U.S. Department of Labor (DOL), the National Commission for Employment Policy (NCEP), and other agencies and members of the employment and training community at the national level. "Since research, evaluation, and collection of basic data have all been drastically curtailed
under JTPA, evaluative studies such as this one are of value at the national level. These national level agencies, departments, and members of the employment and training community are dependent upon studies such as this to find out how the JTPA program is being implemented, and what types of outcomes clients of the program are experiencing. Levitan and Gallo have attributed the “major gaps . . . in our knowledge of JTPA operations” to poor funding and an inadequate distribution of research monies. Additional discussion on the significance of the study at the national level will be presented in the paragraphs below.

This study will help to fill an enormous research gap in the area of program outcome at the individual SDA level, following referral to OJT programs under JTPA, based upon client socio-demographic characteristics. According to an extensive search of the literature, it also appears as if few evaluative studies have been conducted to date at the individual SDA level on program outcome following enrollment in JTPA training programs, using a number of selected client socio-demographic characteristics. A major exception is Winkler's study of program outcome for the OJT participants in various counties in Tennessee. Winkler's study included a comparison of the positive termination rate, the noncompletion rate, and the job retention rate, of several categories of JTPA participants who enrolled in the JTPA OJT program in various counties in Tennessee. The present study includes data from applicants who were referred for placement in OJT by a JTPA counselor, whereas Winkler’s study focused solely on participants who had actually enrolled in OJT, and terminated from the program.
A case study similar to Winkler's was conducted by Ortiz on the JTPA Title II-A program in the SDA of Bayamon, Puerto Rico. A portion of Ortiz's study focused on the question of whether or not the completion rates of participants who were the "most in need" were similar to those for participants who were not as disadvantaged. The study used participant data from a variety of training programs offered by the SDA, including occupational skills training, a job search skills activity, and remedial education. As a result of his study, Ortiz recommended that additional research should be carried out to determine whether or not there is a relationship between the socio-demographic characteristics of participants, and program completion. Winkler also pointed out the need for additional JTPA research to determine factors that influence program outcome. The present study will contribute to research in these areas.

The inclusion of applicant data in this study contributes to its uniqueness. According to an extensive search of the literature, pertinent JTPA studies that have been conducted to date have used participant or terminee data. The gathering and reporting of applicant data is not required under JTPA. For example, the State of Illinois "does not require submission of applicant data and some SDAs do not collect it." Although JTS gathered applicant data and stored it in client files, Virginia is another state that has not required the reporting of this data until recently. It was necessary to gather applicant data for the study from client file folders because it was not stored in JTS' Automated Management Information System (MIS). JTS did not enter client data into the MIS System until the clients actually enrolled in a training component. The GAO reported that the DOL has experienced problems "in
expanding its data collection efforts because of the Office of Management and Budget's (OMB) reluctance to approve additional program reporting requirements" that could prove cumbersome for the states and SDAs.25

Sandell and Rupp conducted a study in 1988 for the NCEP to determine who was receiving JTPA services, and "whether the requirements of the Act relating to 'who' should be served" were being fulfilled. The researchers reported that because of the importance of these issues to the employment and training community, their study "cannot be considered the final word on the subject." Therefore, they recommended that further research be undertaken to contribute information toward "questions about why the participation rates of the several subgroups are what they are."26 The inclusion of applicant data in the present study will enable this evaluator to make an attempt at addressing several issues for one SDA that Sandell and Rupp addressed at the national level, as follows:27

1. Is the documented success of JTPA actually due to "creaming" by PICs for participants most likely to obtain employment?
2. Have "the high placement rates . . . been achieved at the expense of serving people who have the greatest need for training?"

Another unusual aspect of this JTPA study is that it connects the socio-demographic characteristics of individual applicants and participants with program outcome. The JTPA study which appears to be most similar to this one is Winkler's study of participant outcome from OJT in one SDA in Tennessee.28 Neither the Job Training Quarterly Survey nor the JTPA Annual Status Report, which are both used by the DOL, "allows state or SDA-level analysis of participant
characteristics in relation to the services they receive and the outcomes they experience.\textsuperscript{29} As discussed earlier, applicant data is not included in documents such as these because it is not reported. Using the State of Virginia as an example, program outcome is reported by the SDAs to the GETD for all terminees from Title II-A training programs, but it is aggregated for all types of training, rather than broken down by types of training received.

The study includes numerous socio-demographic characteristics. Many of these characteristics have been the target of interest and research on the JTPA program at the national level. Participant data for some of the socio-demographic characteristics in the study were stored in client file folders, but were not entered into the JTS MIS, which was another factor that necessitated the extensive hand-gathering of data from client files. The same situation may hold true for other SDAs across the nation, and if so, it may account for the dearth of evaluative research on JTPA program outcome at the SDA level, especially for certain socio-demographic characteristics such as reading and mathematics scores.

The inclusion of applicant and participant data on literacy skills in the study will add to its value at the national level. Until recently, the assessment of reading skills under JTPA Title II-A was not mandatory, and the assessment of mathematics skills under this title is still not required. As a result, data on literacy skills was unavailable for many of the JTPA SDAs, which probably accounts for the apparent dearth of evaluative studies under the Act which have included this data. Furthermore, since data on literacy skills did not have to be reported under
Title II-A, except recently for reading skills, it is likely that SDAs which provided such assessment did not enter these data into their automated MIS, if one was in existence.

This study will contribute timely information concerning the influence of reading and mathematics skills of JTPA applicants and participants on program outcome following referral for OJT placement. This information is crucial because according to the DOL, a "skills gap" is developing in our nation, whereby employers are experiencing "difficulty in finding the job applicants they need." The "skills gap" is largely due to the "low levels of achievement among students leaving our nation's schools." The DOL reported that according to reports from employers, "alarming numbers of young job applicants have such poor reading and computation skills that it is impossible to provide them with job-specific training." It was pointed out that ultimately, the ability of this nation to compete with foreign countries in the "international marketplace" now, and in the years to come, is highly dependent upon "eliminating the skills gap." The inclusion of the socio-demographic variables of reading and mathematics skills in this evaluation is significant because JTPA is the primary tool "of public policy" in existence to assist the economically disadvantaged working-age population obtain the "skills needed for successful entry into the job market."

This study will add considerably to the body of literature on the relationship between a number of other socio-demographic characteristics of clients, in addition to literacy skills, and program outcome from employment and training programs, including JTPA. These characteristics include veteran status, handicapped status, and
offender status. The study will also contribute to the body of literature that currently exists for some of the other, more widely researched variables in the study, such as age, gender, and welfare status.

The use of a multivariate statistical method to analyze program outcome for JTPA programs is a major factor that contributes to the uniqueness and usefulness of this evaluation. In agreement with an observation made by Ortiz in 1988, an exploration of available literature "reveals a conspicuous scarcity of formative type evaluations applicable to participant characteristics related to program completion and noncompletion."35 This assertion is especially true for the JTPA program. A review of pertinent literature for this study yielded two JTPA evaluative studies which examined participant characteristics in relation to program outcome at the SDA level. Neither of these studies used a multivariate statistical technique to analyze the data. One of these studies was conducted by Ortiz, on the entire JTPA Title II-A program in Bayamon, Puerto Rico.36 Ortiz used "descriptive, nonpredictive research" to determine if the participants who were categorized as needing services the most had rates of completion similar to those obtained by participants who were less disadvantaged.37 The second JTPA evaluative study under discussion was conducted by Winkler, on the JTPA OJT program in various counties for one of the SDAs in Tennessee. Winkler used a bivariate statistical technique to ascertain whether or not differences existed "in the noncompletion rate, the positive termination rate and the job retention rate . . . of participants" enrolled in OJT.38 In contrast to the bivariate technique used by Winkler, the statistical technique used in this study will allow one or more socio-demographic variables to be considered at a time in respect to
program outcome. In addition, the statistical methodology permits the prediction of program outcome based upon the socio-demographic variables included in the study. According to an extensive review of the literature, this study appears to be the only one which uses discriminant analysis to analyze data for program outcome from Federal employment and training programs.

The need for multivariate research studies such as this on the JTPA program to "help answer questions about why the participation rates of the several subgroups are what they are" has been documented by Sandell and Rupp, in a 1988 study they prepared for the NCEP. They asserted that "multivariate analysis would be useful in determining the independent effects of some of the factors that affect participation." They also asserted that "multivariate analysis could also be used to determine whether the same factors are influencing participation within the subgroups." In addition, the need for JTPA evaluative studies on factors that influence program outcome has been recommended by Ortiz and Winkler.

Castle's highly relevant national level study on JTPA Title II-A participant post-program outcome was recently published, in 1990. The author examined socio-demographic characteristics, program experiences and economic conditions in order to determine which factors influenced program success, as represented by increased employability and reduced welfare dependency. Although much of the study consisted of descriptive analyses, the study also included a multivariate component so that the author could "model the variables that affect post-program success and failure."
The study will provide two models for program outcome following referral for placement in OJT under JTPA. One model will represent negative terminations and positive terminations, and the other model will represent enrollments and nonenrollments. If individual level data can be obtained which connects socio-demographic characteristics to program outcome for OJT and Job Search Assistance, the model for positive terminations and negative terminations can be used at the national level to evaluate SDAs which operated similarly to the JTS for PY-86 and PY-86. The model can also be used at the national level to evaluate program outcome for those training activities which are provided by OJT subcontractors. The model can be revised by adding or deleting certain socio-demographic characteristics in order to meet the needs for evaluation. Care must be taken to ensure that the SDAs assigned the same definitions to terminology used for the evaluation, and that they carried out the same operational procedures in serving their clients. The model for enrollments and nonenrollments (applicant data) can also be used at the national level in the years to come, if the SDAs are eventually required to store and report applicant data.
NOTES


3Governor's Employment and Training Department, *A Summary of Performance and Outcomes by SDA for Program Year 1984*, prepared by the Monitoring and Evaluation Unit (Richmond, VA: Governor's Employment and Training Department, Monitoring and Evaluation Unit, 1985), sec. XIII.

4Ibid.

5Ibid.


9Ibid., 32-33, 204.


12Department of Labor, Commission on Workforce Quality and Labor Market Efficiency, *Investing in People: A Strategy to Address America's Workforce Crisis. A Report to the Secretary of Labor and the American People*, prepared by Richard

13Congress, Job Training Partnership Act, sec. 203(b)(3).

14Department of Labor, Investing in People, 22.


17Ibid.

18Orfield, Job Training Under the New Federalism, 9.


22Ibid., 77.


24Orfield, Job Training Under the New Federalism, 206.

25General Accounting Office, Job Training Partnership Act: Services and Outcomes, 6, 16.

26Sandell, Who is Served in JTPA Programs, v., 75.

27Ibid., 1.


31 Ibid.

32 Ibid.

33 Ibid., 2-3.


36 Ibid., 50.

37 Ibid., 50-54.


39 Sandell, *Who is Served in JTPA Programs*, 75.

40 Ibid.

41 Ibid.

42 Ortiz, "A Case Study on Participation in the Job Training Partnership Act," 77-78.


CHAPTER 2

REVIEW OF THE LITERATURE ON FEDERAL MANPOWER PROGRAMS

This chapter provides a historical overview of the major Federal employment and training programs that have been implemented since the mid-1930's. Presented in Figure 1 is a brief overview of these programs in chronological order.

Program Background

During the first few years of the Great Depression private organizations and charities attempted to assist those who were impoverished and out of work but it was not long before resources were depleted and the local governments had to take over.¹ State governments became involved in dealing with the problem by 1932,² but they too found the provision of public assistance to be an overwhelming burden.³ As a remedy to the plight of unemployment and poverty, the Roosevelt Administration enacted legislation which resulted in the establishment of the Civilian Conservation Corps (CCC).⁴ The CCC operated from 1933 to 1942 and provided work relief and work training to single males aged 18 to 25 years on construction and conservation projects that had been developed by the Department of Agriculture and the Department of Interior.⁵ These young men were placed in residential camps where order was preserved by Army officers.⁶ Clague and Kramer deemed the CCC as "one of the most successful of the New Deal Ventures."⁷ The authors cited the
CCC as a model for succeeding employment programs for youth. In addition, they stated that "the achievements of the CCC . . . constitute a landmark in the conservation movement in the United States."10

**FIGURE 1**

**FEDERAL EMPLOYMENT AND TRAINING PROGRAMS IMPLEMENTED SINCE THE MID-1930'S**

<table>
<thead>
<tr>
<th>Title</th>
<th>Year Implemented</th>
<th>Purpose</th>
<th>Target Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civilian Conservation Corps (CCC)</td>
<td>1933</td>
<td>To provide work relief and work training on construction and conservation projects.</td>
<td>Single males aged 18-25.</td>
</tr>
<tr>
<td>Works Progress Administration (Later known as Work Projects Administration (WPA))</td>
<td>1935</td>
<td>To provide work for the unemployed through public service employment.</td>
<td>Those who were unemployed.</td>
</tr>
<tr>
<td>Area Redevelopment Act (ARA)</td>
<td>1961</td>
<td>To train workers in economically depressed areas of the U.S. to meet needs of employers in order to attract industry to these locations.</td>
<td>Unemployed and underemployed workers.</td>
</tr>
<tr>
<td>Manpower Development and Training Act (MDTA)</td>
<td>1962</td>
<td>To provide training so that job vacancies could be filled. Emphasis was on fighting structural unemployment.</td>
<td>Originally, family heads with work experience who were displaced due to technological advances. Attention was redirected to the hard-core poor, with emphasis on minorities and youth.</td>
</tr>
<tr>
<td>Neighborhood Youth Corps (NYC) (created under EOA Act of 1964)</td>
<td>1965</td>
<td>To encourage youth to finish high school and receive training in order to be able to support themselves.</td>
<td>Youth who had dropped out of school and were unemployed.</td>
</tr>
<tr>
<td>Title</td>
<td>Year Impl.</td>
<td>Purpose</td>
<td>Target Groups</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Job Corps (created under EOA Act of 1964. Operated under CETA and currently under JTPA)</td>
<td>1965</td>
<td>To encourage youth to finish high school and receive training in order to be able to support themselves.</td>
<td>Youth who had dropped out of school and were unemployed.</td>
</tr>
<tr>
<td>Concentrated Employment Program (CEP) (created as a result of 1967 MDTA Amendment and the EOA Act of 1964)</td>
<td>1967</td>
<td>To bring categorical programs under control of a local prime sponsor.</td>
<td>Economically disadvantaged persons living in communities that have an excessive number of people who were poor and unemployed.</td>
</tr>
<tr>
<td>Work Incentive Program (WIN) (created as a result of 1967 Amendments to the Social Security Act)</td>
<td>1967</td>
<td>To assist AFDC recipients to obtain productive employment so they could become self-sufficient and get off welfare. Program was later revised so that applicants for AFDC could be placed in employment before they even had an opportunity to be put on welfare rolls.</td>
<td>Originally, AFDC recipients. Programs was later targeted toward applicants for AFDC.</td>
</tr>
<tr>
<td>Job Opportunities in the Business Sector Program (JOBS) (result of 1967 MDTA Amendment)</td>
<td>1968</td>
<td>To provide private sector employment to the disadvantaged and to reduce social turmoil in the ghettos.</td>
<td>Economically disadvantaged.</td>
</tr>
<tr>
<td>Comprehensive Employment and Training Act (CETA)</td>
<td>1973</td>
<td>To provide employment and training services through a consolidated, decentralized manpower system.</td>
<td>Economically disadvantaged, unemployed or underemployed.</td>
</tr>
<tr>
<td>Job Training Partnership Act (JTPA)</td>
<td>1983</td>
<td>Decentralized employment and training system designed to prepare youth and unskilled adults for entry into the labor force; and to provide job training to other people who have serious barriers to employment and need the training in order to find productive.</td>
<td>Economically disadvantaged youth and unskilled adults, and other individuals who have serious barriers to employment and need training.</td>
</tr>
</tbody>
</table>

Note: Sources of information for Figure 1 are footnoted within the text of Chapter 2.
In 1935 the Federal government assumed responsibility for those out of work by creating the Works Progress Administration (WPA) — later known as the Work Projects Administration. The purpose of the WPA was to provide work for the unemployed by increasing the magnitude of government subsidized positions and service projects. The government provided very limited effort toward the training aspect of manpower policy throughout the Great Depression. Initially, the public viewed the WPA as providing "make-work" to an immoderate number of unemployed individuals. With the passage of time, however, WPA projects were of better quality and were branched out into more arenas, which enabled the agency to attain public recognition as a national asset. The notable achievements of the WPA include the establishment of public parks, the construction of schools and the preparation of handbooks. The agency also conducted manpower research and developed the sample survey of the unemployed, which has evolved into the present Current Population Survey. On December 7, 1941 the United States entered World War II, and, one year later, the WPA was eliminated. During the years of the Depression, public-service employment programs such as the CCC and the WPA were needed because approximately one third of the working population was jobless. This dilemma ceased with the United States' involvement in World War II, due to the increased demand for labor.

The Area Redevelopment Act (ARA) of 1961 represented the first large-scale program created by the Federal government to train the unemployed since the Great Depression. In contrast to the WPA of 1935 which focused on reducing cyclical unemployment throughout the nation, the ARA was enacted to alleviate structural
unemployment in certain areas. The purpose of the ARA was to train workers in economically depressed areas of the United States, which fell behind as the nation developed. The ARA was inaugurated under the new Kennedy administration, "primarily to affect the rural poor in places like Appalachia." The legislation intended to train unemployed and underemployed workers to meet designated needs of employers as an inducement for them to bring new industry to the region. An additional incentive was the provision of loans to these employers. Despite their efforts, ARA administrators were confronted by the fact that private sector business firms preferred to become established in economically thriving areas rather than depressed locations, because there were fewer risks involved. Clague and Kramer asserted that "the scope of the Area Redevelopment Act was too narrow to have a substantial impact on the national unemployment problem;" thus, the ARA was eliminated in 1965.

As a result of rising unemployment in the nation, Congress legislated the Manpower Development and Training Act (MDTA) of 1962. The MDTA provided for a much larger program than the ARA and was the first major federal effort to provide job training. Mangum stated that the MDTA was originally intended as "an emergency recession measure designed to provide technologically displaced, experienced, family heads with subsistence while they acquired new skills through either state-operated schools or private on-the-job training in order to fill existing job vacancies." The primary concern of the program was "unemployment resulting from automation and technological change; in other words, the structural changes in employment opportunities." During the early years of the program the
unemployed workers who were the most employable were retrained and placed in jobs. However, concern soon shifted to the "plight of the disadvantaged." National attention was directed toward the hard-core poor, with an emphasis on minorities and the young, which prompted the Johnson Administration to declare 'War on Poverty.'

"The most important manpower legislation enacted during the War on Poverty years was the Economic Opportunity Act (EOA) of 1964, which was implemented during a period marked by social turmoil and rising welfare costs. The intent of this particular "Great Society Program" was to "break the cycle of poverty." Consequently, the EOA was targeted toward those individuals who were indigent and lacked the education and training needed to enter the work force. It "provided extensive localized programs for combating poverty for economically disadvantaged and minority program applicants." These programs were usually managed by community action agencies and were generally situated in the hub of urban areas.

In 1965 the EOA created two major programs for youth who had dropped out of school and were unemployed; namely, the Neighborhood Youth Corps and the Job Corps. Both programs were established in response to the perceived need for "federal efforts to aid and motivate young people to complete high school and obtain the training that they needed to become self-supporting."

The MDTA was amended in 1966 amidst economic conditions of affluence and a low unemployment rate, coupled with "social unrest" and rising welfare costs. This amendment required that 50 percent or more of the funding under the Act would be used for the provision of on-the-job training (OJT). The amendment

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
was significant because it represented a shift in emphasis from institutional training, which was much more predominant, to on-the-job training.\textsuperscript{51} The 1966 amendment also required 65 percent of the clients served through the program to be disadvantaged, as characterized by 1) school dropout, 2) minority group member, 3) below age 22 or above age 45, or 4) handicapped.\textsuperscript{52} This change in emphasis of the MDTA toward the disadvantaged population and minority group members was "presaged by passage of the Civil Rights Act and the Economic Opportunity Act\textsuperscript{53} of 1964.

In 1967 the MDTA and the EOA were amended "in an attempt to allow employment and training services to come under local control."\textsuperscript{54} The Job Opportunities in the Business Sector Program (JOBS) of 1968\textsuperscript{55} was a result of the 1967 MDTA amendment.\textsuperscript{56} The JOBS program was jointly administered by the U.S. Department of Labor Manpower Administration and the National Alliance of Businessmen.\textsuperscript{57} The program was intended as a means to provide meaningful private sector employment to the disadvantaged\textsuperscript{58} and to reduce social turmoil in the ghettos.\textsuperscript{59} One segment of the program was subsidized by the Federal government and the other component was financed by the private sector.\textsuperscript{60} The individuals served through the JOBS program were first hired by private sector employers and were trained afterwards.\textsuperscript{61} Perry reported that the development of a sluggish economy beginning in 1970 had a negative impact on the program.\textsuperscript{62} Many of the clients who had been served through the program were laid off from their jobs and private sector employers were much less willing to hire potential trainees than in the past.\textsuperscript{63} Although the JOBS program "faded from public prominence," the National
Alliance of Businessmen "continued to function both in the area of employment for the disadvantaged and in the Jobs for Veterans campaign."\textsuperscript{64} The Concentrated Employment Program (CEP) of 1967 was established through monies appropriated under "the MDTA, as amended, and the Economic Opportunity Act of 1964."\textsuperscript{65} The intent of the CEP was to "eliminate competition, overlapping, and duplication of effort that had developed among the various manpower programs as a result of the inefficiencies created by the fragmented delivery system."\textsuperscript{66} The purpose of the CEP was to provide comprehensive services\textsuperscript{67} by bringing the individual categorical programs in a specified community under the control of a local sponsor.\textsuperscript{68} Anderson reported that the CEP was designed to serve residents of communities in which an excessive number of poor and unemployed persons lived.\textsuperscript{69} The target population for the program was disadvantaged persons.\textsuperscript{70}

As a result of amendments to the Social Security Act in 1967, the Work Incentive Program (WIN) was created.\textsuperscript{71} Responsibility for the program was assigned jointly to the Department of Labor and the Department of Health, Education and Welfare.\textsuperscript{72} The program was designed to get Aid to Families with Dependent Children recipients into productive employment in order to help them become self-sufficient and to decrease welfare rolls and expenses.\textsuperscript{73} Gueron pointed out that although WIN was originally a discretionary program, it became a compulsory program for a certain category of AFDC recipients in 1971. The author said that unless adult recipients of AFDC have children under age six or specific problems that necessitate their staying at home, they would have to sign up at the
state employment service, become involved in job training and job seeking activities and accept jobs when offered. In 1975, WIN was redesigned. As a result of this change, clients of WIN were required to register for services "with the local WIN employment and training staff rather than at the welfare department." The revision was made so that AFDC applicants could be immediately placed into jobs; thereby, preventing the need to place them on welfare.

As the 1960's came to an end, more than seventeen categorical manpower programs were in existence. The Comprehensive Employment and Training Act (CETA) of 1973 served to reform the manpower system that had been established under MDTA, EOA and the Emergency Employment Act of 1971 by consolidating the programs under these acts and putting local and state governments and prime sponsors in control under the supervision of the Federal government. The reformation gave local governments an enormous amount of control over the implementation of CETA by having the authority and freedom to adapt the program to accommodate local needs; it was hoped that local control would facilitate "grassroots participation in planning and decision making." CETA prime sponsors were established to carry out decision making at the local level. Each prime sponsor was required to create an advisory council "to participate in determining the needs for employment and training in their local communities, in monitoring and evaluating existing programs, and in making recommendations regarding program plans." In contrast to the local and Federal government, states were granted the least amount of responsibility in implementing the CETA program. In comparison to MDTA, which was intended as a weapon against structural unemployment, CETA
was enacted to fight cyclical unemployment, which was viewed as a more significant problem. CETA was established as a decentralized block grant program to provide employment and training services to individuals who were economically disadvantaged, unemployed or underemployed. Public service employment was heavily emphasized under the program.

According to a U.S. Department of Labor Report in 1981, there were numerous concerns and criticisms of CETA when it was reviewed by Congress for reauthorization in 1978, including the following:

1. "Creaming"

2. Substituting public service employment (PSE) for local funds to hire employees.

3. Program mismanagement, including the enrollment of ineligible clients.

4. Paying high salaries which served as an incentive for clients to stay in federally subsidized PSE positions instead of looking for alternative employment.

5. Despite the fact that PSE was intended to be a short-term program, a considerable number of clients were enrolled for years.

6. In many cases, PSE positions did not provide the level of training that was needed to prepare clients for entrance into regular employment.

A comparison of the CETA Act of 1973 with the amended CETA Act of 1978 is presented in Figure 2. Due to the "recession of 1974... Congress passed and later expanded Title VI, its major public service program." In 1976, the Emergency Jobs Extension Act was passed in an effort to limit the substitution of PSE funds for local funds and to redirect program efforts toward the disadvantaged by permitting only short-term PSE ventures and only permitting the severely disadvantaged to enroll in PSE. Despite the efforts made under the Emergency Jobs Extension Act,
additional action was needed to resolve the shortcomings inherent in the PSE programs. The amendments made under the 1978 CETA reauthorization act were much more effective in resolving these shortcomings.

FIGURE 2

MAJOR CHANGES IN THE COMPREHENSIVE EMPLOYMENT AND TRAINING ACT RESULTING FROM THE 1978 AMENDMENTS

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title I</strong> Training programs for the unemployed, under-employed, and economically disadvantaged.</td>
<td><strong>Title IIB/C</strong> Training programs for the economically disadvantaged and under-employed; upgrading and retraining. Tenure in CETA programs (except PSE) limited to 30 months.</td>
</tr>
<tr>
<td><strong>Title II</strong> Public service jobs for the unemployed and under-employed in the areas of high unemployment.</td>
<td><strong>Title IID</strong> Public services jobs for the low-income, long term unemployed, and for welfare recipients. A portion of allotments reserved for training. Employability development plans required. Tenure limited to 18 months. Wages lowered.</td>
</tr>
<tr>
<td><strong>Title III</strong> National programs for Indians, migrant farm workers, youth and other special groups. Research, evaluation, and labor market information.</td>
<td><strong>Title III</strong> National programs for Indians, migrant farm workers, older workers, and other special groups. Research, evaluation and labor market information.</td>
</tr>
<tr>
<td><strong>Title IV</strong> Job Corps.</td>
<td><strong>Title IV</strong> Job Corps. Summer youth programs. Other youth employment projects.</td>
</tr>
<tr>
<td><strong>Title V</strong> National Commission for Manpower Policy.</td>
<td><strong>Title V</strong> National Commission for Employment and Training Policy.</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Title VI</strong> Countercyclical public service jobs for the unemployed and underemployed. Part of funds reserved for short duration projects for the low-income, long term unemployed, and welfare recipients.</td>
<td><strong>Title VI</strong> Countercyclical public service jobs for the low-income, long term employed, and for welfare recipients. A portion of allotments reserved for training and employability counseling. Tenure limited to 18 months. Wages lowered.</td>
</tr>
<tr>
<td><strong>Title VII</strong> Administrative provisions: designation of prime sponsors; planning.</td>
<td><strong>Title I</strong> Administrative provisions: designation of prime sponsors; planning. Requires sponsors to establish independent monitoring units.</td>
</tr>
<tr>
<td><strong>Title VII</strong></td>
<td><strong>Title VII</strong> Experimental private sector initiative programs</td>
</tr>
<tr>
<td></td>
<td><strong>Title VIII</strong> Youth conservation projects</td>
</tr>
</tbody>
</table>


The Private Sector Initiative Program (PSIP), also known as Title VII of CETA, was established in 1978. Private Industry Councils (PICS) were developed under this title to facilitate the involvement of "the private sector in employment and training programs and to increase private sector employment opportunities for economically disadvantaged citizens." PSIP funding was set at 5 percent of the CETA funds. In comparison to the regular programs, PSIP was a success. The job placement rate was 25 percent above the regular CETA programs. Furthermore, terminees of the PSIP programs achieved a $1.35 an hour salary increase above their former salaries in contrast to only a 65-cent increase for terminees from the CETA public sector programs.
Overall, CETA developed a reputation for massive government spending and fiscal mismanagement. According to Marth, the program cost the government $53 billion during its nine years of operation but gave its participants either brief public service positions or training that did not prepare them for available jobs in the private sector. The amount of money actually spent to train participants for private sector jobs was only 18 percent of the total CETA appropriations. Many participants who concluded their training programs under CETA did not obtain employment or stay employed once they found jobs, despite the fact that the federal government spent an enormous sum of money on CETA. Hatch asserted that the Federal government used CETA as a device to develop jobs in order to combat cyclical unemployment. He stated that one of the primary reasons the program failed "is that the nature of cyclical unemployment does not lend itself to solution by fiscal measures."

The lack of follow-through services was also a criticism of CETA programs. As a result of an extensive investigation of CETA programs, Campbell concluded that follow-through services were rarely provided, and, when they were administered, delivery of the service was limited and not well organized. Evidence obtained by researchers on 65 CETA programs indicated that more than 95 percent of them failed to provide follow-through services to their clientele. On September 30, 1982, CETA expired.

The Job Training Partnership Act (JTPA) was endorsed under the Reagan Administration on October 13, 1982 as a replacement for CETA. The program began operating on October 1, 1983, which allowed time for the CETA program
to be phased out. JTPA was created through "a compromise between a conservative administration and congressional liberals and moderates." The program was funded at 3.7 billion during the first entire year of operation and closely resembled the PSIP program under CETA. JTPA is the epitome of former President Reagan's "'New Federalism' and the block grant concept of funding state and local programs." Under JTPA, the Federal government experienced a significant reduction in responsibility for training, whereas the role of the states was increased. This shift in responsibility occurred due to the belief that people from the state and local areas would be better equipped to handle the problem of unemployment. However, the Federal government has retained its "responsibility for broad policy guidance and for assuring that the Federal funds are spent consistent with Federal policy." Unfortunately, the shift in many of the administrative and oversight tasks from the U.S. Department of Labor to the state governments has limited the type of data that was once accessible at the Federal level under the CETA program. These data include information pertaining to the characteristics of enrollees and the types of training they receive.

The purpose of JTPA as stated in Public Law 97-300 is:

... to establish programs to prepare youth and unskilled adults for entry into the labor force and to afford job training to those economically disadvantaged individuals and other individuals facing serious barriers to employment, who are in special need of such training to obtain productive employment.

Presented in Figure 3 are the original five Titles of the Job Training Partnership Act of October 13, 1982 and the six Titles of the Act as amended.
through December 31, 1982. Figure 3 also contains a brief description of the
Titles. As can be viewed in the chart, the amendments enlarged Title III and added
a new Title V. Further discussion concerning amendments to JTPA will given later
in the chapter.

JTPA required the governor of each state to select members to serve on their
state Job Training Coordinating Council (SJTCC) by February 1, 1983. The
purpose of these councils was to "plan, coordinate and monitor JTPA funded
programs" throughout each state. One-third of the members who were appointed
to the councils consisted of persons from private business and industry. Each
governor was also required to divide their state into Service Delivery Areas (SDA's)
under JTPA. By 1987, 620 SDA's had been established. Another
requirement was the establishment of a Private Industry Council (PIC) for each SDA,
consisting of a majority of individuals from private business and industry. The
PIC's provide policy guidance and oversight for JTPA activities in the SDA. The
rationale for including representatives from the private sector on the SJTCC's and
the PIC's was "the belief that business representatives not only understand better
than public officials what kinds of job training are most likely to be required in their
own communities, but that they will also bring to the program a concern for
efficiency and performance that was often lacking in earlier programs."

In contrast to CETA which emphasized public service employment, JTPA
emphasized job training. The Act requires that 70 percent of the funds be spent on
the provision of training, and no more than 15 percent of the funds can be used
for administrative costs. In addition, the SDA's are typically required to spend
40 percent of their funding on services for youth. Furthermore, targeting provisions exist under JTPA, whereby the programs are required to "serve welfare recipients and school dropouts in proportion to their incidence in the eligible population."

**FIGURE 3**

**TITLES OF THE JTPA ACT OF 1982 AND AMENDED THROUGH DECEMBER 31, 1988**

<table>
<thead>
<tr>
<th>JTPA of 1982*</th>
<th>JTPA as Amended through Dec. 31, 1988*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title I - Job Training Partnership:</strong> Provides a description of the service delivery system, other State responsibilities, program requirements for the service delivery system, Federal and fiscal administrative provisions and miscellaneous provisions.</td>
<td><strong>Title I - Job Training Partnership:</strong> Provides a description of the service delivery system, other State responsibilities, program requirements for the service delivery system, Federal and fiscal administrative provisions and miscellaneous provisions.</td>
</tr>
<tr>
<td><strong>Title II - Training Services for the Disadvantaged:</strong> Provides for adult and youth programs which operate throughout the year and for youth employment and training programs which only operate during the summer.</td>
<td><strong>Title II - Training Services for the Disadvantaged:</strong> Provides for adult and youth programs which operate throughout the year and for youth employment and training programs which only operate during the summer, with exceptions made for SDA's situated in localities which operate their schools year-round on a full-time basis. Establishes requirements for testing eligible program participants to determine their reading and mathematics skill levels.</td>
</tr>
<tr>
<td><strong>Title III - Employment and Training Assistance for Dislocated Workers:</strong> Allocates funds and authorizes services for dislocated workers. Establishes requirements that must be met to receive funds under Title III.</td>
<td><strong>Title III - Employment and Training Assistance for Dislocated Workers:</strong> Allocates funds and authorizes services for dislocated workers. Establishes requirements that must be met to receive funds under this title. Describes in detail State and Federal responsibilities under Title III. Authorizes the establishment and conduct of demonstration programs and the evaluation and reporting requirements of each demonstration program carried out under Title III.</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
| JTPA of 1982* | JTPA as Amended through Dec. 31, 1988*
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title IV - Federally Administered Programs:</strong> Provides for the following programs: Employment and training programs to serve Native Americans, and migrant and seasonal farmworkers; the Job Corps; Veterans' employment programs; programs that can be best administered at the national level; and the National Commission for Employment Policy. Title IV also provides for the collection and usage of labor market information and for training needed to meet Affirmative Action requirements. This title also authorizes the establishment of a national computerized Job Bank Program.</td>
<td><strong>Title IV - Federally Administered Programs:</strong> Provides for the following programs: Employment and training programs to serve Native Americans, and migrant and seasonal farmworkers; the Job Corps; Veterans' employment programs; programs that can be best administered at the national level; and the National Commission for Employment Policy. Title IV also provides for the collection and usage of labor market information and for training needed to meet Affirmative Action requirements. This title also authorizes the establishment of a national computerized Job Bank Program.</td>
</tr>
<tr>
<td><strong>Title V - Miscellaneous Provisions:</strong> Contains amendments to the Wagner-Peyser Act and to Part C of Title IV of the Social Security Act. Title V also requires the enforcement of the Military Selective Service Act for those who are supposed to register, prior to permitting them to participate in JTPA programs or to obtain any other type of assistance or benefits under the Act.</td>
<td><strong>Title V - Jobs for Employable Dependent Individuals Incentive Bonus Program:</strong> Authorizes each State to receive a bonus payment &quot;for the successful job placement&quot; of dependent individuals who are employable and meet specified eligibility requirements. These individuals include the blind or the disabled population who meet certain conditions. Title V also requires the evaluation of this program and a report on its effectiveness must be presented to Congress by the Secretary of Labor, by January 1, 1996.</td>
</tr>
</tbody>
</table>


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Performance standards and measurements have been established for JTPA adult and youth Title II-A programs by the Secretary of Labor whereby program success is measured by outputs such as the percentage of clients entering jobs, their wages following completion of training and the welfare entered employment rate. Although performance standards had been used under CETA, those initiated under JTPA were "mandatory national targets." However, governors are permitted "to vary the measures according to specific economic, geographic, and demographic factors within the state or local service delivery areas." The extent to which these measures can be altered is prescribed by an adjustment model established by the Department of Labor. Until recently, including the period of time covered by this study, JTPA programs were evaluated by their ability to meet national measurements established for the four adult performance standards and three youth performance standards presented below:

<table>
<thead>
<tr>
<th>Adults</th>
<th>Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Entered Employment Rate</td>
<td>• Entered Employment Rate</td>
</tr>
<tr>
<td>• Cost per Entered Employment</td>
<td>• Positive Termination Rate</td>
</tr>
<tr>
<td>• Average Wage at Placement</td>
<td>• Cost per Positive Termination</td>
</tr>
<tr>
<td>• Welfare Entered Employment Rate</td>
<td></td>
</tr>
</tbody>
</table>

JTPA Title II-A programs are still evaluated by the performance standards listed above. However, "in July 1988, Labor added four adult standards related to post-program performance of participants and a youth standard for measuring the program's ability to increase the long-term employability of youth (employability enhancements)."
The National Commission for Employment Policy (NCEP) reported that the JTPA performance standards are crucial for managing the program but admitted that they "can also create ‘perverse incentives’ to serve the most job-ready applicants in short-term, low cost programs." The NCEP stated that to minimize this risk, there are at least five mechanisms incorporated within JTPA. These mechanisms include 1) a requirement that at least 90 percent of the clients served be disadvantaged; 2) "specified levels of service to youth, high school drop-outs, and welfare recipients;" and 3) permission for the governor to alter performance standards for the SDA based upon a number of factors. The NCEP has concluded that "despite these efforts, it is possible that performance standards may have the effect of reducing services to hard-to-employ individuals or limiting the investments that are made in participants." A comprehensive evaluation prepared for the NCEP by SRI International and Berkeley Planning Associates in 1988 provided quantitative evidence that "the types of clients served in JTPA programs are affected by both state performance standards policies and SDA practices." For example, states that encouraged SDAs to exceed performance standards by offering incentive funds as a reward were found to have SDAs that enrolled "significantly fewer hard-to-serve clients." In addition, SDAs that offered more on-the-job training were inclined to enroll significantly fewer clients who were categorized as hard-to-serve. Further discussion on the issue of "creaming" will be presented later in the chapter.

There have been a number of revisions and amendments to the Job Training Partnership Act since its enactment in 1982. With the exception of P.L. 100-436 and
P.L. 100-495, these revisions, amendments, and acts which amend JTPA were outlined in an editor's note in the Employment and Training Reporter in December 1988.\(^{145}\) Figure 4 contains a list of the following revisions, amendments and acts which amend JTPA, along with a brief description of their impact on the original legislation: Job Training Partnership Act Amendments of 1982 (P.L. 97-404);\(^{146}\) Carl D. Perkins Vocational Education Act (P.L. 98-524);\(^{147}\) Job Training Partnership Act Amendments of 1986 (P.L. 99-496);\(^{148}\) Anti-Drug Abuse Act of 1986 (P.L. 99-570);\(^{149}\) Stewart B. McKinney Homeless Assistance Act of 1987 (P.L. 100-77);\(^{150}\) Omnibus Trade and Competitiveness Act of 1988;\(^{151}\) Department of Labor Appropriations Act, 1989 (P.L. 100-436);\(^{152}\) and the Job Training Partnership Act Amendments of 1988 (P.L. 100-495).\(^{153}\)

**Theoretical Issue of "Creaming" Under JTPA**

There have been numerous concerns and reports of "creaming" in the manpower programs provided under ARA,\(^{154}\) MDTA\(^{155}\) and CETA\(^{156}\) so concerns regarding this issue under JTPA\(^{157}\) should come as no surprise. Harvey defined "creaming" as "using most of the funds to retrain those workers who are well-off and the best-able to get along without retraining, with those that most need the training receiving nothing."\(^{158}\) Levitan and Gallo have asserted that under JTPA it is extremely expensive and difficult to provide services to applicants who have little or no skills and are poorly educated so "local administrators tend to favor more employable individuals in order to show 'results'."\(^{159}\)
## FIGURE 4

### AMENDMENTS AND REVISIONS TO THE JOB TRAINING PARTNERSHIP ACT

<table>
<thead>
<tr>
<th>Amendment or Revisions and P.L. No.</th>
<th>Date Enacted</th>
<th>Description and/or Effect on JTPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carl D. Perkins Vocational Education (P.L. 98-524)</td>
<td>Oct. 19, 1984</td>
<td>Required each state that obtained grants under the act to describe in the state plan methods that would be used to coordinate vocational education programs, services and activities in order to serve dislocated workers under JTPA Title III. The act amended the JTPA legislation so that it would comply with the Carl D. Perkins Vocational Education Act.</td>
</tr>
<tr>
<td>Job Training Partnership Act Amendments of 1986 (P.L. 99-496)</td>
<td>Oct. 16, 1986</td>
<td>Facilitated literacy training to youth and adults and encouraged dropout prevention. Gave the President authority to present Presidential awards to individuals and organizations in the private sector that have demonstrated outstanding achievement in developing and conducting JTPA programs or have helped them to be successful. Required the assessment of reading and mathematics skills of summer youth. Made other minor changes to the act.</td>
</tr>
<tr>
<td>Anti-Drug Abuse Act of 1986 (P.L. 99-570)</td>
<td>Oct. 27, 1986</td>
<td>Section 11004 of this Act amended JTPA so that its programs and activities could be coordinated with programs designed for the homeless.</td>
</tr>
</tbody>
</table>
### Amendment or Revisions and P.L. No.

<table>
<thead>
<tr>
<th>Description and/or Effect on JTPA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stewart B. McKinney Homeless Assistance Act (P.L. 100-77)</strong></td>
</tr>
<tr>
<td>Jul. 22, 1987</td>
</tr>
<tr>
<td><strong>Subtitle D of Title VI of the Omnibus Trade and Competitiveness Act of 1988: the Economic Dislocation and Worker Adjustment Assistance Act (EDWAA), (P.L. 100-418, Stat. 1107). 102</strong></td>
</tr>
<tr>
<td>Aug. 23, 1988</td>
</tr>
<tr>
<td><strong>Department of Labor Appropriations Act, 1989 (P.L. 100-436)</strong></td>
</tr>
<tr>
<td>Sept. 20, 1988</td>
</tr>
<tr>
<td><strong>Job Training Partnership Act Amendments of 1988 (P.L. 100-495)</strong></td>
</tr>
<tr>
<td>Oct. 17, 1988</td>
</tr>
</tbody>
</table>

**Note:** Sources of information for Figure 4 are endnoted within the text of Chapter 2.

In *The Social Psychology of Organizations* by Katz and Kahn, the authors assert that survival becomes a dominating goal for organizational administrators because in order to carry out their mission, the organization needs to survive.160
This principle is also applicable to service bureaucracies.\textsuperscript{161} In making decisions, agencies lessen their risks by attempting to choose clients that seem to have the greatest chance of reaping benefits from the service.\textsuperscript{162} Therefore, based upon sound logic, it would appear that charges such as that by Burbridge\textsuperscript{163} of performance standards under JTPA encouraging program managers to select the best clients for training may be well-founded. Since governors are required to implement a reorganization plan for JTPA programs which fail to meet the established performance standards for two consecutive years,\textsuperscript{164} the local administrators have strong incentives to "cream" for clients who have a strong probability for success in the program.

One year after JTPA was implemented, Department of Labor officials were reported as stating that over 70 percent of the clients who had completed the program during the first six months of operation obtained jobs, which was considerably better than expected.\textsuperscript{165} In contrast, only 15 percent of the participants in the CETA program found employment despite the $53 billion that was spent during its operation.\textsuperscript{166} According to a 38 member JTPA Advisory Committee that was established to analyze the JTPA program and to assist in mapping its future, the program has an exceptional track record.\textsuperscript{167} The committee reported that "more economically disadvantaged persons have been enrolled than is required by law; job placements after training have exceeded performance expectations; and a new, vital delivery system, energized by private sector and community participation, has been put in place."\textsuperscript{168}
The General Accounting Office (GAO) undertook a study of JTPA to determine who was receiving JTPA services, what services were being administered and what were the resulting outcomes.\textsuperscript{169} The GAO concluded that the JTPA "program was serving, at least in proportion to their existence in the eligible population, groups who traditionally have experienced difficulty in entering the labor market," including "females, minorities, and AFDC recipients."\textsuperscript{170} However, school dropouts were found to be underrepresented in JTPA programs.\textsuperscript{171}

The National Commission for Employment Policy (NCEP) reported that, according to evaluation results and additional sources of information, the JTPA program is meeting its mandate by providing services to the economically disadvantaged and placing them in employment.\textsuperscript{172} However, the NCEP acknowledged that there are other individuals who have "even more serious and multiple problems that do not make them likely candidates for success in JTPA or, indeed, most other training programs."\textsuperscript{173} The avoidance of these particular applicants by program operators has been an issue of concern for a considerable number of critics "in the employment and training community."\textsuperscript{174}

Upon signing the Job Training Partnership Amendments of 1986, President Reagan praised the program, stating:\textsuperscript{175}

I believe that the JTPA has more than fulfilled our expectations. It has helped millions of youth and adults. States have shown that they can manage the training and employment system under a block grant approach. Thousands of private sector volunteers have donated their time and energies to make sure that the training provided meets the real needs of employers. This has paid off in terms of the performance of the program. About two-thirds of those assisted find jobs in the private sector.
English asserted that critics of JTPA "argue that its very success . . . is precisely what's wrong with the program." One of these critics, Morton Sklar, who is Director of the Job Watch Project of the Center for National Policy Review at the Catholic University Law School, was quoted as stating that "the tendency is to take people who are easiest to serve and who probably would have found employment anyway - even without additional training - and steer away from the most needy and hardest to place." In addition, Levitan and Gallo succinctly noted that "JTPA's accomplishments" failed to meet the claims of success that were trumpeted by "the Reagan administration and many program administrators." The authors stated that in order to be successful, "local programs have tended to exclude the functional illiterates JTPA was presumably meant to serve."

Westat, Inc. conducted a field network process study to determine how the JTPA program was carried out in general, and to determine how the program was being implemented among the states and localities, from December 1983 through May 1985. A sample of 20 randomly selected states and 40 SDAs inside those states were chosen for the study. It was concluded that the JTPA Title II-A program does appear to be operating by choosing those applicants for training who have the greatest potential for success. However, the program operators do stay within the guidelines concerning eligibility requirements, youth requirements, and services to groups specifically targeted under JTPA. The authors noted that there are a number of steps during the process an applicant must go through to receive JTPA services whereby "creaming" can occur; namely, intake, eligibility determination, testing procedures and counseling processes. They pointed out that "although no
comprehensive data on the number of program applicants is available, the associate reports clearly suggest that there are many more applicants than training slots.\textsuperscript{183}

Levitan and Gallo reported that the existence of "creaming" under JTPA has surfaced in every case study that has been conducted on the program.\textsuperscript{184} Despite this, the authors stated that "the extent of "creaming" is difficult to quantify because few SDAs record the number of rejected applicants, let alone the reasons for disqualification."\textsuperscript{185} According to the GAO, the degree to which "creaming" is occurring under JTPA is an issue of controversy.\textsuperscript{186} The GAO noted that controversy over this issue is expected to persist due to "the lack of sufficient data to confirm or deny its existence or determine its extent."\textsuperscript{187}

The problem of "creaming" among applicants to select those who have the greatest potential for success in the JTPA program may be especially acute for private sector on-the-job training.

Orfield and Slessarev analyzed the JTPA program in Illinois and determined that based upon the limited evidence in existence, "private sector OJT largely serves the more advantaged workers."\textsuperscript{188} They concluded that the higher success rates which have reportedly been attained for JTPA OJT programs "may be an artifact of the selective recruitment process."\textsuperscript{189} The fact exists that not only can "creaming" take place in JTPA's government subsidized OJT programs by program operators, it can also be done by the private sector employers who are permitted to select clients for training. As Levitan and Gallo have indicated, SDAs typically screen OJT applicants to determine which ones appear to be the most promising OJT prospects
for the employer, and then send several applicants for an interview with the employer, who is permitted to make the final selection.\textsuperscript{190}

**Influence of Selected Client Socio-Demographic Variables on Program Outcome**

Throughout much of the employment and training history covered in this study, a considerable amount of research has been conducted which focused on client socio-demographic variables and their effect on program outcome. This section of the chapter contains a discussion of many of these research findings on selected socio-demographic variables.

**Race.** In response to a request from the Chairman and Ranking Minority Member, House Committee on Education and Labor to analyze JTPA's hard-to-serve clients to determine which services they were provided with and what program outcomes were attained in comparison to less needy clients, the General Accounting Office (GAO) undertook a study focusing on the two groups.\textsuperscript{191} According to the GAO, minorities were being served under JTPA "at least in proportion to their existence in the eligible population."\textsuperscript{192} The report only focused on data obtained from adults aged 22 or above.\textsuperscript{193}

In 1986, Walker and others indicated in their concluding report of a two-year process study of the implementation of Title II-A of JTPA that SDAs usually approached their goals for enrolling minorities.\textsuperscript{194} Their report was based upon the following data collection strategies: 1) statistical data pertaining to client and service characteristics, and performance in 25 SDAs situated in 15 states; 2) comparative case studies centered upon field work in the 25 above-mentioned SDAs; and 3)
telephone interviews with chief JTPA administrators from another sample of 32 SDAs. Sandell and Rupp completed a study for the NCEP in 1988 which was conducted to determine who receives JTPA services and whether or not the services are provided equitably among the various subgroups. Based upon data gleaned from the Job Training Quarterly Survey (JTQS) for PY-84 and PY-85 and the March 1986 Current Population Survey (CPS), the researchers concluded that, when compared to the eligible population, minorities appear to be served equitably under JTPA. However, they pointed out that a conclusive determination of whether or not the JTPA program was "creaming" would necessitate the conduct of a comprehensive net impact study. The study would need to incorporate data which would enable the researchers to compare the characteristics of JTPA applicants with those who actually enroll in the program. The Department of Labor (DOL) has funded an experimental study using this approach and the results will be forthcoming in the early 1990s.

In spite of results from the studies above, a number of researchers have obtained results suggesting that minorities may have been discriminated against under JTPA, especially in the OJT programs. This conclusion was also reached by Taggart in regard to the CETA program. The author indicated that OJT training positions were "more likely to go to the most employable among the CETA population," including whites. Taggart reviewed the job placement rate for CETA clients for Fiscal Year 1977 who were enrolled in both classroom and on-the-job training programs, using data contained in the Prime Sponsor Records. Findings revealed
that clients who were more likely to find jobs before enrolling in training, including white males, "had noticeably higher placement from both OJT and classroom training."  Levitan and Gallo conducted the first major assessment of the JTPA program components and determined that, under the Title II-A program, blacks were more likely to be placed in classroom training whereas white males were overrepresented in OJT when contrasted to other types of training.

Castle conducted a major study on JTPA program outcome of Title II-A participants, aged 16 years and above, who were enrolled in employment and training programs from October 1983 through June 1986. Data for the study were obtained from the Job Training Longitudinal Survey (JTLS) quick turnaround reporting system. The purpose of the study was to determine what effect the socio-demographic characteristics, program activity, and local economic conditions of JTPA participants would have on post-program outcome. Program outcome was designated as success verses failure, and was determined by a number of criteria pertaining to reduced welfare dependency and increased employability, with increased earnings as a measure of success for those individuals who were already employed prior to entering training. Results from the study indicated that "twice as many whites and Hispanics were training on the job compared to blacks." In contrast, "a higher percent of blacks were given Job Search Assistance, a newly created program type under JTPA."

Orfield and Slessarev, along with twenty four other researchers conducted the "first comprehensive statewide assessment of the JTPA program." The study, which took place in Illinois, provided results indicating that during the period of time...
covered by the researchers, blacks were underrepresented in the OJT programs. The
authors noted that this different enrollment pattern for blacks does not necessarily
prove discrimination, because a number of other factors such as differences in
educational background and skill levels could have caused the discrepancy.\footnote{207}
However, they also stated that blacks were among the groups that have had difficulty
in obtaining employment, even after they completed training programs under CETA
and JTPA, which indicates employer selectivity.\footnote{208}

According to a National Commission for Employment Policy (NCEP) report
published in 1988, minorities are among those demographic "groups for whom
evidence has shown that SDAs are likely to experience problems in obtaining
placements, particularly in well-paying jobs."\footnote{209} The report noted that the "lower
placement rates for these groups may result because a disproportionate share are
hard-to-serve or because of discrimination in the labor market."\footnote{210}

Slessarev conducted a study of the JTPA programs in metropolitan Chicago
for the Chicago Urban League and reported that, based on data obtained for JTPA
program year 1987, there is a "serious underenrollment of blacks in OJT," including
black youth.\footnote{211} The author compared the OJT enrollment patterns for youth in the
metropolitan region and stated that 18 percent of the youth enrollees are Hispanic,
15 percent are white and just 9 percent are black.\footnote{212} It was pointed out that it
seems as if the state and local levels have directed little effort at determining the
justification for the low enrollment of blacks in OJT, and whether or not
discrimination is the cause of this pattern.\footnote{213} Slessarev said that white men have
the highest probability of placement in OJT, which seems to indicate "that employers
are likely to hire those people who they would most likely have hired without a subsidy.\textsuperscript{214} Minority youth have had especially high unemployment rates during the 1980's. Escutia reported that in 1985, the annual unemployment rate for black youth was 40.2 percent, followed by 24.3 percent for Hispanic youth and 15.7 percent for white youth.\textsuperscript{215}

Some studies have suggested that minorities are among those demographic groups that may have less successful outcomes from job training programs than other demographic groups. A NCEP report defined hard-to-serve individuals as those who "have labor market deficiencies or barriers to employment."\textsuperscript{216} These individuals were also classified as being "likely to require more intensive or longer-term services" and possibly having a lower likelihood for success.\textsuperscript{217} The NCEP report discussed the Hard-to-Serve Task Force, which was created to help the DOL examine attributes of JTPA's hard-to-serve population. This task force identified being a minority group member as one of thirty-nine attributes of JTPA's hard-to-serve population, although this characteristic was not one of the ten most common attributes identified.\textsuperscript{218}

Based upon evidence gleaned from unpublished tabulations of Fiscal Year 1977 data on CETA enrollees developed by Westat, Inc. from the Continuous Longitudinal Manpower Survey (CLMS), Taggart determined that blacks were among those demographic groups who had a slightly greater chance of failing to complete classroom training once enrolled, when contrasted to "other more employable subgroups among participants."\textsuperscript{219} Taggart also examined the job placement rate for CETA trainees for Fiscal Year 1977 who were enrolled in classroom training and on-the-job training programs, according to data obtained from Prime Sponsor
Records. Results revealed that those individuals who were more likely to find jobs prior to training, including white males, had much higher job placement rates following the completion of on-the-job training as well as classroom training.\textsuperscript{220}

A portion of Franklin and Ripley's evaluation of CETA involved an analysis of the relationship between socio-demographic characteristics of CETA participants, and program performance. The authors determined that there was a weak, inverse relationship between percent nonwhite and the DOL placement rate indicator.\textsuperscript{221}

Castle obtained results based upon data from the JTLS quick turnaround reporting system which indicated that among JTPA Title II-A participants, a greater percent of whites had a successful post-program outcome in contrast to blacks and Hispanics.\textsuperscript{222}

Orfield and Slessarev reported in their study of the JTPA system in Illinois that discrimination by private employers was "the most serious problem" that black trainees had to face as they completed their training programs.\textsuperscript{223} The authors indicated that employer discrimination "has produced an unequal placement rate throughout the history of CETA and JTPA in Illinois."\textsuperscript{224} It should be recalled that in order to become a positive termination from JTPA OJT programs, clients must complete their training and either be retained as a regular employee by the employer, in an unsubsidized position, or be hired by another employer in an unsubsidized position.

Other studies have found little or no difference in client success from job training programs, based upon the attribute of race. Analytic Systems conducted a study of the Concentrated Employment Program (CEP), using data through March
31, 1970 on 41,000 CEP participants that was retrieved from the Office of Manpower Management Data Systems (OMMDS) Characteristics Master File. Data for the study were analyzed as follows: by comparing positive terminations, which were defined as job placements; negative terminations, which were defined as program dropouts; and neutrals, which were defined any other type of termination. The CEP placement rate was found to be 40 percent for black terminees in comparison to 39 percent for whites. However, differences in program success were extremely limited and race was "not a significant factor in predicting outcome."227

A portion of Franklin and Ripley's evaluation involved an analysis of the relationship between the socio-demographic characteristics of CETA participants, and program performance.

Based upon existing data on the contract section of the JOBS program from fiscal years 1970-1972, Perry reported that there were "no significant racial differences in termination rates."228 Weidman and White conducted a study on women who were enrolled in a demonstration "high-tech" electronic technician training program under WIN to determine which variables were correlated with program completion. The training was intended to prepare the women for a job that required higher skills and would provide a higher salary in conjunction with greater job security, unlike most WIN training programs that had traditionally been provided. The analysis was based on data obtained from 52 women who successfully completed the program and 97 women who dropped out.229 Ethnicity was not a statistically significant factor in program completion.230
Gender. According to a NCEP report prepared by Sandell and Rupp in 1988, "the participation rates of JTPA eligible women and men are similar."\(^{231}\) The analysis was based on data obtained from the March 1986 CPS and the JTQS participant data system for program years 1984 and 1985.\(^{232}\) Moreover, Solow and Walker prepared a 1986 report which explained and evaluated "the early years of implementation of Title II-A of the Federal Job Training Partnership Act (JTPA) vis-a-vis services to women." In order to conduct the study, a sample was selected which consisted of 25 SDAs situated in 15 states where comprehensive field reviews took place, and another 32 SDAs located in 20 other states, where telephone interviews were held with top state and local officials.\(^{233}\) Based upon data obtained during the field reviews, Solow and Walker determined that women were "being planned for and served slightly below their proportion of the JTPA-eligible population."\(^{234}\) Nevertheless, the researchers concluded that the participation rates of women were "reasonably good," and noted that the rates had "improved over the course of JTPA's implementation."\(^{235}\)

However, in an article prepared for the Catholic University of America, Nancy Dalby indicated that numerous concerns have been expressed which suggest that effective and adequate services are not being provided to women under JTPA.\(^{236}\) Explanations given by the author for this unfair treatment of women under JTPA included deficiencies in how the act is structured, and weaknesses in implementing the act at the local level, which are associated with both shortcomings in comprehending the unique needs of women and, at times, deliberate discrimination.\(^{237}\) In a NCEP report prepared by Barnow and Constantine, the
authors noted that SDAs have experienced difficulty in obtaining placements for women, especially in jobs that have good salaries. They said that this may be due to either labor market discrimination or because such a large number can be defined as "hard-to-serve" clients. The researchers defined hard-to-serve clients as those who have "labor market deficiencies or barriers to employment."

A GAO study prepared under the direction of William J. Gainer was conducted due to concern in the employment and training arena that those who operate local JTPA programs may be selecting applicants that seem to have a high probability for success while screening out hard-to-serve individuals who would need additional training. Based upon data gathered on adults aged 22 and older, the GAO concluded that the JTPA program seemed to be providing services to groups which have been known to have problems in obtaining employment, including females, "at least in proportion to their existence in the eligible population." Despite this conclusion, the GAO also reported that according to the data analysis, males were more likely to be placed in OJT whereas females had a greater likelihood of being enrolled in classroom training. Furthermore, Levitan and Gallo reported that white males are overrepresented in JTPA OJT programs in contrast to other training programs offered under JTPA, and said that they represent two-thirds of the OJT participants.

A number of other JTPA studies have also found differences in the types of training provided to women in comparison to men. Castle's analysis of data from the JTLS quick turnaround segment revealed that in comparison to men, a smaller percent of women received on-the-job training and job search assistance. In contrast,
a larger percent of women were placed in occupational classroom training.\textsuperscript{245} Similar findings concerning on-the-job training and classroom training were noted by Solow and Walker.\textsuperscript{246} In addition, Orfield and Slessarev's study of the JTPA program in Illinois indicated that for the first year and a half of the program in the ten SDAs studied, "men . . . were about twice as likely as women to be in OJT programs."\textsuperscript{247} In contrast, women were much more likely to be enrolled in vocational training.\textsuperscript{248} The researchers attributed the greater access to OJT for males and to vocational training for females to a number of potential causes, such as an employer preference for males, a weaker employment background for women and "sex stereotyping of jobs which tends to see women trainees as future clerical workers and men as future factory employees."\textsuperscript{249}

A Chicago Urban League study of JTPA programs in the metropolitan Chicago region for program year 1987, which was prepared by Slessarev, revealed that men were overrepresented in the OJT programs whereas women were underenrolled.\textsuperscript{250} Slessarev indicated that, throughout the area, men consisted of at least a minimum of 60 percent of the OJT enrollees.\textsuperscript{251} The author said that since employers appear to be favoring white men in their OJT selection practices who they probably would have hired even without an OJT subsidy, "the growth of OJT is allowing private industry to substitute public funds to meet their payrolls."\textsuperscript{252}

Research has indicated that women also received different types of training than men under employment and training programs that were predecessors of JTPA. As an example, Taggart reported that females were among those demographic groups that were most likely to be placed in classroom training under the CETA program.
In contrast, the author said that males were among the demographic groups with a high probability of receiving OJT. Perry reported similar findings for the training programs offered under MDTA. The author indicated that from the period of time ranging from fiscal year 1963 to fiscal year 1972, women made up 41.6 percent of the enrollees in institutional training but only 28.6 percent of the enrollees in OJT programs.

Some researchers have obtained evidence which suggests that males are more likely to complete employment and training programs that females, while others have reported that gender makes no difference in program completion. Unadjusted data on CETA, which was contained in the Continuous Longitudinal Manpower Survey: Follow-up Report No. 2 (18 Months After Entry), prepared by Westat, revealed that there was a heavier concentration of males in the terminee category in contrast to the nonterminee category for OJT. In addition, females were more heavily concentrated in the nonterminee category than in the terminee category for OJT.

Coffin conducted an analysis of the CETA program in the City of Indianapolis to ascertain how the CETA Prime Sponsor could increase their number of clients who became positive terminations. Their analysis was based upon a sample of 1138 clients who became terminees between July 1, 1977 and June 30, 1978. Amongst the findings, being female was determined to be a significant factor in reducing the likelihood of becoming a positive termination. However, evidence was also obtained which suggests that enrollment in OJT may be the greatest contributor to the attainment of a positive termination.
Ortiz carried out a nonpredictive case study of the JTPA program in Bayamon, Puerto Rico to ascertain, in part, whether those JTPA Title II-A clients who needed services the most, including women, had similar program completion rates when compared to less needy clients, including men. The completion rate achieved for men was 85.5 percent versus a 79.3 percent completion rate for women.\textsuperscript{259} The author also found women to be overserved in comparison to their existence in the eligible population, whereas men were undeserved.\textsuperscript{260} Winkler conducted a similar type of case study on JTPA OJT participants who terminated their training during the span of time ranging from July 1, 1984 and June 39, 1985 in ten Tennessee counties.\textsuperscript{261} The researcher determined that gender did not have a significant impact on the noncompletion rate, the positive termination rate, and the job retention rate of participants who were enrolled in OJT programs.\textsuperscript{262}

Perry reported that according to data obtained on the contract portion of the JOBS program for fiscal years 1970 through 1972, men and women had only a limited difference in termination rates.\textsuperscript{263} Analytic Systems compared available data on the CEP program with the WIN program and determined that men and women had equivalent dropout percentages for the CEP. However, the dropout percentage for men enrolled in the WIN program exceeded that for women.\textsuperscript{264}

Job placement is one of the determining factors of whether clients become positive terminations or negative terminations in certain employment and training programs such as CETA and JTPA. A number of studies have indicated that women are harder to place in jobs than men. According to Barnow and Constantine's report on JTPA, which was prepared for the NCEP, women are among the groups that
SDAs have had problems in placing in jobs, especially those that provide good salaries.\textsuperscript{265} The researchers said this difficulty in obtaining placements for women was also experienced in the CETA program.\textsuperscript{266} Orfield and Slessarev reported that, in the JTPA programs for the State of Illinois, "the channeling process that filters people through the system continues at the end of training."\textsuperscript{267} The authors said that women were among the groups that had difficulty in obtaining employment following training.\textsuperscript{268} Castle's analysis of JTPA Title II-A participant data from the JTLS quick turnaround segment indicated that gender had an influence on success rates, in that a larger percent of men had successful post-program outcomes in comparison to women.\textsuperscript{269}

A number of studies on employment and training programs that existed prior to JTPA also found that women were harder to place in jobs than men. Using data contained in CETA Prime Sponsor records, Taggart reported that, for Fiscal Year 1977, white males were among the groups that attained higher job placement rates following completion of OJT as well as classroom training.\textsuperscript{270} According to the literature, women enrolled in the WIN program also had lower job placement rates than men.\textsuperscript{271} Analytic Systems reiterated this finding on WIN and reported that during the span of time covered by their study, the clients had to retain their jobs for 12 weeks following job placement in order for the placement to be considered successful.\textsuperscript{272} In addition, Analytic Systems analyzed data that were available on the CEP and determined that men and women had equivalent job placement rates. During the time period covered by this CEP study, the clients were simply required to show up for their first day of employment in order to be deemed a successful
placement. In contrast, according to Franklin and Ripley's evaluation of CETA, percent female was not related to the DOL placement rate indicator.

**Age.** Levitan and Gallo and Escutia have emphasized that the unemployment problem faced by youths is severe. According to Escutia, the aggregate annual unemployment rate for youths in 1985 was slightly over 18 percent. Levitan and Gallo stated that "the level of teenage joblessness is about three times that of adults, and that of the 20-24 age group is 75 percent higher."

The Hard-to-Serve Task Force that was created by the U.S. Department of Labor identified youth as one of thirty-nine characteristics that represents JTPA's hard-to-serve population. However, it was not one of the ten most common characteristics identified by the task force. As Orfield and Slessarev have indicated, employers in general and especially those in the private sector are hesitant to hire youths, particularly those who lack skills. The authors pointed out that this latter group of youths frequently need to receive "intensive training in the most fundamental social and cognitive competencies, if they are ever to obtain gainful, steady work." They noted that since most of the job placements under JTPA are made in the private sector, there is an increased likelihood that the program will avoid training those unemployed applicants who ordinarily would have had difficulty in obtaining private sector employment, including youths. Their study included survey questionnaire interviews with JTPA service deliverers from Chicago, Rockford County and Northern Cook County. Nine of the program directors interviewed had also offered services under the CETA program. Four of these individuals reported that their agencies were providing services to more adults than youths in
spite of the fact that youths have been designated as a target group for JTPA services. In addition, eleven of the interviewed directors were operating programs geared primarily to youths and eight of these individuals admitted that the JTPA performance standards were making it necessary for them to "serve the 'cream' of the eligible youth population."\textsuperscript{285}

Castle's analysis of the JTPA Title II-A participant data from the JTLS quick turnaround segment revealed that a lower percent of youths received on-the-job training, occupational classroom training, and job search, in comparison to adults.\textsuperscript{286} Furthermore, study results indicated that youths were more heavily concentrated in work experience training, and basic academic skills training, in contrast to on-site training.\textsuperscript{287} However, Sandell and Rupp prepared a NCEP study on participation patterns and intergroup equity for the JTPA program and concluded that "the JTPA system is successfully emphasizing services to youth."\textsuperscript{288} They also determined that the older eligibles have a much lower participation rate but stated that this can be accounted for to a large extent by the fact that older persons are generally not as interested in entering the labor market as other JTPA eligible adults.\textsuperscript{289} The authors noted that studies on CETA and JTPA have shown that "once age differences in labor force participation and other factors contributing to a declining demand for employment and/or training services are statistically controlled, age differences in program participation diminish."\textsuperscript{290}

Franklin and Ripley conducted an evaluation of the CETA program. A portion of their evaluation was concerned with whether or not "creaming" influenced
program performance. The authors found a weak, inverse relationship between percent youth and the placement performance. A 1985 Westat study was conducted to determine how the JTPA program was being implemented in a sample of twenty states and forty SDAs in those states during the span of time ranging from December 1983 to May 1985. In order to conduct the study, Westat gleaned data on eligibles for Title II-A services from the March 1984 Current Population Survey and data on participants from the JTLS Quick Turnaround participant sample for the 1984 transition year and for the first nine months of program year 1984. Westat determined that for youths, the proportion of individuals in the 14 to 21 age group was considerably lower among eligibles than among participants, which suggests that youths are well represented in JTPA programs. However, Westat reported that there was an underrepresentation of Hispanic youths and AFDC recipient youths. Walker and others reported in An Independent Sector Assessment of the Job Training Partnership Act, Final Report: Program Year 1985, that JTPA SDAs experienced problems in meeting their goals for enrolling youths in their programs. Despite this, the researchers noted that SDAs were starting to promote youth participation and to offer "more programming for the harder-to-serve elements of the youth population, viz., dropouts and others with deficient educational skills." Some studies of Federal employment and training programs have revealed that youths are more likely than older individuals to complete training and to become positive terminations. Other studies have indicated that either age does not make a significant difference in program completion, or that youth have a greater propensity
to drop out of employment and training programs. Castle recently reported that according to an analysis of JTLS quick turnaround segment data, a greater percent of adults experienced a successful post-program outcome, in comparison to youth.\textsuperscript{298} In contrast, a nonpredictive case study of participants enrolled in the JTPA Title II-A program in Bayamon, Puerto Rico, which was conducted by Ortiz, revealed that the completion rate attained by youth exceeded the adult completion rate by almost 10 percentage points. The youth completion rate was 87.9 percent in comparison to a 78.2 percent rate of completion for adults. The author also found that 21 percent more youth were served by the SDA than adults, when compared with their existence in the JTPA eligible population.\textsuperscript{299}

In a similar type of study conducted by Winkler on the JTPA program in various counties in Tennessee from July 1, 1984 through June 30, 1985, the researcher determined that age of the participant did not make a significant difference in the noncompletion rate or the job retention rate of participants when categorized by age. In contrast, age of the participant was found to have a significant influence on the positive termination rate in "that the 18-21 age category had significantly more positive termination participants than were expected."\textsuperscript{300} Winkler reported that results from the significance testing revealed that this age group had more positive termination participants than the following age groups: 22-30; 31-40; and 41-55.\textsuperscript{301} Positive terminations were defined in the study as those participants who finished their training programs and entered employment but failed to retain their jobs for thirteen weeks.\textsuperscript{302}
Taggart analyzed unpublished tabulations from Westat, which were based upon the CLMS for Fiscal Year 1977 enrollees in the CETA program, and reported that youths had a slightly higher probability of dropping out of classroom training prior to program completion. Taggart also stated that following the completion of either classroom training or OJT, chances of being placed in a job were much stronger for those individuals who had a greater potential for becoming employed even prior to training, including enrollees who were aged twenty and above. In contrast, Coffin conducted an analysis of the CETA program in the City of Indianapolis to assist the CETA prime sponsor to determine how the program could increase the number of positive terminations obtained. In this study, clients were considered to be positive terminations when they entered employment, including the military, or returned to school. Coffin reported that one of the demographic characteristics that was found to significantly reduce the likelihood of attaining a positive termination was being older. According to data obtained from the CLMS on July 1975 through June 1976 CETA enrollees, there was not much difference in the concentration of terminees and nonterminees within each of the designated age categories.

Analytic Systems conduced an analysis of the CEP program using data from CEP enrollees. Findings from the study revealed that in the age distribution within the categories of positive terminations, negative terminations and neutral terminations (other than positive or negative terminations), little difference existed, which indicates that age did not have a significant influence on program outcome for the CEP. Analytic Systems concluded that the CEP program was just as effective
in placing youth, aged twenty-two and below, as it was in placing older enrollees. The agency also determined that males who were younger had a slightly higher rate of success than males who were older. In comparison, Analytic Systems reported that the WIN program was much more successful with its older participants than it was with those individuals who were twenty-one years of age and below.

**Family Status.** In strong agreement with Levitan and Gallo, "single mothers and households of single persons and unrelated individuals tend to have significantly greater unemployment and poverty problems than two-parent families." The problems of poverty and unemployment are especially severe in households headed by single females. In fact, over 50 percent of the children who reside in households headed by a woman live in poverty. Single females are the heads of 50 percent of the families that are living below the poverty level. In addition, in families that are headed by females, the unemployment rate "is 70 percent higher than in married couple families, and the poverty rate is five times higher."

The DOL Hard-to-Serve Task Force was established to help analyze the characteristics of JTPA's hard-to-serve population. One of the ten most frequently identified characteristics for this population was being a single, female, or teen parent with one or more children under the age of six. Barnow and Constantine defined hard-to-serve individuals as having a lower probability for success in JTPA programs and indicated that SDAs have generally found them to be harder to place in jobs, especially those that provide good salaries.

Sandell and Rupp utilized data from the JTQS reporting system for program years 1984 through 1985 and the March 1986 CPS, and determined that the JTPA
"participation rate among unemployed-eligibles is higher, as expected, among single-
female parents who do not have children under 6." The researchers stated that 
single female parents who had children under six had a JTPA participation rate of 
12.7 percent in contrast to a 16.6 participation rate for those who did not have 
children under six. The discrepancy in participation rates was attributed to 
inaccessible or "lack of affordable" day care. They reported that out of every 
seven JTPA eligible mothers who were single parents, approximately one was a JTPA 
participant, which indicates a high JTPA participation rate for single mothers in 
general.

Based upon unpublished data from the JTLS, Harper stated that women are 
receiving JTPA services, including black females. However, judging from the 
information that was available, Harper concluded that "black female householders 
maintaining families alone and other extremely needy women have not been as well 
served as they might be." A 1985 Westat study of how the JTPA was carried out 
in a sample of 20 states and 40 SDAs situated within those states indicated that some 
states have made single parents a target group for JTPA services.

Taggart reported that single parents were among those CETA participants 
who were most likely to be placed in classroom training. Alternatively, CETA's OJT 
training positions were most likely to be awarded to "the most employable among the 
CETA participants," including parents in two-parent families.

Analytic System's analysis of termination data from the CEP yielded results 
indicating that head of household status did not influence the probability of 
placement success for terminees of the CEP program. Approximately two-thirds
of the CEP males and 50 percent of the CEP females were categorized as heads of households.\textsuperscript{326} In contrast, Analytic Systems reported that heads of households were twice as successful in the WIN program than terminees who were not categorized as heads of households.\textsuperscript{327} The agency indicated that within the CEP, the highest job placement rates and the lowest dropout rates were attained by married males.\textsuperscript{328} In addition, a job placement pattern was established for males whereby the higher the number of dependents, the lower probability the male had of dropping out of the program.\textsuperscript{329} However, Analytic Systems stated that "no clear pattern of success can be established by relating CEP females to the number of dependents."\textsuperscript{330}

Taggart analyzed the CETA placement rate for Fiscal Year 1977 classroom training and OJT enrollees using data obtained from CETA Prime Sponsor records. Based upon the analysis, Taggart determined that the probability of job placement following the completion of training was much greater for those persons who had a better chance of being employed even prior to training, including family heads and married participants.\textsuperscript{331}

Castle's dissertation, which was published in 1990, involved an analysis of JTPA Title II-A participant data using the JTLS quick turnaround segment. The author reported that the trainees' family status seemed to affect program success; nondependent individuals and parents in two-parent families had a higher probability of success than single parents and other family members.\textsuperscript{332} Furthermore, data presented by the author revealed that parents in two-parent families had the highest rate of success, in comparison to those who were single parents, other family
members, or nondependent individuals. The lowest rate of success was attained by those who had a status of other family member. Castle combined the single parent category of those who had one or more dependent children below the age of six, with those who had dependent children aged six and above, rather than separating single parents into two categories according to age of dependent children.

**Welfare Status**

The term welfare grant recipient indicates that the individual is receiving income from one or more of the following sources: Aid-to-Families with Dependent Children (in the Commonwealth of Virginia, refers to Aid-to-Dependent Children), General Assistance, and Refugee Assistance. Many of the welfare grant recipients also receive Food Stamps. The vast majority of the cases in the present study who are welfare grant recipients receive Aid-to-Dependent Children (ADC), plus Food Stamps. One should note that the Commonwealth of Virginia provides ADC grants to eligible individuals, but it does not provide Aid-to-Families with Dependent Children (AFDC) grants.

This section will first present a general discussion on some of the problems that confront many welfare recipients (including most of those in the present study) as they either attempt to enter the labor market, or actually do so. Following this process, the section will address literature that pertains to employment and training services to welfare recipients, and program outcome.

**General Discussion**

One of the major barriers to employment that welfare recipients face is a lack of satisfactory child care, including after-school care for children who are attending
school. Sklar stated that although some welfare recipients are capable of working, most of the welfare population is unable to do so unless suitable child care is provided for them. To prove this point, the author noted that "two-thirds (7.1 million) of those on welfare are children or adults who are responsible for infant or child care." According to an article by Dalby for the Catholic University of America, Private Industry Councils under JTPA generally do not provide child care assistance because it is believed that they can receive satisfactory child care from alternative sources, including Title XX of the Social Security Act. However, the author reported that individuals who work closely with AFDC mothers have disputed this assumption. Sklar pointed out that although some child care assistance is provided through welfare programs, there are not enough funds to cover the child care costs that would be created when more rigorous training, job search activities and work requirements are put into effect.

According to a December 1986 report prepared for the U.S. President by the Domestic Policy Council Low Income Opportunity Working Group, the welfare system creates dependency and discourages welfare recipients from working. The report indicated that welfare mothers who obtain employment "will find that their total income is hardly affected by increased earnings." This is due to either a reduction in welfare benefits or even a complete loss of benefits once a welfare recipient becomes employed. The Working Group stated that "the value of welfare's tax-free benefits often exceeds usable income from taxable work."

A 1987 report on employment programs for welfare recipients was prepared by Ralph E. Smith for the U.S. Congress, Senate Budget Committee. The report
indicated that participants of work-related programs for welfare-recipients who obtain employment and experience an increase in income do "not necessarily attain a higher standard of living, at least in the short run, because transfer payments and other benefits such as Medicaid could fall" and child care expenses and other expenditures associated with going to work could increase.\(^3\) The report also indicated that many of those participants who lost their AFDC benefits "would probably also lose their eligibility for Medicaid some months later."\(^4\) As Sklar has pointed out, "welfare recipients are economically rational." As a result, they will remain on welfare if given a choice, unless they are able to become economically self-sufficient.\(^5\) Sklar stated that "their decision to remain on welfare or accept employment generally is based upon practical considerations related to the provision of food, clothing, shelter and medical care for their families."\(^6\)

As indicated earlier, the vast majority of welfare-grant recipients in this study were receiving ADC benefits and Food Stamps. During the span of time covered by this dissertation, the JTPA subjects who were welfare recipients on ADC received a reduction in ADC benefits immediately following enrollment in an OJT position, or entrance into unsubsidized employment through Job Search Assistance. In addition, their Food Stamps benefits were immediately reduced and several months following enrollment in OJT or entrance into unsubsidized employment, their Medicaid benefits were eliminated. A reasonable assumption is that the threat of losing welfare benefits was a factor that many of the JTPA applicants in this study considered prior to accepting an OJT position or entering unsubsidized employment. Many of the OJT positions and unsubsidized jobs that clients in the study were
placed in did not offer medical benefits. These medical benefits were a strong incentive for many of the welfare cases in this study to remain on welfare and become a member of the nonenrollment group. Unless the OJT salaries or salaries from unsubsidized jobs were high enough, the welfare recipients could actually become more indigent than they were before enrolling in OJT or entering employment.

More recently, the situation has improved for welfare recipients as a result of the Trade Program (Grant Diversion Program) for those individuals who reside in localities that participate. At the present time, ADC benefits are immediately eliminated or reduced when welfare recipients from participating localities enter a JTPA OJT position, or obtain unsubsidized employment, but they are permitted to receive Food Stamps; and they can retain their Medicaid benefits for up to nine months. In addition, their Medicaid benefits can be extended for an grace period of an additional four months.

**Services for Welfare Recipients, and Program Outcome**

Based upon a review of the employment and training literature, it appears as if most of the evaluative studies which have been conducted on welfare status have focused on welfare recipients verses nonrecipients. However, some researchers have narrowed their focus to specific categories of public assistance, with the greatest amount of attention seemingly directed toward AFDC status. These particular studies on AFDC are relevant to this study because, as noted earlier, the vast majority of the welfare recipient cases are ADC recipients.
A NCEP study was prepared in 1988 on how JTPA performance standards are affecting clients that are served, services that are provided, and costs of these services. Results from the study revealed that welfare recipients, including those who are receiving AFDC payments, are well represented among the clients who terminate from JTPA training programs.\(^3\) Similarly, in 1986, Walker and others concluded from their process study of the implementation of Title II-A of JTPA that the program "has clearly been successful in the enrollment of welfare recipients."\(^5\) In fact, study findings indicated that a majority of the study sites actually surpassed their goals for the enrollment of welfare recipients.\(^1\) However, it was noted in the report that "the financial payoff from this achievement is less certain."\(^2\)

In contrast to the study by Walker and others, Westat's 1985 study of the implementation of JTPA yielded results indicating that for JTPA Title II-A, there was a slightly lower proportion of public service recipients in comparison to their existence in the JTPA eligible population. However, Westat determined that when this group was broken down into types of public service received, AFDC recipients were "overrepresented among participants."\(^3\) In addition, a 1989 General Accounting Office (GAO) study of JTPA program year 1985 participants who were adults, aged twenty-two and above, indicated that JTPA seemed to be serving AFDC recipients "at least in proportion to their existence in the eligible population."\(^4\) This finding was based upon the different types of training programs combined, including classroom training and on-the-job training. Most of the AFDC recipients were categorized into the less job ready group, and the GAO stated that this group
was being provided with JTPA services that were not as intensive as the services being given to the more job ready and intermediate job ready groups.\textsuperscript{355}

Ortiz determined that non-welfare recipients who were enrolled in the JTPA Title II-A programs in the SDA of Bayamon, Puerto Rico during the span of time ranging from July 1, 1986 to April 31, 1987 were overserved, whereas "welfare recipients were undeserved."\textsuperscript{356} Ortiz concluded that the SDA did not fulfill the JTPA mandate requiring equitable service to the JTPA eligible population on the basis of economic status.\textsuperscript{357}

Dalby reported that although JTPA specifies that welfare recipients must be equitably served in proportion to their existence in the eligible population, some SDAs are complying with this guideline by providing services to mostly male general assistance recipients, in contrast to female AFDC recipients. The author pointed out that the female AFDC recipients generally cost more to serve than male general assistance recipients because of their child care expenses.\textsuperscript{358}

Levitan and Gallo asserted that employers are more likely to select the best qualified applicants for OJT positions, and indicated that clients who are not receiving public benefits are more heavily concentrated in OJT, in contrast to other training programs offered under JTPA.\textsuperscript{359} Barnow and Constantine reported that long-term welfare recipient was one of the demographic characteristics identified by the DOL Hard-to-Serve Task Force for JTPA's Hard-to-Serve population.\textsuperscript{360} The researchers indicated that hard-to-serve individuals generally "require more intensive or longer-term services, and probability of success may be lower."\textsuperscript{361} They said that welfare recipients are among the groups that are "associated with higher costs" for
In addition, the researchers reported that welfare recipients are among the demographic groups that SDA's have had difficulty in procuring placements for, especially those that offer good wages. They noted that one contributing factor could be job discrimination.

According to an extensive review of the literature, several studies have been conducted which pertain to the effect of welfare status on the completion of employment and training programs offered under JTPA. One of these studies was conducted by Ortiz, on the JTPA programs in Bayamon, Puerto Rico, to determine, in part, whether the completion rates of the "most in need" socio-demographic groups were similar to the completion rates of the least disadvantaged socio-demographic groups. One of the socio-demographic characteristics that was examined in the case study was economic status. The case study results indicated that the completion rates achieved by welfare recipients and non-welfare recipients were similar. However, there was a 6.5 percent differential in favor of non-welfare recipients.

In another case study of terminees of JTPA OJT programs in ten counties situated in Tennessee, Winkler determined that "there were no significant differences in the noncompletion, positive termination, or job retention rates of participants who received public assistance in relation to those participants who did not receive public assistance."

There is some evidence from CETA which suggests that recipients of welfare benefits may be less likely to complete on-the-job training. According to unadjusted data from the Continuous Longitudinal Manpower Survey: Follow-up Report No. 2 (18 Months After Entry), which was prepared by Westat, clients whose families were
obtaining AFDC and clients whose families were obtaining welfare benefits at the time of entrance into the CETA program were more heavily concentrated in the nonterminee category, in comparison to the terminee category, for OJT.\textsuperscript{367}

There also appears to be some evidence denoting that welfare recipients have a lower probability of obtaining employment following the completion of job training. Orfield and Slessarev reported that according to their analysis of the JTPA program in Illinois, welfare recipients were among those demographic groups who were "less likely than others to find a job after training."\textsuperscript{368} The authors asserted that one-fourth of the JTPA enrollees in Illinois consisted of women who were AFDC recipients, yet they represented only 19 percent of the clients who obtained employment following job training.\textsuperscript{369} As indicated earlier in this section, Barnow and Constantine defined welfare recipients to be among the demographic groups "for whom evidence has shown that SDAs are likely to experience problems in obtaining placements, particularly in well-paying jobs."\textsuperscript{370} Furthermore, Castle concluded from her national study of data on JTPA Title II-A participants who were terminated from the program between October 1983 and June 1986, that "the absence of a welfare grant seemed to increase the probability of JTPA success."\textsuperscript{371} The author asserted that "trainees who were either unemployed or not in the labor force at the time of program application were more likely to realize post-training employment compared to those who were either totally welfare dependent at the time of program application."\textsuperscript{372} The author also indicated that despite the fact that some welfare dependent individuals entered unsubsidized employment following training, their requirement for welfare was not always eliminated.\textsuperscript{373}
In contrast to some of the studies of welfare recipients described above, Hansen described a study which found welfare recipients to be successful in entering unsubsidized employment. The author reported on a Wisconsin study entitled The Effects of JTPA Services on AFDC Recipients, by John Wichita and Richard Ross, which found AFDC recipients to have "relatively high rates of entry into unsubsidized work" after terminating from JTPA programs. The entered employment rate for AFDC recipients was 76 percent.\(^{374}\) On-the-job training was determined by the researchers to be especially influential "in increasing the entered employment rate of AFDC participants."\(^{375}\) Data for the study were obtained from the Wisconsin JTPA reporting system. The data consisted of JTPA participants who were 19 years and above, and who had enrolled in JTPA Title II programs in PY 1985, and subsequently terminated.\(^{376}\)

Friedlander and Long conducted a study of the impact of three welfare employment programs situated in San Diego, Baltimore, and various counties in Virginia. Their analysis only focused on data for heads of households who were single parents (mostly women) and who were part of the WIN-mandatory AFDC caseload.\(^{377}\) The data utilized in their analysis were gathered in three separate evaluations of the welfare programs discussed above. All three evaluations used experimental research designs, whereby random assignment was used to assign eligible applicants and recipients to either experimental groups, which were provided with services, or to control groups, which were not.\(^{378}\) Findings indicated that the rates of job attainment were above average for the cases that had never been on AFDC prior to random assignment, whereas cases that had considerable experience
on the welfare rolls attained lower rates of employment. Despite this, Friedlander and Long reported that the actual impact on job attainment and earnings was strongest for the cases who had considerable welfare experience.\textsuperscript{379}

Franklin and Ripley evaluated the CETA program to determine, in part, whether "creaming" of the participants influenced program performance. He determined that the percent of clients on welfare was not associated with placement performances as measured by the DOL placement indicator.

**Reading Score.** During the period of time represented by the data in this study, SDAs were not required to assess the reading skills of JTPA participants, with the exception of the eligible summer youth participants under Title II-B, as required by the JTPA amendments of 1986.\textsuperscript{380} Consequently, there appears to be a lack of research focusing on the relationship between reading skills of JTPA participants and program outcome. As of PY-89 (July 1, 1989) SDAs have been required to assess the reading skills of new participants in JTPA Titles II-A and III to determine whether or not they are reading below the 7th grade level,\textsuperscript{381} so research pertaining to this attribute should be forthcoming in the near future.

It is believed that the lack of reading skills is one of the most prevalent labor market deficiencies.\textsuperscript{382} The DOL Hard-to-Serve Task Force identified low reading level as one of the ten most common attributes of JTPA's hard-to-serve population.\textsuperscript{383} Barnow and Constantine defined hard-to-serve individuals as having a lower probability of obtaining and retaining employment.\textsuperscript{384} The enrollment of hard-to-serve individuals in JTPA programs can potentially jeopardize the attainment of JTPA performance standards.\textsuperscript{385} According to the NCEP, states that strongly
accentuate surpassing JTPA performance standards in order to receive incentive funds influence SDAs to choose fewer hard-to-serve clients for their programs.386

There is some evidence that JTPA applicants who lack basic skills are screened out of JTPA programs. Levitan and Gallo conducted an assessment of the JTPA program and determined that in order to meet or exceed their performance standards, SDAs have often excluded "functional illiterates."387 In addition, Orfield and Slessarev assessed the JTPA program in Illinois, and reported that during interviews with SDA administrators and service deliverers, many complaints were made concerning an inability to serve a considerable portion of the JTPA applicants because they did not possess the basic skills that are required for entrance into training programs and job slots.388

Mathematics Score. The JTPA legislation has not required JTPA SDAs to assess the mathematics skills of JTPA participants. One exception to this is the JTPA Amendments of 1986, which revised the act to require the assessment of mathematics skills of summer youth participants under Title II-B.389 Although most of the clients in this study were assessed for mathematics skills, there was not a national requirement to do so because they were served under JTPA Title II-A. During the time of the study, some SDAs did assess mathematics skills of JTPA applicants, as well as participants, but they did not have to report the data obtained, and the skills tests were often used to screen clients out of JTPA programs. There is an apparent paucity of research studies on the relationship between mathematics skill levels and program outcome from employment and training programs, including JTPA. The
lack of research in this area is presumably due to the inexistence of data gathering and reporting requirements for mathematics skill levels of program participants.

Mathematics skills are one of the three basic prerequisites that are needed "to gain access to and satisfactorily perform on even entry-level jobs." According to Levitan and Gallo, and Orfield and Slessarev, there is evidence that many of the JTPA applicants are prevented from entering JTPA programs because of poor literacy skills. Approximately 60 percent of the JTPA service providers that were interviewed by researchers in Orfield and Slessarev's study of the JTPA program in Illinois indicated that poor basic skills was an obstacle to placing clients in jobs.

According to a 1988 NCEP report by Barnow and Constantine, low mathematics level was one of the ten most frequently identified characteristics of JTPA's hard-to-serve population. The authors defined hard-to-serve clients as having deficiencies or barriers to employment which "are likely to make them more costly to serve and less likely to find and retain employment." The minimum level of mathematics and reading skills that were required by the contacted respondents in order for the clients not to be deemed hard-to-serve "ranged from a third grade level to a twelfth grade level." The enrollment of hard-to-serve clients in JTPA programs can lower an SDA's level of performance unless the performance standards system contains "adequate adjustments in the level of expected performance for serving these individuals." Barnow and Constantine pointed out that since the adjustment models for performance that are presently being utilized in the JTPA system do not include "measures of basic skills . . . , the current models are likely to penalize SDAs that serve such people." A 1988
NCEP report prepared by SRI International and Berkeley Planning Associates revealed that States which heavily emphasized surpassing the performance standards in order to obtain incentive funds tended to encourage their SDAs to enroll a lower number of hard-to-serve individuals. The report also indicated that SDAs which emphasized OJT were more inclined "to serve significantly fewer hard-to-serve clients."

Weidman and White obtained some evidence from a WIN demonstration high-tech electronic technician training program which suggested that program completion may be associated with mathematics skills. Cases for their study consisted of WIN female heads of households who enrolled in the training program. Most of the women in the study were minorities who had been unemployed for longer than six months. The researchers compared fifty-two program graduates to ninety-seven program dropouts and determined that program completion was positively associated with the G test score on the General Aptitude Test Battery, and with being enrolled in a geometry course in high school. In contrast, they concluded that the personal attributes of ethnicity, employment background, and welfare history was not correlated with program completion. The authors asserted that the attainment of an arithmetic score which was high enough to enter directly into the electronic technician program rather than taking remedial preparation first was "the most important correlate of success."

Length of Unemployment. The employment and training community has recognized that "having recent work experience is market." There is also
evidence that recent labor market experience is related to outcome from employment and training programs, as discussed in the paragraphs below.

One of the ten most common attributes that was identified by the DOL Hard-to-Serve Task Force for JTPA's hard-to-serve population was having little or no work history. Barnow and Constantine pointed out that SDAs generally have to spend more money to serve hard-to-serve clients because they frequently need "more intensive or longer-term services." In addition, these clients pose greater "risks" for the SDAs because their "probability of success may be lower."

Analytic Systems conducted an analysis of terminee data from the CEP program. The analysis yielded results which indicated that the longer the clients had been jobless throughout the twelve month span of time before entering the CEP, the lower likelihood there was for them to become positive terminations (to enter unsubsidized employment). In addition, both males and females were more likely to fall into the neutral termination category (any other than positive or negative) with greater lengths of unemployment. Results also revealed that for both males and females, "the shorter the current spell of unemployment" the greater their chances were of becoming positive terminations. Interestingly enough, the percentage of clients who became negative terminations (dropped out of the program) ranged from 26 percent to 27 percent for all three length of unemployment categories; namely, 1-14 weeks, 15-25 weeks, and 26 weeks and above. This finding applied to both males and females. Analytic Systems concluded "that the length of unemployment has no significant effect on an enrollee's attitude towards employment."
Coffin reported on an evaluation of the CETA program in Indianapolis which was carried out to assist the CETA Prime Sponsor in increasing the attainment of positive terminations. Clients for the study were 1138 CETA participants who terminated from the program between July 1, 1977 and June 30, 1978. One of the personal characteristics that was found to be associated with the attainment of a positive termination was having a job at the time of application (either full-time or part-time employment).411

There is evidence that length of unemployment is associated with the propensity to become employed. Friedlander and Long analyzed data gathered from evaluations "of three mandatory welfare employment programs" which provided services to "different segments of the . . . AFDC caseload" in San Diego, Baltimore, and Virginia.412 The study only focused on data from (generally female) single-parents who were the heads of households.413 After combining the data from the three different programs, the researchers determined that those clients who earned $3,000 or above the year prior to entering the program had an entered employment rate of approximately 62 percent each quarter. In comparison, the entered employment rate for clients who were unemployed for the entire year before entering the program was just 26 percent.414

Westat provided additional evidence in a DOL document that length of unemployment is related to the probability of becoming employed, using data from the Continuous Longitudinal Manpower Survey (CLMS). The DOL document, which was prepared by Westat in 1979, was based on CLMS data from CETA terminees who had enrolled in CETA during Fiscal Year 1976 (July 1975 through June
In order to determine what effect prior employment history had on job attainment, Westat analyzed CETA terminees who had been out of the program for three or more months by categorizing them into "four subgroups according to their predominant labor force status during the year before they entered CETA." Results from the study revealed that the subgroups which had the best employment history prior to entering CETA also had the best employment levels three months after terminating from the program. The predominantly employed subgroup (those who held a job at least 90 percent of the preprogram year attained the highest employment level (70 obtained jobs). In comparison, the predominantly not in the labor force subgroup (those who had been students or not seeking employment for at least half of the preprogram year) achieved the lowest employment level (47 percent obtained jobs). The employment levels of the predominantly unemployed subgroup (jobless for at least half of the preprogram year) and the combination of labor force statuses subgroup (primarily individuals with "extensive unemployment," but for less than half of the year) fell between the levels of the other two above-mentioned subgroups.

Veteran Status. The DOL Hard-to-Serve Task Force identified veterans as one of JTPA's hard-to-serve groups. However, being a veteran was not one of the ten most common attributes that were identified. Barnow and Constantine indicated that hard-to-serve clients frequently have "labor market deficiencies or barriers to employment," and said that they are often "difficult-to-place."

According to the Bureau of National Affairs, panelists who attended a conference on veterans' issues, which was sponsored by the DOL, voiced opinions
indicating that veterans are not adequately represented under JTPA's training programs.\(^4\) \(^2\) \(^1\) The conference being referred to was entitled "Workforce 2000 and America's Veterans, A National Forum on Veterans' Employment and Training Issues," and it was held in Washington, D.C., from April 19-21, 1988.\(^4\) \(^2\) \(^2\) One of the four work teams that conference participants were divided into determined that veterans would be better represented in JTPA programs if they were specified as a "target group."\(^4\) \(^2\) \(^3\) Ron Drach, who serves as the National Employment Director for the Disabled American Veterans, was reported as stating that the veterans believe "the JTPA statute is deficient" because it does not establish them "as a target group or special population in Title II-A programs."\(^4\) \(^2\) \(^4\) With the exception of JTPA's Title IV-C, "veterans are not statutorily given preference over non-veteran JTPA applicants."\(^4\) \(^2\) \(^5\) Another work team, which was facilitated by Robert Jones, Special Assistant for Employment, Veterans of Foreign Wars of the U.S., asserted that there is a lack of reliable data on JTPA participants who are veterans. The group concluded that "legislation should be passed mandating that sufficient data be collected and that veterans be targeted for priority service within JTPA programs."\(^4\) \(^2\) \(^6\) A Westat study of implementation of JTPA during the Transition Year and Program Year 1984 revealed that some of the randomly selected states and SDAs did designate veterans as a target group for JTPA services.\(^4\) \(^2\) \(^7\) Vietnam-era veterans and disabled veterans were considered to be target groups in the Federal employment and training programs that existed throughout the 1970's, including the CETA program.\(^4\) \(^2\) \(^8\) In fact, there was an above average proportion of Vietnam veterans enrolled in CETA's OJT program.\(^4\) \(^2\) \(^9\) However,
these training programs became more decentralized with the passage of time, which enabled state and local governments to have greater administrative control and to determine program priorities.430

When JTPA was enacted in 1982, it "marked the end of most nationally mandated veterans' target group provisions in the Federal government's major job training programs."431 As a result of the JTPA amendments of 1986, the term "veterans" was inserted "in a number of places to ensure that JTPA program operators include veterans' representatives in their decision-making processes, and give special attention to veteran participants."432 Much effort is still needed to facilitate the provision of services to veterans under JTPA.

According to a 1987 report by Cohany,433 and a 1978 report by the Virginia Employment Commission (VEC),434 Vietnam-era veterans generally have a labor force status which is very comparable to that of nonveterans. However, there are certain groups of veterans who do face barriers to employment.435 One of these groups is disabled veterans. Based upon a 1987 survey of veterans, the Bureau of Labor Statistics of the DOL determined "that those with service-connected disabilities and those who actually served in Southeast Asia experienced greater labor market problems than other veterans." Survey results revealed that male Vietnam-era veterans who had service-related disabilities had an unemployment rate of 6.2 percent, in comparison to a 4.7 percent rate of unemployment for those who did not have disabilities.436 For female veterans of the Vietnam-era who were aged 25 to 54 years, the unemployment rate and the labor force participation rate was similar to the rates of females in the same age bracket who were nonveterans.437

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
According to a 1987 report by Cohany in the *Monthly Labor Review*, Vietnam-era veterans "who served in the Vietnam theater (Vietnam, Laos, and Cambodia and the surrounding airspace and waters), and most particularly those who received disabling injuries from combat and other causes, have higher unemployment rates and lower labor force participation rates than their peers." In 1986, the Bureau of Labor Statistics released results from a study on disabled veterans which indicated that Vietnam-theater veterans had a somewhat lower rate of participation in the labor force "than that of other Vietnam-era veterans, in part because a larger proportion had service-related disabilities that hampered their ability to work."

Another group of veterans that have been found to face barriers to employment is young veterans. A 1978 VEC report indicated that on a national level, Vietnam-era veterans who were aged 20 to 24 had a 16 percent rate of unemployment the previous year, in contrast to a 10 percent rate of unemployment for nonveterans who fell in their same age bracket. The VEC attributed the unemployment problem of young veterans to "a lack of civilian training and skills" which are "needed to compete in the civilian labor market."

Two other groups of veterans with barriers to employment are those from World War I and World War II, and minority veterans. The VEC indicated that World War I and World War II veterans face age discrimination while minority veterans are discriminated against because of their race.

With the exception of a Westat study using the CLMS, there seems to be a lack of research on the relationship between veteran status (veteran verses nonveteran) and program outcome from job training programs. According to Westat...
data obtained on the CETA program from the CLMS, nonveterans were equally
distributed between the terminees and the nonterminees whereas for veterans, there
was a slightly greater concentration among the nonterminees for some categories.
Overall, the outcomes for both groups appeared to be very similar.445

The Veteran's Administration conducted an evaluation of the Emergency
Veterans' Job Training Program (VJTA) in 1986. The purpose of the VJTA was to
assist long-term unemployed Korean conflict and Vietnam-era veterans to obtain
"steady and permanent employment."446 Evaluation results indicated that
approximately 40 percent of the VJTA participants completed their training
programs, while the remaining 60 percent dropped out. Furthermore, approximately
40 percent of the participants without disabilities completed training, in contrast to 36
percent of the participants who had a 10 or 20 percent disability rating, and 32
percent of the participants who had a 30 percent or higher disability rating.447
Nonveterans were not included in the study.

**Highest Grade Completed.** Traditionally, those with higher levels of education
have been more likely to receive OJT training under Federal employment and
training programs than those with lower levels of education. As an example, high
school graduates were more likely than dropouts to be placed in OJT programs under
MDTA448 and CETA.449 Levitan and Gallo reported similar findings for JTPA's
OJT programs.450 The authors asserted that employers have a propensity to
choose, and when permitted, to recruit the most qualified applicants for OJT
positions.451
According to a 1986 report by Orfield and Slessarev, the JTPA OJT programs in Illinois have a tendency "to serve white males with relatively high levels of education."\textsuperscript{452} There is evidence that JTPA Title II-A programs are serving individuals with higher levels of education than under CETA. A 1985 GAO study was conducted, in part, to determine how the characteristics of CETA participants varied from those of JTPA Title II-A participants. The study used participants from 148 JTPA SDAs that maintained "the same geographic boundaries as former CETA prime sponsors, between 1980 and 1984."\textsuperscript{453} The GAO compared the characteristics of JTPA Title II-A participants who enrolled during transition year 1984 with those of CETA Title II-B and C participants from FY 1982. With regard to educational status, the GAO determined that for CETA, in FY 1982, 60 percent of the participants were high school graduates, in contrast to 62 percent for JTPA during the transition year. Furthermore, 29 percent of the CETA participants were school dropouts, in comparison to 23 percent for JTPA.\textsuperscript{454}

A number of studies at the national level have examined the JTPA eligible population in comparison to JTPA participants to determine whether or not high school graduates are overrepresented in JTPA programs overall. Included in these programs is classroom training and OJT. Using data gleaned from the Job Training Quarterly Survey for program years 1984 and 1985, and the March 1986 Current Population Survey (CPS), Sandell and Rupp concluded that within the aggregate eligible population for JTPA, high school dropouts have a lower probability of being enrolled in JTPA programs than high school graduates.\textsuperscript{455} The NCEP reported in 1988 that according to their study, which used a sample of states and SDAs, adult
dropouts were underserved in JTPA programs but youth dropouts were overserved.456

Westat conducted a study of JTPA to analyze how the services were carried out between the span of time ranging from December 1983 to May 1985, using a randomly selected sample of twenty states and forty SDAs situated within those states.457 Based upon data on JTPA Title II-A eligibles from the March 1984 CPS and JTPA Title II-A participant data from the Job Training Longitudinal Survey Quick Turnaround enrollee sample for the JTPA transition year 1984, Westat determined that participants with higher levels of education are overrepresented in JTPA Title II-A programs.458 In contrast, high school dropouts were found to be underrepresented in Title II-A programs.459 Westat partially attributed the overrepresentation of participants with higher levels of education to two causes. First of all, Westat indicated that when income and work experience was held constant, those individuals with higher levels of education had a greater propensity to apply for training. Secondly, Westat reported that on the average, older individuals did not have as high of a level of education as younger individuals and they were not as likely to become JTPA participants.460 However, Walker and others determined from their two-year process study of the implementation of JTPA Title II-A programs that SDAs displayed "only occasional interest, often stimulated by state incentives, in enrolling school dropouts."461

A number of studies at the state and SDA level have also analyzed the JTPA eligible population in contrast to JTPA participants to ascertain whether or not high school graduates are overrepresented. In 1986, Orfield and Slessarev reported that in
the Illinois JTPA system, there was an overrepresentation of high school graduates in comparison to their existence in the eligible population, whereas dropouts were underrepresented. In addition, the authors stated that for the first year of program operation, over 60 percent of the JTPA trainees possessed high school diplomas and this figure increased to 75 percent for the second year of operation. Based upon a case study on participation in JTPA Title II-A training programs in Bayamon, Puerto Rico, Ortiz concluded that school dropouts were underserved by nearly 50 percent.

Evidence has been obtained which indicates that JTPA programs in Virginia also tend to serve those with higher levels of education. A Commonwealth of Virginia study by Turnage was conducted by contrasting JTPA Title II-A data from program year (PY) 1985 on school dropouts who enrolled in JTPA with "the dropout equitable service standard from 1980 Census Data." Findings indicated that school dropouts in Virginia were underrepresented in JTPA Title II-A programs "by 28 percentage points." For SDA 13, which is the focus of this dissertation, school dropouts were underrepresented in Title II-A programs during PY 1985 by "27 percentage points." Twenty-six percent of the Title II-A enrollees that were served by this particular SDA consisted of school dropouts.

There is some evidence which can be inferred as suggesting that school dropouts are more likely to become nonenrollments for employment and training programs than those with higher levels of education. Analytic Systems analyzed terminee data from the CEP and found that for males, there was a reduced likelihood of falling into the "other" category (other than a positive or negative
termination) as level of education increased. Similar conclusions could not be drawn for females because of an unclear relationship. Many of the reasons for clients falling into the category of "other" in the Analytic Systems' study are synonymous with the reasons cases in this dissertation were nonenrollments. However, the "other" category in the Analytic Systems' study consisted of enrollees, whereas in the present study, the nonenrollment group is comprised of nonenrollees.

The NCEP funded an evaluation of the impact that JTPA performance standards are having on clients that are served, services that are provided, and the associated costs of these services. A representative sample of 30 SDAs and 87 JTPA service deliverers situated in eight states was utilized for the qualitative portion of the evaluation. During on site interviews, many of the SDAs reported that dropouts were difficult to serve. In fact, dropouts were one of the two most frequently identified hard-to-serve groups. The NCEP obtained evidence indicating that states which heavily emphasized exceeding the JTPA performance standards in order to receive incentive funds had a greater propensity to enroll significantly fewer clients who fell into the hard-to-serve category. Barnow and Constantine indicated that hard-to-serve clients generally need "more intensive or longer-term services and probability of success may be lower." In addition, the researchers said that they are usually "difficult-to-place," especially in jobs that provide good wages.

There is a positive correlation between the amount of education attained and success in the job market. There is also some evidence that level of education is associated with program completion, and with program success in employment and
training programs. Most of this evidence pertains to the attainment of a positive termination, which will be addressed later in this section.

Taggart analyzed unpublished tabulations from Westat on CLMS data obtained on FY-77 CETA enrollees, and reported that high school dropouts had a slightly greater probability of dropping out of classroom training (becoming negative terminations) than other subgroups which are considered to be more employable. However, Winkler's case study on the JTPA OJT program in a number of counties in Tennessee yielded results which indicated that level of education did not have a significant influence on the noncompletion rate, the positive termination rate, and the job retention rate of program participants. In order to analyze level of education, three categories were used: high school dropout, high school graduate or equivalent, and post high school. In addition, Ortiz found similar levels of program completion for school dropouts and high school graduates in a JTPA program in Bayamon, Puerto Rico.

Analytic Systems analyzed CEP termination data and reported that the more education the clients had, the greater probability they had of dropping out of the program unless they were "a high school graduate." Gladstone and Trimmer obtained evidence from their analysis of clients in the WIN program indicating that highest grade completed is an "insufficient predictor" of program success (completion of training). The authors explained that "WIN registrants who have completed the 11th or 12th grades are often in need of Adult Basic Education before entrance into occupational training."
Level of education attained appears to be strongly related to the likelihood of becoming a positive termination for the CETA and CEP programs. Taggart analyzed the job placement rate for CETA clients from FY-77, who were enrolled in either classroom training or OJT programs, based upon data contained in Prime Sponsor Records. Results indicated that clients who had a better chance of becoming employed prior to training, including high school graduates, also had much higher job placement rates following the completion of training.481

Analytic Systems analyzed CEP terminee data and determined that there was a direct positive relationship between level of education attained, and job placement. In addition, Analytic Systems reported that the strongest influential factor in "placement success" was the possession of a high school diploma.482 Coffin obtained results from an analysis of the CETA program in the City of Indianapolis which indicated that the likelihood of becoming a positive termination was "significantly reduced" by "being a high school dropout." In contrast, "having more education" was found to be a significant factor in facilitating the attainment of a positive termination.483

A portion of Franklin and Ripley's evaluation of CETA focused on determining if there was a relationship between socio-demographic characteristics of CETA participants, and program performance. The researchers concluded that education was not related to the DOL placement indicator.484

There is also evidence which shows that level of education obtained is associated with the likelihood of entering unsubsidized employment (thereby becoming a positive termination) after receiving job training under JTPA. Turnage
presented evidence on program outcome for JTPA PY-85 tereminees from SDAs in Virginia suggesting that educational attainment is directly related to job attainment following the completion of OJT. The study revealed that 69 percent of the adult dropouts who were participants in OJT programs found jobs after completing training, in contrast to 76 percent of the adult non-dropouts.\textsuperscript{485} In addition, "almost 61 percent of the youth dropouts enrolled in on-the-job training obtained employment following training, compared to 67 percent of youth enrollees who were non-dropouts."\textsuperscript{485}

Castle's dissertation yielded evidence indicating that when examined across socio-demographic characteristics of success, education was among the attributes that influenced the success rates of JTPA Title II-A participants. Those trainees who were school dropouts had lower success rates than those who had a high school education or its equivalent, or post-high school education.\textsuperscript{487} Data presented by Castle indicated that high school graduates or its equivalent had a success rate of 73.0 percent in comparison to a success rate of 73.8 percent for those with some post high school education, which indicates that the success rates for these two categories were almost equivalent.\textsuperscript{488}

In another study of OJT programs in various Tennessee counties, Winkler determined that the enrollee's level of education "did not significantly affect the noncompletion, the positive termination, or the job retention rates."\textsuperscript{489} Winkler asserted that this finding is in sharp contrast to the generally accepted notion that an individual becomes more employable as level of education increases. The author suggested that the results could be associated with the selection process which was
used to choose participants for the program and recommended that additional research be conducted.\textsuperscript{490}

**Offender Status.** Having an offender status is a barrier to obtaining employment.\textsuperscript{491} During the qualitative section of a JTPA evaluation funded by the NCEP, which was published in 1988, many of the SDAs reported that offenders were "hard-to-serve" in JTPA programs.\textsuperscript{492} Furthermore, another 1988 NCEP report, which was prepared by Barnow and Constantine, indicated that the State of Illinois determined that offenders were among the groups that had "statistically significant weights" in their adjustment models for performance standards.\textsuperscript{493} This indicates that the attribute of offender is "associated with higher costs and lower placement rates"\textsuperscript{494} for Illinois.

Barnow and Constantine reported that the DOL created a Hard-to-Serve Task Force to provide expertise in examining the characteristics of JTPA's "hard-to-serve" population. One of the ten most frequently identified characteristics was being an ex-offender.\textsuperscript{495} The researchers defined hard-to-serve clients as having "especially severe deficiencies or barriers that are likely to make them more costly to serve and less likely to find and retain employment."\textsuperscript{496} They asserted that, according to the definition, hard-to-serve clients pose risks to the SDAs if enrolled in training because they can hinder the attainment of "a high level of performance."\textsuperscript{497}

Walker and others reported in 1986 that according to their two-year process study of the JTPA Title II-A program, SDAs displayed "only occasional interest," often stimulated by state incentives, in enrolling . . . ex-offenders.\textsuperscript{498}
Based upon an extensive review of the literature pertaining to employment and training programs, evaluative studies that have analyzed the relationship between offender status and program outcome appear to be quite scarce. One of the studies which has been conducted is Coffin's evaluation of the CETA program in Indianapolis. The purpose of the evaluation was to assist CETA Prime Sponsors in determining how they could facilitate their attainment of positive terminations.499 One of the client characteristics that was found to significantly increase the likelihood of becoming a positive termination was "having a police record."500 However, the NCEP reported that SDAs view offenders as having "special needs" for placement.501 According to unadjusted data contained in the Continuous Longitudinal Manpower Survey: Follow-up Report No. 2, CETA terminees (who enrolled in CETA during FY-76) with a criminal record who enrolled in OJT were equally concentrated between the terminees and the nonterminees eighteen months after entering the program.502

**Handicapped Status.** Levitan and Taggart stated that the disabled fall at the bottom of the labor queue.503 The authors explained that according to labor queue theory, those individuals who are at the bottom of the scale "are much more likely to be jobless, much more likely to drop out of the labor force, and much less likely to find well-paying jobs."504 When disabled persons are faced with physical or mental disabilities in conjunction with socioeconomic handicaps, their employment problems are generally even more critical.505

A survey of disabled Americans was conducted by Louis Harris and Associates in 1985 for the International Center for the Disabled (ICD) and the
National Council on the Handicapped. The nationwide survey revealed that two-thirds of the working-age disabled population are unemployed, despite the fact that "a large majority of this group" indicated a desire to obtain employment. Statistically, this translates into 12.4 million unemployed disabled persons, with 8.2 million of them wishing to enter the labor force. Based upon the survey results, Louis Harris and Associates concluded that the disabled population has a much lower probability of becoming employed "than any other demographic group under 65, including black teenagers."

Levitan and Taggart stated that "in each age, sex, race, and educational attainment cohort, disabled workers have lower earnings and lower labor force participation rates." Their unemployment problem and lower wages can be largely attributed to employers, who "prefer nondisabled workers even if disadvantaged, to the disabled." Support for this assertion was generated from the ICD Survey II, which was conducted by Louis Harris and Associates following the ICD Survey I. Seventy-five percent of the 921 managers who were interviewed reported a belief "that disabled people often encounter discrimination from employers." Unfortunately, the survey results suggested that unless new efforts are taken to stimulate hiring of the disabled, the employment rate of this group "is unlikely to increase significantly."

Levitan and Taggart reported that the labor queue even operates "within the universe of the disabled." They alluded to the idea that two types of handicaps which present the greatest problems in entering the labor force and earning good salaries are mental illness, and mental retardation. Similarly, in a 1978 report on
veterans, the Virginia Employment Commission (VEC) indicated that employers are especially biased against disabled veterans with psychological disorders.514

A GAO study which compared the characteristics of CETA Title II-B and C and JTPA Title II-A enrollees revealed that for CETA, during FY 1980 and 1982, and for JTPA during transition year (TY) 1984, the percentage of handicapped enrollees served stayed extremely constant over time. Handicapped enrollees accounted for 10 percent of the CETA enrollees for FY-80 and FY-82, and for 9 percent of the JTPA enrollees during TY-84.515 These percentages represent the average number of handicapped enrollees across the 148 SDAs that were included in the analysis.516 These particular SDAs had the same geographic boundaries under the former CETA program as under JTPA.517

According to studies by Bamow and Constantine, and the NCEP, handicapped clients are considered to be hard-to-serve under JTPA. Barnow and Constantine reported that the DOL formed a Hard-to-Serve Task Force to analyze characteristics of JTPA's hard-to-serve population. One of the ten most frequently identified hard-to-serve characteristics was being physically, mentally, or emotionally handicapped. Westat asserted in their study on JTPA that handicapped clients are frequently "more difficult to place." In addition, the NCEP reported that the handicapped are viewed as having unique needs for both training and placement.521

The President's Committee on Employment of the Handicapped gleaned and examined data from the JTPA Annual Status Report for PY-86 on participation rates of the disabled population in JTPA programs. Results indicated that for JTPA Title II-A programs, disabled adults represented 8.6 percent of the nation's terminees,
whereas disabled youth represented 12.2 percent of the nation's terminees. These percentages are significantly higher than those for PY-85. The study noted "that every Program Year of JTPA has demonstrated an increase over the prior year's figures." The President's Committee determined that the state level JTPA participation rate for handicapped adult terminees ranged from a low of 2.0 percent to a high of 24.7 percent of all terminees. In the State of Virginia, for PY-86, 9.6 percent of the adult terminees were handicapped, in comparison to 16.1 percent of the youth. Only 3.9 percent of the PY-86 adult terminees for Job Training Services (JTS) were handicapped, which is extremely low. JTS is the SDA used for this dissertation. In contrast, 25.4 percent of the youth terminees for the JTS during PY-86 were handicapped, which is 9.3 percentage points above the aggregate figure for youth handicapped terminees in Virginia. However, "adults . . . are overrepresented in OJT compared with other forms of training" that are offered under JTPA.

An NCEP evaluation of JTPA revealed that for adults, in PY-86, 15.3 percent of the JTPA eligible population was handicapped but only 9.5 percent of the JTPA terminees were handicapped. This suggests that adults with handicaps were somewhat underserved in proportion to their incidence in the JTPA eligible population. In contrast, the NCEP's calculations revealed that for PY-86, 3.7 percent of the JTPA eligible youth population was handicapped, although 16.0 percent of the JTPA youth terminees were handicapped. This indicates that for PY-86, handicapped youth were overserved in proportion to their incidence in the JTPA eligible population. The data were not broken down according to type of training the
terminatees had been enrolled in. However, as indicated above, adults are
overrepresented in JTPA OJT programs in contrast to other training programs that
are offered.\(^{531}\)

A 1988 NCEP report indicated that based upon historical data, having a
handicap is one of several attributes that make it more difficult for a participant to
obtain a positive outcome from job training programs, in comparison to other
participants.\(^{532}\) This chapter has already established that handicapped clients are
often more difficult to place. Evidence has been presented by Levitan and
Taggart,\(^{533}\) and a Congressional report prepared by the Veterans'
Administration,\(^{534}\) indicating that having a handicap reduces the chances for
program completion from job training programs. Levitan and Taggart stated that for
FY-72 participants who were enrolled in OJT programs under MDTA, the disabled
attained a 60 percent rate of completion, in contrast to a 68 percent rate of
completion for nonhandicapped participants.\(^{535}\)

The Veterans' Administration conducted an evaluation of the Emergency
Veterans' Job Training Act (VJTA) program for Congress. This program was
established by Congress in 1983 "to provide stable and permanent employment for
Korean Conflict and Vietnam era veterans who have been unemployed for long
periods of time."\(^{536}\) Included among the findings, approximately 40 percent of the
participants without disabilities completed their training programs in contrast to 36
percent of the participants with a 10 to 20 percent disability rating, and 32 percent of
the participants who had a 30 percent or higher disability rating.\(^{537}\) Furthermore,
VJTA participants with civilian disabilities had a lower likelihood of being program complete rs than those without civilian disabilities. 538
NOTES

1 Department of Labor, Office of the Assistant Secretary for Policy, Evaluation and Research, The Economic Benefits from Manpower Training Programs, by Nicholas M. Kiefer (Princeton, NJ: Princeton University, Industrial Relations Section, 1976), NTIS, PB-265 949, 5.

2 Ibid.


4 Ibid.

5 Ibid.


7 Clague, Manpower Policies and Programs, 3.

8 Ibid.

9 Ibid.

10 Ibid.

11 Department of Labor, The Economic Benefits, 5.

12 Franklin, CETA: Politics and Policy, 5.

13 Ibid.

14 Clague, Manpower Policies and Programs, 4.

15 Ibid.

16 Ibid.

17 Ibid., 4-5.
18Ibid., 5.


22CETA Staff Development Program, *An Orientation to CETA*, 8, 12.


24Ibid., 8.

25Somers, *Retraining the Unemployed*, 4.


29Ibid., 13.

30Ibid.


32Somers, *Retraining the Unemployed*, 4.


39 Clague, Manpower Policies and Programs, 18.

40 CETA Staff Development Program, An Orientation to CETA, 13.

41 Ibid., 8, 13.

42 Ibid., 13.

43 Ibid., 8.

44 Ibid., 9.

45 Clague, Manpower Policies and Programs, 19.

46 Department of Labor, The Economic Benefits, 6.

47 Clague, Manpower Policies and Programs, 19.

48 Ibid., 26.

49 CETA Staff Development Program, An Orientation to CETA, 13.

50 Clague, Manpower Policies and Programs, 26.

51 Ibid.

52 Department of Labor, The Economic Benefits, 7.


54 CETA Staff Development Program, An Orientation to CETA, 9.

55 Perry, The Impact of Government Manpower Programs, 186-187.

56 CETA Staff Development Program, An Orientation to CETA, 13.

57 Perry, The Impact of Government Manpower Programs, 186.

58 Ibid.

59 Clague, 26.

60 Perry, The Impact of Government Manpower Programs, 186.

61 Ibid.
62Ibid., 187.
63Ibid.
64Ibid.
65Ibid., 12.
66Clague, 32.
67CETA Staff Development Program, An Orientation to CETA, 9.
68Clague, 32.
69Perry, The Impact of Government Manpower Programs, 332.
70Clague, 32.
72Ibid.
73Ibid.
75Department of Labor, Implementing Welfare-Employment Programs, 6.
76Ibid.
77Ibid.
80Franklin, CETA: Politics and Policy, 162.

CETA Staff Development Program, An Orientation to CETA, 40.

Bureau of Social Science Research, CETA: Accomplishments, Problems, Solutions, 46.

Franklin, CETA: Politics and Policy, 182.


Bureau of Social Science Research, CETA: Accomplishments, Problems, Solutions, 3.

Ibid., 2.

Ibid., 3.

Ibid., 3, 6.

Ibid., 6.


Ibid.

Ibid.


Ibid.


Robert E. Campbell, Claire Ho, Catherine King-Fitch, and Kenneth L. Shellberg, Follow-Through Services: A Missing Link to Employment for the


101 Ibid.


103 Campbell, Follow-Through Services, 7.


111 Franklin, CETA: Politics and Policy, 181.


115 Ibid.
119 Congress, Job Training Partnership Act, Public Law 97-300, 97th Congress (13 October 1982), Sec. 2.

117 Ibid., 96 Stat. 1322-1399 passim.


119 Lee, "Training Help from the Feds?,” 36.

120 Ibid.


122 Congress, Job Training Partnership Act, Sec. 101.


124 Ibid., Sec. 102.

125 Ibid., Sec. 103.


127 Dellinger, "Implementing the Job Training Partnership Act," 195.

128 Congress, Job Training Partnership Act, Sec. 108.


130 Ibid.


132 Dellinger, "Implementing the Job Training Partnership Act," 196.

133 Levitan, Training for Jobs, 13.

135 Ibid.


140 Ibid.

141 Ibid.


143 Ibid.

144 Ibid., 73.


154Somers, Retraining the Unemployed, 52.

155Mangum, MDTA: Foundation of Federal Manpower Policy, 169.


158Ibid.

159Levitan, Training for Jobs, 58.


162Ibid.


164Congress, Job Training Partnership Act, sec. 106.


168 Ibid.


170 Ibid., 39.

171 Ibid.


173 Ibid.


177 Ibid.


179 Ibid.


181 Ibid., 13.

182 Ibid., 7, 5-28.

183 Ibid., 7.
184 Levitan, Training for Jobs, 58.
185 Ibid.
186 General Accounting Office, Job Training Partnership Act: Services and Outcomes, 12.
187 Ibid.
188 Orfield, Job Training Under the New Federalism, 32.
189 Ibid.
190 Levitan, Training for Jobs, 69.
192 Ibid., 39.
193 Ibid., 22.
195 Ibid., 12.
197 Ibid., 5, 72.
198 Ibid., 79.
199 Ibid.

Ibid., 188.

Ibid.

Orfield, Job Training Under the New Federalism, 1.

Ibid., 205, 210.

Ibid., 119.


Ibid.


Ibid., 32-33.

Ibid., 32.

Ibid., 18.


Ibid.

Ibid., 26-28.


221 Franklin, "An Evaluation of the Public-Private Partnership," 202, 204.


223 Orfield, Job Training Under the New Federalism, 202, 205-206.

224 Ibid., 206.


226 Ibid., 23.

227 Ibid., 4, 50.


230 Ibid., 561.

231 Sandell, Who is Served in JTPA Programs, 41.

232 Ibid., 5.


234 Ibid., 13.

235 Ibid., 61.


237 Ibid.

238 Barnow, Using Performance Management, i, 13.
240Ibid.


242Ibid., 22, 39.

243Ibid., 28.

244Levitan, *Training for Jobs*, 69.


248Ibid.

249Ibid., 198-200.


251Ibid., 34.

252Ibid., 18.


257Ibid., 785.

258Ibid., 788.

Note 260: Ibid., 61.


Note 262: Ibid., 111.


Note 266: Ibid., 2.

Note 267: Orfield, Job Training Under the New Federalism, 6.

Note 268: Ibid.


Note 271: Perry, The Impact of Government Manpower Programs, 67.


Note 275: Levitan, Training for Jobs, 2.

Note 276: Escutia, Hispanic Youth: Obstacles to Labor Market Success, 11.

Note 277: Ibid., 1.

Note 278: Levitan, Training for Jobs, 2.

280 Ibid., 27-28.
281 Orfield, Job Training Under the New Federalism, 247.
282 Ibid., 246.
283 Ibid., 266.
284 Ibid., 168-169.
285 Ibid., 245.
287 Ibid., 188.
288 Sandell, Who is Served in JTPA Programs, 73.
289 Ibid., 51.
290 Ibid.
292 Westat, Implementation of the Job Training Partnership Act, 1-1, 2.
293 Ibid., 5-2 - 5-3.
294 Ibid., 5-5.
295 Ibid., 5-9.
297 Ibid., 54.
300 Winkler, "An Administrative Perspective of the Job Training Partnership Act," 52, 111.
301 Ibid., 112.
Ibid., 52.


Ibid., 114-115.


Ibid., 785.

Department of Labor, Continuous Longitudinal Manpower Survey: Follow-up Report No. 2, C-6 - C-7.


Ibid., 39.

Ibid., 4.

Ibid., 4, 7.

Levitan, Training for Jobs, 2.


Levitan, Training for Jobs, 2.


Ibid., 13-14.

Sandell, Who is Served In JTPA Programs, 5-6, 57.

Ibid., 57.

Ibid.

Ibid., 62.


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.


325 Analytic Systems Inc., Analysis of CEP Automated Termination Data, 45.

326 Ibid., 44.

327 Ibid., 8.

328 Ibid., 42.

329 Ibid., 48.

330 Ibid.


333 Ibid., 160.


335 Ibid.

336 Commonwealth of Virginia, Department of Social Services, "Virginia Aid to Dependent Children Program" (Richmond, VA: Department of Social Services, 1986).


338 Ibid., 11.


342 Ibid., 26.
343Ibid.

344Ibid., 36.


346Ibid.

347Sklar, Work-Related Programs for Welfare Recipients, 14.

348Ibid.


351Ibid., iv and v.

352Ibid., 19.


355Ibid., 22, 39.


357Ibid., 73.

358Dalby, "Women Facing Problems Under JTPA," 8.

359Levitan, Training for Jobs, 69.

360Barnow, Using Performance Management, 28.

361Ibid., 13.

362Ibid., ii

Ibid., 38.

363Ibid., 38.

365 Ibid., 66, 68.


367 Department of Labor, Continuous Longitudinal Manpower Survey: Follow-up Report No. 2, C-5.

368 Orfield, Job Training Under the New Federalism, 6.

369 Ibid.


372 Ibid., 257.

373 Ibid., 253.


375 Ibid.

376 Ibid.


378 Ibid., ii.

379 Ibid., v-vii.


Ibid., 72.


402Ibid., 560, 566.


Ibid., 2, 13.

Ibid., 3, 13.


Ibid.

Ibid., 64.

Ibid., 58.

Coffin, "Objectives, Inputs and Outputs," 780, 785-786.


Ibid., iii.

Ibid., v.


Ibid.

Ibid., 1-9.

Ibid., 1-8 - 1-9.


Ibid., 13-14.


425National Veterans' Training Institute, Workforce 2000 and America's Veterans, 54.

426Ibid., 25.


428Ibid., 54.

429Department of Labor, Continuous Longitudinal Manpower Survey, B-6.

430National Veteran's Training Institute, Workforce 2000 and America's Veterans, 54.

431Ibid.

432Ibid.


435Ibid.


437Ibid., 2.


441Ibid.

442Ibid., 32.
Ibid.

Department of Labor, *Continuous Longitudinal Manpower Survey*, C-5.

Ibid.


Ibid., 6.


Ibid.


Ibid., 10, 38.

Sandell, *Who is Served in JTPA Programs*, 5, 60.


Ibid., 5-2 - 5-3, 5-8.

Ibid., 5-8.

Ibid.


Ibid., 192.
Ortiz, "A Case Study on Participation in the Job Training Partnership Act," 73.

Wayne Turnage, Serving the School Dropout Through the Job Training Partnership Act, prepared for the Commonwealth of Virginia, Governor's Employment and Training Department (Richmond, VA: Governor's Employment and Training Department, 1987), 3-4.

Ibid., 3-5.

Ibid.

Analytic Systems, Inc., Analysis of CEP Automated Termination Data, 5-5.

Ibid., 28.


Ibid., 124, 127.

Ibid., 72.


Escutia, Hispanic Youth: Obstacles to Labor Market Success, 3.


Ibid.


Coffin, "Objectives, Inputs and Outputs," 785.
485 Turnage, Serving the School Dropout Through the Job Training Partnership Act, 4.13.
486 Ibid., 4.15.
488 Ibid., 160.
490 Ibid., 112-113, 117.
492 Ibid., 124.
493 Barnow, Using Performance Management, 37.
494 Ibid., ii.
495 Ibid., 26-27.
496 Ibid., 2.
497 Ibid., 3.
499 Coffin, "Objectives, Inputs and Outputs," 777.
500 Ibid., 786.
502 Department of Labor, Continuous Longitudinal Manpower Survey, C-6.
504 Ibid., 96.
505 Ibid., 16, 112.


507 Ibid., 5.

508 Ibid., 16.

509 Levitan, Jobs for the Disabled, 97.

510 Ibid.

511 Harris, The ICD Survey II: Employing Disabled Americans, 27.

512 Ibid., 31.

513 Levitan, Jobs for the Disabled, 97.

514 Virginia Employment Commission, Special Report on Veterans, 32.


516 Ibid., 10, 13.

517 Ibid., 4, 38.


524 Ibid., 6.
525 Ibid., 12.
526 Ibid., 31.
527 Ibid., 12, 31.
528 Levitan, Training for Jobs, 69.
530 Ibid., 43.
531 Levitan, Training for Jobs, 69.
533 Levitan, Jobs for the Disabled, 92.
535 Levitan, Jobs for the Disabled, 92.
537 Ibid., 6.
538 Ibid., 7.
CHAPTER 3

METHODOLOGY

This chapter includes a description of the evaluation methodology, the research design, the research questions and the data collection procedures. The chapter also provides a description of the client population for the study and the statistical analysis used.

Evaluation Methodology

Research for this dissertation is conducted within the context of a program evaluation. The recommendation was made by Hatry, Winnie and Fisk that in doing a program evaluation, an examination be made of the association between program outcome and specific characteristics of the workload, such as clients, to determine if the program should be changed in some way.\(^1\) When a program evaluation is conducted to determine what a program produces or sends back to its environment, it assumes an output orientation.\(^2\) This study adopts an output orientation in that an examination is made to determine which socio-demographic variables most strongly predict program outcome for clients who are assessed and then referred by the counselors to the Business Services Unit for on-the-job training. Program outcome is represented by the positive and negative termination groups; and the enrollment and nonenrollment groups, which were described in the Introduction. After an analysis of the positive and negative termination groups is conducted to determine which variables are predictors of success, these two groups are merged into one group,
thereby forming an enrollment group. A second analysis is conducted by comparing the enrollment group to the nonenrollment group, to determine predictors of success for these groups.

This dissertation is also consistent in certain respects with the utilization-focused approach to program evaluation that has been strongly advocated by Patton.\textsuperscript{3} This evaluator worked closely with program "decisionmakers and information users"\textsuperscript{4} throughout the conceptualization, development and implementation of the program evaluation to ensure that the results would prove useful and meaningful.

**Research Design**

*Ex post facto* research in the form of a causal-comparative design is used to examine the relationship between the socio-demographic characteristics of clients, and program outcome. Kerlinger formally defined *ex post facto* research as:\textsuperscript{5}

...systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred-- or because they are inherently not manipulable. Inferences about relations among variables are made without direct intervention from concomitant variation of independent and dependent variables.

Cohen and Manion asserted that in conducting an *ex post facto* study, one starts off with groups that already differ in some way, such as both sets of client outcome groups in the present study, "and searches in retrospect for the factor that brought about the difference."\textsuperscript{6} However, several of the independent variables included in the research design could have been associated with the difference
between positive and negative terminations; and enrollments and nonenrollments. Therefore, multivariate statistical analysis is used to analyze the data.

An *ex post facto* research design is most appropriate for this study because of the design’s retrospective nature. As Cohen and Manion have pointed out, when research is conducted, it is often necessary to rely on existing groups because “an investigator cannot cause one group to become failures . . . or dropouts.” In addition, the authors reported that *ex post facto* research is especially suitable in situations “where the independent variable or variables lie outside the researcher’s control,” such as the variables in this study. Some of the advantages that were identified for using *ex post facto* research include the following:

1. *ex post facto* research meets an important need of the researcher where the more rigorous experimental approach is not possible.

2. the method yields useful information concerning the nature of phenomena - what goes on with what and under what conditions.

3. improvements in statistical techniques and general methodology have made *ex post facto* designs more defensible.

4. in some ways and in certain situations the method is more useful than the experimental method, especially where the setting up of the latter would introduce a note of artificiality into research proceedings.

It is recognized that an *ex post facto* design would not be considered the most suitable design for this evaluation from a scientific point of view. An inherent weakness of *ex post facto* designs is their lack of ability to control for the independent variable(s) through manipulation or randomization. However, as Rossi and Freeman have pointed out, it is not always possible to conduct impact evaluations using a perfect research design.
Although the evaluation used in the present study is more appropriately classified as an outcome evaluation than an impact evaluation, Rossi and Freeman's discussion on "perfect" verses "good enough" evaluations is highly relevant for this study. The authors suggested that at times, it is acceptable to conduct evaluations that are sufficient in responding to program and policy questions, although the scientific community would not judge them as using the "best" research designs. The use of longitudinal research for the study was prohibited due to the length of time that would have been required and the high costs that would have been involved.

A final limitation of ex post facto research is the danger of making "improper and erroneous interpretations" of the data. Kerlinger pointed out that this is an even more significant problem when the research has been carried out and the data interpreted without postulating hypotheses for the study in advance, or when one starts with the dependent variable and works toward the independent variable. The risk can be attributed to a tendency to take the original and most apparent interpretation of a confirmed relationship between the independent variable(s) and the dependent variable as established fact. The risk of making inappropriate and incorrect interpretations of the data is a limitation of the present study. However, this risk has been greatly reduced by formulating a set of hypotheses to guide the study, based upon the literature whenever possible.

As indicated by Cohen and Manion, Kerlinger described ex post facto research as that in which the independent variable or variables have transpired prior to conducting the study. Data on each of the independent variables were already in
existence and recorded in agency files before this study was initiated. The most recent information available for each of the clients prior to referral to the Business Services Unit (BSU) for on-the-job training was used. However, in cases where clients had been referred to the BSU by a counselor and were subsequently given a ninety day update, or applied to the JTS again so that the BSU could potentially enroll them, their current information was used because it was the most recent and accurate information available. One should note that clients who are considered applicants to JTS are required to be updated every three months or else must reapply to the agency before they can actually be enrolled in a training activity. This is done to ensure that clients are still eligible for JTPA services.

One disadvantage in conducting ex post facto research is the possibility of some cases in the study having missing data for one or more variables in the research design. This assertion holds true for the variables of reading score and mathematics score in the present study, as discussed in the next two paragraphs. In ex post facto research, data are gathered after the fact and if some of the data are missing, there may be nothing that can be done to replace them. It was not feasible to request the former clients of JTS who had missing reading and mathematics scores to return to the agency for testing.

During approximately the last quarter of 1984, JTS began testing the clients on the Nelson Reading Skills Test\textsuperscript{18} rather than the Nelson Reading Test.\textsuperscript{19} Reading scores of the seventy clients who had been tested on the latter test were eliminated from this study because the test was an entirely different test from the more recently published Nelson Reading Skills Test. The test norms of the Nelson...
Reading Test are older and were based on a different population than those of the Nelson Reading Skills Test. Conversion of scores from one test to the other was not possible if rigor was to be maintained. In addition to the seventy cases discussed above, there are another ninety-four cases with missing reading scores and ninety-seven cases with missing mathematics scores. The Nelson Reading Skills Test and the Mathematics Section of the Metropolitan Achievement Tests,\textsuperscript{20} 5th edition, were not administered to these clients. In many cases, these tests were not administered because the clients had completed one or more years of college and were therefore determined to have high enough skills in these areas. However, some of these cases were not tested because of their psychological and/or emotional status, or because of their low levels of education. In a few instances, the clients had been administered a reading and/or mathematics test by another agency and JTS counselors utilized those scores during the counseling process. A couple of the clients were not tested by JTS because they were Vietnamese or Cambodian and the tests were deemed inappropriate for them, considering their lack of proficiency in the English language.

**Research Questions and Hypotheses**

The research questions and hypotheses for the study were formulated following a review of pertinent literature. Evaluative studies have been conducted to analyze client socio-demographic characteristics that are associated with positive and negative terminations under both the Comprehensive Employment and Training Act (CETA) and the Job Training Partnership Act (JTPA). However, under both acts, evaluative studies which have analyzed client socio-demographic characteristics to determine which characteristics are associated with enrollments in employment and
training programs, in contrast to nonenrollments, appear to be rare or nonexistent. The dearth of research which compares these program outcome groups can be attributed to the lack of a requirement to report applicant data under CETA and JTPA. In order to make predictions about client characteristics that discriminate between enrollments and nonenrollments, employment and training literature pertaining to "creaming" and hard-to-serve clients was used, in addition to other relevant sources of information that pertained to the economically disadvantaged population.

Research Questions and Hypotheses

Presented below are the research questions and underlying hypotheses for the study.

Research Question Number One:

What is the best combination of selected socio-demographic variables to maximize the difference between the positive terminations and the negative terminations?

An extensive search of the literature found in government documents, government-sponsored research reports, dissertation research, journal articles, and books pertaining to employment and training programs for the economically disadvantaged was performed. Based upon this search, it was concluded that outcome evaluation studies such as this dissertation, which use socio-demographic variables to predict program success and failure, as designated by positive and negative terminations, are somewhat scarce. Most of the outcome evaluation studies that have analyzed socio-demographic variables associated with success for clients in government employment and training programs, such as that by Coffin, Gladstone and Trimmer, and Weidman and White, have used two groups to designate
program outcome; either program completers and noncompleters, or positive and negative terminations. Winkler's study contained three outcome groups; positive terminations, negative terminations and a job retention group. With the exception of Gladstone and Trimmer, these evaluative studies identified one or more of the selected socio-demographic variables in this dissertation as either being associated with, or significant predictors of, positive and negative outcomes.

Ortiz conducted a nonpredictive case study in the form of an outcome evaluation by comparing the completion rates for clients who were "most in need" to clients who were least disadvantaged. Results from the study were interpreted as indicating that the completion rates were similar. All of the socio-demographic characteristics included in Ortiz's study are also included in the present dissertation.

More recently, a portion of Castle's dissertation, which was published in 1990, involved a multivariate analysis of the influence of socio-demographic characteristics, program experiences, and local unemployment rates on the post-program outcome of JTPA participants. Post-program outcome for the study was specified as success or failure, as judged by increased employability and reduction of welfare dependency, with increased earnings as a measure of success for those participants who were employed prior to entering training. Results from the study were interpreted as suggesting that variables other than those included in the research design had an influence on post-program success. One should note that Castle's study was not intended to determine which were the strongest predictors of post-program outcome; the magnitude of regression coefficients in the model were analyzed. Beta
coefficients were not used for the analysis. The present dissertation includes the same socio-demographic variables that were used in Castle's study, although some of them are scaled differently.

Coffin conducted a multivariate study of CETA participants to determine which socio-demographic characteristics and program services were associated with the probability of becoming a positive termination. Program outcome was represented by positive termination verses negative termination. Several of the variables in Coffin's study which were found to influence the attainment of a positive termination are also included in the present dissertation.

Most of the available literature that pertains to the influence of socio-demographic characteristics of participants on program success from employment and training programs, as determined by program outcome measures, appears to consist of descriptive research; there is a definite lack of multivariate studies in this area. Coffin's study on CETA participants and Castle's dissertation on JTPA participants, which were described above, are two major exceptions. Furthermore, Castle's dissertation actually focused on post-program outcome. However, the researcher's measures of program success and failure; increased employability and a reduction in welfare dependency, are closely related to the positive and negative termination categories in this study. In most instances, clients who would be deemed positive terminations in the present study would be considered successful in Castle's study, using the author's criteria for success. The same holds true for the negative termination category in the present study, using Castle's criteria for failure.
Research Question Number Two:

Which of the selected socio-demographic variables provide the greatest distinction between the positive terminations and the negative terminations?

An extensive review of the literature yielded several program outcome evaluations that have examined the socio-demographic variables of clients enrolled in government employment and training programs, to determine which characteristics are associated with success and failure, positive terminations verses negative terminations, or program completers verses noncompleters. These evaluations, which use two outcome groups, include those prepared by the following researchers: Castle; 3 4  Coffin; 3 5  Gladstone and Trimmer; 3 5  and Weidman and White. 3 7  Winkler's evaluation utilized three outcome groups: positive terminations, negative terminations, and job retention. 3 8  All of these evaluations under discussion indicated that at least one or more of the client socio-demographic variables in this dissertation were either strongly associated with client outcome, or made no significant difference in the resulting outcome.

Franklin and Ripley concluded from their study on "creaming" under CETA that there was only a weak, indirect relationship between placement performance, and percent youth and nonwhite. In contrast, no relationship was found to exist between placement performance and the other three socio-demographic characteristics that were included in the study; percent female, welfare status, and education. 3 9  Ortiz's dissertation included an outcome evaluation in the form of a descriptive, nonpredictive case study. 4 0  The author examined the completion rates.
of clients who were considered "most in need" in comparison to the completion rates of the least disadvantaged clients. Study results indicated that the completion rates for those population segments deemed "most in need" were similar to the completion rates of population segments that were considered least disadvantaged.1

Employment and training program literature which pertains to the hard-to-serve population, such as that prepared by Barnow and Constantine,42 and the General Accounting Office43 is relevant to the research question presented above. This type of literature is applicable to the research question because as Orfield and Slessarev have indicated, when compared to others who enroll in training programs, welfare recipients, blacks and women have a lower probability of obtaining employment after receiving training. The researchers noted similar findings for female AFDC recipients and high school dropouts.44 This study predicts that clients who have hard-to-serve characteristics will have a different program outcome from clients who are considered easier-to-serve, and for most of these hard-to-serve characteristics, the outcome will be less positive.

In order to maximize their attainment of JTPA performance standards, program operators have an incentive to "cream" applicants so that not only can they enroll those who have the greatest probability of success in completing training; but in obtaining unsubsidized employment after completing training as well. Therefore, literature on the occurrence of "creaming" in employment and training programs, such as that prepared by Franklin and Ripley,45 Gibbard and Somers,46 Levitan and Gallo,47 and ABT Associates, for the NCEP48 is relevant to the research question.
A portion of Franklin and Ripley's study focused on whether or not "creaming" of CETA participants influenced program performance. Five socio-demographic characteristics that were considered to be labor market disadvantages (female, a youth below age 21, nonwhite, welfare recipient, and having a level of education below a high school graduate) were included in the study. The authors reported that there was "no pattern of association with the composite performance measure of any of the five demographic characteristics." Two of the five characteristics, namely; percent youth and percent nonwhite, had a weak inverse relationship with the placement rate indicator." However, "placement performance was unrelated to the other characteristics (percent female, welfare status, and education)."

Research Question Number Three:
How well do the selected socio-demographic variables distinguish between the positive terminations and the negative terminations?

Hypothesis Number One:
Gender will distinguish between the positive terminations and the negative terminations: Males will be more likely to be positive terminations than females, and females will be more likely to be negative terminations than males.

Hypothesis Number Two:
Age will distinguish between the positive terminations and the negative terminations: Youths will be more likely to be positive terminations than adults, and adults will be more likely to be negative terminations than youths.
Hypothesis Number Three:
Race will distinguish between the positive terminations and the negative terminations: Whites will be more likely to be positive terminations than minorities, and minorities will be more likely to be negative terminations than whites.

Hypothesis Number Four:
Highest grade completed will distinguish between the positive terminations and the negative terminations: Those with higher levels of education will be more likely to be positive terminations, while those with lower levels of education will have a greater tendency to be negative terminations.

Hypothesis Number Five:
Welfare grant status will distinguish between the positive terminations and the negative terminations: Nonwelfare grant recipients will be more likely to be positive terminations than welfare grant recipients, and welfare grant recipients will be more likely to be negative terminations than nonwelfare grant recipients.

According to Orfield and Slessarev's study of the JTPA program in the State of Illinois, welfare recipients, blacks and females have a lower probability of obtaining employment in comparison to other clients, after receiving job training. The authors said that employer discrimination was the most critical problem that black trainees had to face when they completed JTPA training programs in the state. They reported that employer discrimination "has produced an unequal placement rate throughout the history of CETA and JTPA in Illinois."
Ortiz conducted a case study of the JTPA program in Bayamon, Puerto Rico to determine in part whether those clients who needed services the most; namely, youth, women, school dropouts and those receiving welfare benefits, had similar program completion rates to less needy clients. Although results of the study indicated that the completion rates were similar for the more needy and the less needy clients, the completion rate attained by men was 85.5 percent versus a 79.3 percent rate of completion for women. In addition, the completion rate attained by non-welfare recipients was 85.5 percent versus the 79 percent rate of completion for welfare recipients. Furthermore, youth had a completion rate of 87.9 percent in comparison to the 78.2 percent rate of completion for adults. In a similar type of case study on JTPA on-the-job training programs in ten Tennessee counties, Winkler found that the socio-demographic variable of age was significant for the positive termination category. Results of the study revealed that the age range of 18-21, which was the youngest group, contained many more positive termination clients than expected. Barnow and Constantine reported that SDAs have found women, members of minority groups and welfare recipients to be among the demographic groups that are difficult to place in jobs, especially those that provide good salaries.

Castle's dissertation, which was published in 1990, involved an analysis of the influence of a number of socio-demographic and program experience variables, and economic conditions on post-program success of JTPA participants who completed Title II-A programs from October 1983 through June 1986. Data for the study population were obtained from the Job Training Longitudinal Survey (JTLS) quick
turnaround segment. Post-program outcome was represented by success or failure, and was determined by a number of criteria pertaining to whether or not the participants had reduced their welfare dependency and increased their employability. In addition, the variable of increased earnings was used as a qualifier to determine success of those applicants who were already working prior to entering training; success indicated that the wage earned after training exceeded that earned prior to training. Actual success was restricted to increased employability and a reduction in welfare. Among the findings generated by the study, success rates were usually lower for minorities than for whites, and for women in comparison to men. In addition, Castle determined that there was a positive relationship between educational attainment and success. Furthermore, the author concluded that "the absence of a welfare record seemed to increase the probability of JTPA success."

Taggart examined unpublished tabulations of Fiscal Year 1977 data on CETA enrollees developed by Westat, Inc. using the Continuous Longitudinal Manpower Survey (CLMS). Based upon the evidence, the author concluded that youth, blacks and those who had dropped out of high school had a higher probability of failing to complete classroom training "than other more employable subgroups among participants." Taggart also analyzed the job placement rate for CETA clients for Fiscal Year 1977 who were enrolled in both classroom and on-the-job training programs, based upon data contained in the Prime Sponsor Records. Findings indicated that clients who were more likely to obtain jobs prior to training, including white males and high school graduates, had much higher job placement rates following the completion of both classroom training and on-the-job training.
Franklin and Ripley analyzed the issue of "creaming" among participants in the CETA program to determine if it would enable the training sites to achieve "better scores on the Department of Labor's indicators." The researchers determined that there was a weak, inverse relationship between percent youth and nonwhite, and performance on the DOL placement rate indicator.64

According to unadjusted data contained in the Continuous Longitudinal Manpower Survey: Follow-up Report No. 2, there was a heavier concentration of males in the terminee category in contrast to the nonterminee category for on-the-job training.65 In contrast, females and clients whose families were obtaining AFDC and clients whose families were obtaining public benefits at the time of entrance into the CETA program were more heavily concentrated in the nonterminee category in comparison to the terminee category for on-the-job training.66

Coffin analyzed the CETA program in the City of Indianapolis to determine how the CETA Prime Sponsor could increase its number of clients who became positive terminations.67 Three characteristics that were found to lower the likelihood of attaining a positive termination were "being female, being older, and being a high school dropout."68 Having more years of education was strongly associated with becoming a positive termination.69 However, evidence was also obtained indicating that simply enrolling in an on-the-job training program may be the most important contributor to the attainment of a positive termination.70 Based upon studies of the WIN program, Perry reported that men had better job placement rates than women.71
Hypothesis Number Six:

Reading score will distinguish between the positive terminations and the negative terminations: Those with higher reading scores will be more likely to be positive terminations, while those with lower reading scores will have a greater tendency to be negative terminations.

Hypothesis Number Seven:

Mathematics score will distinguish between the positive terminations and the negative terminations: Those with higher mathematics scores will be more likely to be positive terminations, while those with lower mathematics scores will have a greater tendency to be negative terminations.

There appears to be a dearth of research on the relationship between the reading and mathematics scores of clients who have been served by Federally funded employment and training programs, and program outcome. Weidman and White's analysis of variables that are correlated with completion of a "high-tech" demonstration project for women enrolled in the WIN program was one of the few pertinent research studies that was obtained, during a comprehensive search of the literature, to lend support to the above postulation for mathematics score. The authors obtained evidence indicating that although program outcome for the training program was not associated with the women's personal background characteristics, it was associated with their former enrollment in a high school geometry course, and with their G test score on the General Aptitude Test Battery. Program outcome was also strongly related to attaining a score of 80 percent or higher on the Bell and
Howell school's mathematics examination, which enabled the women to enter training immediately, rather than receive remedial education first.\textsuperscript{74}

During their discussion of the JTPA program, Levitan and Gallo strongly asserted that basic literacy is an essential requirement for entrance into even entry level positions, and for adequate performance on the jobs.\textsuperscript{75} Barnow and Constantine reported that the most prevalent deficiencies which make individuals hard-to-serve under JTPA appear to be insufficient basic skills, especially in reading.\textsuperscript{76} The authors further indicated that clients who have hard-to-serve characteristics have a reduced probability of success in JTPA programs.\textsuperscript{77}

**Hypothesis Number Eight:**

Handicapped status will distinguish between the positive terminations and the negative terminations: The nonhandicapped will be more likely to be positive terminations than the handicapped, and the handicapped will be more likely to be negative terminations than the nonhandicapped.

Levitan and Taggart reported that 11 percent of the enrollees for fiscal year 1972 under MDTA's on-the-job training endeavor were handicapped.\textsuperscript{78} The authors stated that the completion rate for these disabled clients was 60 percent, in contrast to 68 percent for the nondisabled. The Veterans' Administration conducted an evaluation of the Emergency Veterans' Job Training Program.\textsuperscript{79} Among the findings, a greater percentage of participants without disabilities completed training in comparison to those with disabilities. Furthermore, as the disability ratings of the disabled participants increased, the completion rates declined.\textsuperscript{80}
The DOL Hard-to-Serve Task Force identified the characteristic of handicapped as one indicator of hard-to-serve status. Barnow and Constantine indicated that the prospects for a successful outcome may be lower for persons who are categorized as hard-to-serve. The NCEP also reported that, with the exclusion of older youth, evidence from job training programs has shown that enrollees who have hard-to-serve characteristics, including a handicap, have more difficulty in attaining a successful outcome.

**Hypothesis Number Nine:**

Number of weeks unemployed will distinguish between the positive terminations and the negative terminations: Those who have fewer weeks of unemployment will tend to be positive terminations, while those with a larger number of weeks unemployed will have a greater tendency to be negative terminations.

Analytic Systems' analysis of termination data from the Concentrated Employment Program (CEP) yielded evidence indicating that as the total number of weeks an individual had been unemployed within the year prior to enrollment in the program increased, the probability of a successful outcome decreased. In order for a successful outcome to be attained for the CEP, a client was required to report to work. Analytic Systems also reported that for both males and females, "the shorter the current spell of unemployment," the higher probability there was for job placement.

Based upon an evaluation of the CETA program in the City of Indianapolis, Coffin concluded that being employed at the time of program application increased
the likelihood of attaining a positive termination. However, it should be noted that when the sample for the study was broken down into type of service received, "simply knowing whether a participant had enrolled in OJT permitted an 86 percent success rate in predicting positive terminations." 

**Hypothesis Ten:**

Offender status will distinguish between the positive terminations and the negative terminations: Offenders will be more likely to be positive terminations than nonoffenders, and nonoffenders will be more likely to be negative terminations than offenders.

Coffin's evaluation of the CETA program in Indianapolis produced evidence suggesting that clients who had a police record had a higher probability of attaining a positive termination. Based upon an extensive review of the literature on job training programs, evaluative studies that analyze the relationship between offender status and program outcome appear to be rather scarce.

**Hypothesis Number Eleven:**

Family status of three (parent in two-parent family) will distinguish between the positive terminations and the negative terminations: Those who are parents in a two-parent family will be more likely to be positive terminations and less likely to be negative terminations, in comparison to those from other family status categories.

Based upon an extensive review of the literature, there appears to be a lack of evaluative studies that have examined these socio-demographic characteristics as they pertain to program outcome. One study that does pertain to the above postulation
was conducted by Analytic Systems on the Concentrated Employment Program. Results of the data analysis indicated that of all the categories for marital status, "married males had the highest placement rate and the lowest dropout rate." In addition, among the females, those who were married had the highest placement rate.

Castle conducted a study on the JTPA Title II-A program and determined that being either a parent in a two-parent family or a nondependent individual had a positive influence on program success, in contrast to being a single parent, or "another family member." Furthermore, across both gender and racial differences, parents in two-parent families achieved the highest success rates, when compared to other family status categories.

Research Question Number Four:
What is the best combination of selected socio-demographic variables to maximize the difference between the enrollments and the nonenrollments?

An intensive search of the literature contained in government documents, government-sponsored research reports, dissertation research, journal articles, and books related to employment and training programs for the economically disadvantaged population was conducted. Following this process, the conclusion was drawn that outcome evaluation studies on employment and training programs, which compare the socio-demographic characteristics of program enrollments (also labeled as participants) to nonenrollments (nonparticipants) are extremely scarce or even nonexistent. The lack of research in this area can be largely attributed to the fact
that the reporting of applicant data was not a requirement under CETA, nor is it required under JTPA.

Employment and training program literature which pertains to the hard-to-serve population, such as Barnow and Constantine's 1988 NCEP report on JTPA,94 and the General Accounting Office's 1989 study on JTPA,95 is relevant to the research question presented above. The applicability of literature on the hard-to-serve population to the research question can be explained by Orfield and Slessarev's finding that for the JTPA program in Illinois, "the channeling process that filters people through the system continues at the end of training." The researchers indicated that "among those who enroll in programs, welfare recipients, blacks, and women are less likely than others to find a job after training." Furthermore, the researchers asserted that female AFDC recipients and high school dropouts also had more difficulty in obtaining employment after receiving training.96 However, they also reported that being enrolled in an OJT program provided the greatest potential for obtaining employment after training was completed, in comparison to other types of job training.97

Literature on employment and training programs "creaming" for clients who have the strongest qualifications, such as that presented on the subject by Franklin and Ripley,98 Gibbard and Somers,99 and ABT Associates, for the NCEP100 is also pertinent in responding to the research question. In addition, Levitan and Gallo have discussed the subject of "creaming" in several sections of their book, entitled A Second Chance: Training for Jobs, which was published in 1988.101
Multivariate studies which use socio-demographic characteristics to predict program outcome for employment and training programs, as represented by enrollments and nonenrollments, are particularly needed to address the research question. As indicated earlier, the extreme dearth of outcome evaluation studies that analyze client socio-demographic characteristics to determine which characteristics are the strongest predictors of those who actually enroll in training, verses those who are referred but do not enroll, is largely due to the inexistence of SDA reporting requirements for applicant data. There is also an extreme lack of descriptive research which compares program enrollments to nonenrollments. In order to analyze nonenrollments, applicant data is needed, because clients are considered to be applicants until they actually enroll in a training activity.

Labor queue theory provides some support for the research postulation. Levitan and Taggart explained that workers can be classified from most to least employable, based upon a combination of factors associated with their potential for productivity, such as past work experience, skills obtained through job training, amount of formal education, and their desirability to employers. The authors reported that the workers who fall at the lower end of the scale have a greater likelihood of being unemployed, have a stronger probability of becoming a labor force dropout, and have less of a chance for obtaining jobs with good salaries. The authors also noted that "physical or mental and socioeconomic handicaps overlap," and when combined, they generally create significant employment problems. As a result, the disabled often experience the greatest obstacles to employment because they fall at the bottom of the labor queue.
Research Question Number Five:

Which of the selected socio-demographic variables provide the greatest distinction between the enrollments and the nonenrollments?

A number of studies have been conducted which have focused on client characteristics that are associated with a reduced chance of being selected for entrance into employment and training programs, and less of a chance in entering unsubsidized employment afterwards. One such study, which was prepared for the NCEP in 1988 by SRI International and Berkeley Planning Associates, found that states which heavily emphasized exceeding JTPA performance standards to obtain incentive funds tended to select fewer hard-to-serve clients for their training programs. However, welfare recipients, which are targeted under JTPA, were found to be well represented in training programs among the sample states that were studied. The Virginia GETD places strong emphasis on meeting, and if possible, exceeding JTPA performance standards, which suggests that clients in the study who had hard-to-serve characteristics may have less of a chance in getting placed in a training activity provided by the JTS Business Services Unit.

Barnow and Constantine reported in an ICF Incorporated report prepared for the NCEP in 1988, that the Department of Labor (DOL) formed a Hard-to-Serve Task Force to assist in examining the characteristics of JTPA's hard-to-serve population. ICF examined the responses that the task force gave "to define hard-to-serve status" and sorted them into one of three categories: deficiencies, barriers, or target groups. Most of the socio-demographic variables in this dissertation are associated with the characteristics that fell beneath the categories of
deficiencies or target groups. This study predicts that clients with hard-to-serve characteristics will be more likely to be nonenrollments, while those with easier-to-serve characteristics will be more likely to be enrollments.

Studies which compare certain socio-demographic characteristics of JTPA participants with the incidence of those characteristics in the JTPA-eligible population, contribute to some extent in responding to the research question. These studies include those prepared by Sandell and Rupp,\textsuperscript{108} and Ortiz.\textsuperscript{109}

Research Question Number Six:
How well do the selected socio-demographic variables distinguish between the enrollments and the nonenrollments?

Hypothesis Number Twelve:
Welfare grant status will distinguish between the enrollments and the nonenrollments: Nonwelfare grant recipients will be more likely to enroll in a training activity while welfare grant recipients will be less likely to enroll.

In the concluding report of a two-year process study of the implementation of Title II-A of JTPA, Walker and his associates concluded that a majority of the study sites actually "exceeded their goals for enrolling welfare recipients."\textsuperscript{110} Similarly, the NCEP concluded that welfare recipients, including those receiving AFDC payments, are well represented among those clients who terminate from training under JTPA.\textsuperscript{111} In addition, the GAO determined that JTPA seemed to be serving AFDC recipients "at least in proportion to their existence in the eligible population."\textsuperscript{112} However, these findings were based upon the various types of training programs combined, such as classroom training and on-the-job training (OJT). Levitan and
Gallo reported that JTPA OJT programs contain an overrepresentation of clients who are not collecting welfare benefits, in contrast to other training programs.\textsuperscript{113} Barnow and Constantine defined welfare recipients as being "hard to serve" because SDAs have had difficulty in placing them in jobs, especially those that offer good wages.\textsuperscript{114} The authors noted that one contributing factor could be job discrimination.\textsuperscript{115} Levitan and Gallo asserted that employers prefer to select JTPA applicants for OJT that have the strongest qualifications and pointed out, as indicated above, that clients who are not receiving public benefits are more heavily concentrated in OJT in comparison to other training programs under JTPA.\textsuperscript{116}

According to a study of who receives JTPA services, by Sandell and Rupp, the researchers reported that many AFDC mothers are not interested in obtaining jobs.\textsuperscript{117} This assertion was based upon comments from a large number of welfare recipients who confidentially informed the survey takers that they were not searching for a job, which is why they were unemployed. The authors indicated that the decision of welfare recipients to become a part of the active work force is at least partially tied to economics. They said that potential JTPA clients who are receiving welfare have to decide whether or not they will experience a financial net benefit in enrolling in JTPA and giving up their welfare income and associated benefits.\textsuperscript{118}

In many cases, the jobs that clients are placed in following OJT do not offer medical benefits. These benefits were a strong incentive for the welfare cases in this study to remain on welfare and become a member of the nonparticipant group. Unless the OJT salaries and/or salaries earned upon entering unsubsidized employment were high enough, the welfare recipients could end up more indigent.
than they were before entering OJT or unsubsidized employment. As Sklar has pointed out, welfare recipients will stay on welfare if given a choice, unless they are able to become financially self-sufficient.\textsuperscript{119} In addition, the author indicated that lack of suitable child care is another barrier to employment that many welfare recipients face.\textsuperscript{120} He noted that although some assistance in this area is provided through welfare provisions, such as Title XX of the Social Services Block Grant Programs, there are not enough funds to cover the child care costs that would be created when more rigorous training, job search activities and work requirements are put into effect. In an article written for the Catholic University of America, Nancy Dalby asserted that people who are working closely with women who are receiving AFDC feel that the daycare coverage available under Title XX or from other sources is insufficient.\textsuperscript{121}

**Hypothesis Number Thirteen:**
Gender will distinguish between the enrollments and the nonenrollments:
Males will be more likely to enroll in a training activity while females will be less likely to enroll.

**Hypothesis Number Fourteen:**
Age will distinguish between the enrollments and the nonenrollments: Adults will be more likely to enroll in a training activity, while youths will be less likely to enroll.
Hypothesis Number Fifteen:

Race will distinguish between the enrollments and the nonenrollments:

Whites will be more likely to enroll in a training activity, while minorities will be less likely to enroll.

GENDER: According to studies by the Chicago Urban League, the General Accounting Office, Levitan and Gallo, Orfield and Slessarev, and Solow and Walker, men have a higher enrollment rate in JTPA OJT programs than women. In addition, Perry reported that the population served through MDTA consisted mostly of men, and indicated that this was especially true for OJT programs. Based upon their research on JTPA programs in Illinois, Orfield and Slessarev determined that the overenrollment of males in OJT may be attributed to a number of potential sources, including employer preference to select men for training and sex stereotyping of jobs.

Dalby pointed out that there are mounting concerns being expressed that equitable and adequate service is not being given to women under JTPA. The author asserted that this lack of service to women can be partially attributed to problems in the construction of JTPA. The article also indicated that there are implementation problems at the local level that show a failure to understand the unique needs of women and even in certain circumstances, discrimination. Dalby noted that JTPA services are not specifically earmarked for women as a group to the extent that they were under CETA.

Using CETA data obtained on-the-job training and classroom training enrollees from Prime Sponsor records for FY-77, Taggart reported that the chances
for becoming employed were much higher for clients who had a greater likelihood for obtaining employment prior to training, including white males. In addition, Perry reported that job placement rates have been found to be higher for men than women under the WIN program.

AGE: As Escutia, and Levitan and Gallo have indicated, unemployment is a profound problem for young people. The aggregate yearly unemployment rate for youths in 1985 approached 19 percent. Orfield and Slessarev stated that employers in general, and private sector employers in particular are hesitant to hire youths, especially those who lack skills. The authors pointed out that since the majority of job placements under JTPA are made in the private sector, there is an increased likelihood that the program will avoid training young people. Walker and others indicated in their concluding report of a two year assessment of the JTPA Title II-A program that SDAs had problems in reaching their goals for enrolling youth. Youth were identified by the U.S. Department of Labor Task Force as one of many characteristics that designate the hard-to-serve population for JTPA.

Using data obtained from Prime Sponsor Records for CETA in Fiscal Year 1977, Taggart reported that job placement for clients enrolled in both on-the-job training and classroom training programs was considerably higher for those who were aged 20 and above. The author noted that this group of clients had a better chance of obtaining employment even prior to receiving training.

RACE: Twenty-eight percent of the aggregate enrollment in MDTA OJT programs between fiscal years 1963 and 1972 consisted of minorities. Perry
pointed out that white males were overrepresented in MDTA OJT and classroom training programs. According to Taggart, whites also had a better chance of being placed in on-the-job training slots than minorities under the CETA program. The author noted that this group was among those members of the CETA population who had the greatest chances for becoming employed.

Orfield and Slessarev reported that results from a comprehensive assessment of JTPA in the State of Illinois indicated that during PY-84, blacks experienced "unequal access to the on-the-job training programs." In a latter study conducted by the Chicago Urban League, Slessarev reported that blacks were underenrolled in JTPA on-the-job training programs in the Metropolitan Chicago area. The DOL identified being a member of a minority group as one of many characteristics of the hard-to-serve population under JTPA. Bamow noted that people who are hard-to-serve are generally "difficult-to-place." Following the completion of employment and training programs throughout CETA and JTPA in Illinois, the job placement rates for blacks have been lower than that for whites as a result of employment discrimination.

Escutia reported that the unemployment problem for minority youth exists nationally. In 1985, the unemployment rate for youth, aged 16 to 19 years, was 15.7 percent for whites, 40.2 percent for blacks, and 24.3 percent for Hispanics.

Hypothesis Number Sixteen:

Highest grade completed will distinguish between the enrollments and the nonenrollments: Those with higher levels of education will be more likely to
be enrollments, while those with lower levels of education will have a greater
tendency to be nonenrollments.

**Hypothesis Number Seventeen:**

Reading score will distinguish between the enrollments and the
nonenrollments: Those with higher reading scores will be more likely to be
enrollments, while those with lower reading scores will have a greater
tendency to be nonenrollments.

**Hypothesis Number Eighteen:**

Mathematics score will distinguish between the enrollments and the
nonenrollments: Those with higher mathematics scores will be more likely to be
enrollments, while those with lower mathematics scores will have a greater
tendency to be nonenrollments.

**Highest Grade Completed:** There is a direct positive relationship between
level of education and success in the labor market.\(^{151}\) High school graduates were
more likely than dropouts to be placed in MDTA\(^{152}\) and CETA\(^{153}\) on-the-job
training programs. Levitan and Gallo reported that high school graduates are also
overrepresented in on-the-job training programs in contrast to other types of training
programs that are offered under JTPA.\(^{154}\) The authors indicated that employers
have a propensity to choose the most qualified applicants for on-the-job training
positions.\(^{155}\)

Walker and others reported in their 1986 concluding report of a two year
process study of the implementation of JTPA Title II-A programs that, in many
cases, SDAs demonstrated "only occasional interest, often stimulated by state
incentives, in enrolling school dropouts.\textsuperscript{155} Moreover, based upon data obtained from the Job Training Quarterly Survey for program years 1984 and 1985, and the March 1986 Current Population Survey, Sandell and Rupp concluded that within the aggregate eligible population for JTPA, high school dropouts are not as likely to be enrolled in JTPA programs as high school graduates.\textsuperscript{157} Orfield and Slessarev reported similar findings from a comprehensive assessment of JTPA in the State of Illinois.\textsuperscript{158} The authors reported that in Illinois, there is an overrepresentation of high school graduates in JTPA programs in comparison to their existence in the eligible population, whereas dropouts are significantly underrepresented.\textsuperscript{159} Ortiz obtained similar findings from his case study on participation in JTPA Title II-A training programs in Bayamon, Puerto Rico.\textsuperscript{160} Results indicated that dropouts were underserved by nearly 50 percent.\textsuperscript{161}

A Commonwealth of Virginia study, which used JTPA Title II-A data from program year 1985 and compared it with 1980 Census data, obtained evidence indicating that school dropouts in Virginia were underrepresented in JTPA "by 28 percentage points."\textsuperscript{162}

Analytic Systems analyzed data from the Concentrated Employment Program which began operating in 1967 and found that for males, there was a reduced likelihood of falling into the "other" category as level of education increased. However, similar conclusions could not be drawn for females due to an unclear relationship.\textsuperscript{163} The category of "other" referred to those who dropped out of the program for any other reasons than those classified as negative. Some of these reasons for dropping out\textsuperscript{164} are similar to reasons clients in the present study were
nonenrollments. However, clients who fell into the "other" category in ASI's study were enrollees, whereas in the present study, the nonenrollments are applicants. In a study funded by the NCEP, many of the SDAs specified school dropouts as a hard-to-serve group.\textsuperscript{165}

**Reading and Mathematics Scores:** SDAs were not required to collect and report data on the reading levels of JTPA participants until PY-89. There has never been a requirement to gather and report data on the mathematics levels of participants. The inexistence of data reporting and skill testing requirements for mathematics levels, and for reading levels (until PY-89) under JTPA may account for the apparent paucity of research studies on these particular characteristics. Despite this scarcity of research, the lack of basic skills has been widely recognized as a labor market deficiency.\textsuperscript{166}

Low reading and mathematics levels were two of the most common characteristics of the hard-to-serve population that were identified by the U.S. Department of Labor Hard-to-Serve Task Force.\textsuperscript{167} Barnow and Constantine reported that individuals who have hard-to-serve characteristics, including basic skills deficiencies, have a lower probability of obtaining and retaining employment.\textsuperscript{168} In a report entitled *Evaluation of the Effect of JTPA Performance Standards on Clients, Services, and Costs*, the NCEP asserted that states which strongly accentuate exceeding JTPA performance standards to obtain incentive funds encourage SDAs to select fewer hard-to-serve clients for their training programs.\textsuperscript{169} In Virginia, strong emphasis has always been placed on either meeting or exceeding performance standards to receive funds from the 6 percent incentive policies. All of the SDAs in
Virginia are rank-ordered from highest to lowest in the achievement of performance standards, for purposes of awarding incentive funds.

The postulation that enrollments will be discriminated from the nonenrollments is based in part upon the fact that enrollment of hard-to-serve clients can potentially jeopardize the attainment of performance standards. Levitan and Gallo stated in their assessment of JTPA that in order "to attain 'success,' local programs have tended to exclude the functional illiterates JTPA was presumably meant to serve." In their study of the JTPA program in Illinois, Orfield and Slessarev reported that numerous complaints were voiced by SDA administrators and deliverers of service during interviews, concerning the inability to serve a considerable number of JTPA applicants because they lacked the basic skills required for entrance into training programs and job slots.

**Hypothesis Number Nineteen:**

Handicapped status will distinguish the enrollments and the nonenrollments:

The nonhandicapped will be more likely to be enrollments while the handicapped will have a higher probability of being nonenrollments.

Levitan and Taggart stated that the disabled fall at the bottom of the labor queue. When the disabled have physical or mental disabilities in conjunction with socioeconomic handicaps, their employment problems generally become even more critical. Louis Harris and Associates conducted a survey of disabled Americans in 1985 for the International Center for the Disabled (ICD) and the National Council on the Handicapped. Survey results indicated that two-thirds of the working-age disabled population are unemployed, despite the fact that the
majority of this group claims to be interested in obtaining employment. Based upon the findings, the authors asserted that the disabled population is "much less likely to be working than any other demographic group under 65, including black teenagers." Their unemployment situation can be largely attributed to employers, who are inclined to hire nondisabled employees over the disabled. During Louis Harris and Associate's ICD Survey II, which was conducted subsequent to their 1985 survey, 75 percent of the 921 managers who were interviewed reported a belief that the disabled population frequently experiences job discrimination from employers.

Barnow and Constantine reported that having a physical, mental, or emotional handicap was one of the most frequently identified characteristics mentioned by the DOL Hard-to-Serve Task Force to describe hard-to-serve status. Quite a few of the SDAs that were included in the qualitative evaluation portion of a JTPA case study funded by the NCEP also indicated that the handicapped were hard-to-serve. The SDAs viewed the handicapped as having unique needs for both training and placement.

Based upon data contained in the JTPA Annual Status Report for PY-86, the President's Committee on Employment of the Handicapped determined that the state level JTPA Title II-A participation rate for handicapped adult terminees ranged from a low of 2.0 percent, to a high of 24.7 percent, of all terminees. Only 3.9 percent of the PY-86 adult terminees for the Job Training Services (JTS), which is the focus of this dissertation, were handicapped. This figure is extremely low. In comparison, 25.4 percent of the youth terminees for the JTS during PY-86 were
handicapped, which is 9.3 percentage points higher than the aggregate figure for youth handicapped terminees in Virginia. However, it should be recalled that adults are overrepresented in JTPA on-the-job training programs, in contrast to alternative training programs that are offered.

The NCEP determined that for adults in PY-86, 15.3 percent of the JTPA eligible population was handicapped but only 9.5 percent of the JTPA terminees were handicapped. These figures indicate that adults with handicaps were underserved in proportion to their incidence in the JTPA eligible population. In contrast, the NCEP's calculations indicated that for youth in PY-86, 3.7 percent of the JTPA eligible population was handicapped, yet 16.0 percent of the JTPA terminees were handicapped. Therefore, youth handicapped for PY-86 were overserved in proportion to their incidence in the JTPA eligible population. The NCEP data were not broken down according to type of service provided, but again, it should be noted that adults are overrepresented in JTPA on-the-job training programs.

**Hypothesis Number Twenty:**

Number of weeks unemployed will distinguish between the enrollments and the nonenrollments: Enrollments will be more likely to have a shorter length of unemployment, while nonenrollments will tend to have a longer length of unemployment.

Support for the present hypothesis is provided by data presented by Analytic Systems on the CEP program, which demonstrated that for both males and females, the percentage of terminees who fell into the "other" category increased as the total number of weeks unemployed within the year prior to CEP enrollment increased.
In contrast, for both males and females, the percentage of individuals who were "placed" decreased as the number of weeks unemployed increased. The category of "other" in the analysis by Analytic Systems is somewhat similar to the nonenrollment group in this evaluative study, in that some of the reasons for falling into the two groups are alike. However, the nonenrollment group in the present study consists of applicants, whereas Analytic System's "other" group was comprised of enrollees.

Additional support for the above postulation can be garnered from the fact that one predictor of labor market success is "having recent work experience." As an example, Friedlander and Long analyzed three welfare employment programs, and determined that clients in the experimental group who earned $3,000 or above in the year preceding entrance into the program attained an average quarterly employment rate of 62 percent. In contrast, the authors reported that experimental clients who had been unemployed for the duration of the year preceding enrollment in the program only attained a 26 percent rate of employment. The above hypothesis is also supported by Coffin's finding that holding a job at the time of application to the CETA program in Indianapolis was directly related to an individual's chances for achieving a positive termination.

**Hypothesis Number Twenty-One:**

Offender status will distinguish between the enrollments and the nonenrollments: Nonoffenders will be more likely to be enrollments, while offenders will have a greater tendency to be nonenrollments.
The NCEP funded an evaluation to determine what effect the JTPA performance standards have on clients that are served, services that are provided, and the associated costs. During the qualitative section of the evaluation, many of the SDAs claimed that offenders were hard-to-serve.\(^{197}\) The DOL Hard-to-Serve Task Force identified offenders as one of the characteristics that could be used to describe the hard-to-serve population under JTPA.\(^{198}\) Barnow and Constantine indicated that SDAs frequently have difficulty placing clients with hard-to-serve characteristics in jobs, and asserted that this may be due to labor market discrimination.\(^{199}\) An NCEP report noted that having an offender status is a barrier to employment, and revealed that offenders were discerned by the SDAs as requiring special efforts for job placement.\(^{200}\)

Barnow and Constantine's report on JTPA's services to hard-to-serve individuals revealed that the State of Illinois has determined that offenders are one of several groups with "statistically significant weights" in the optional adjustment models.\(^{201}\) This indicates that for the State of Illinois, offenders are among the groups that are more costly to serve, and they are associated with lower placement rates.\(^{202}\) In their concluding report of a study on the implementation of the JTPA Title II-A program, Walker and others determined that generally, SDAs demonstrated "only occasional interest . . . in enrolling. . . ex-offenders."\(^{203}\)

**Hypothesis Number Twenty-Two:**

Veteran status will distinguish between the enrollments and the nonenrollments: Nonveterans will be more likely to be enrollments, while veterans will have a greater tendency to be nonenrollments.
The U.S. Department of Labor Hard-to-Serve Task Force identified veterans as one of the hard-to-serve groups for JTPA, although it was not one of the most frequently identified responses. The Bureau of National Affairs reported that according to panelists representing a number of veteran's associations at a conference sponsored by the Department of Labor in April 1988, veterans are poorly served in training programs under JTPA. Ron Drach, who serves as the National Employment Director for the Disabled American Veterans, reportedly attributed this lack of service to the fact that under Title II-A of JTPA, which is the primary training component, veterans are not designated as a special population or a target group.

Data obtained on the CETA program through the Continuous Longitudinal Manpower Survey indicated that nonveterans were equally distributed between the terminees and the nonterminees, whereas for veterans, there was a slightly greater concentration among the nonterminees for some categories. Overall, the outcomes for both groups appeared to be very similar. With the exception of this survey, there seems to be a lack of research on the relationship between veteran status and program outcome for job training programs.

**Hypothesis Number Twenty-Three:**

Family status of 1 (single parent with one or more dependent(s) under the age of six) will distinguish between the enrollments and the nonenrollments:

- Single parents with one or more dependents under age six will be more likely to be nonenrollments, whereas clients who do not fall under this family status will have a greater tendency to be enrollments.
Sandell and Rupp conducted an analysis of JTPA programs to determine who is being served, what are the services patterns, and whether or not services are being provided equitably to subgroups in the JTPA eligible population. Among the findings, single female parents who had children under the age of six had a JTPA participation rate of 12.7 percent, in contrast to the 16.6 percent participation rate for women without young children. The DOL Hard-to-Serve Task Force characterized being a single, female or teenage parent with one or more children below the age of six as a hard-to-serve group. Bamow and Constantine reported that in most cases, individuals who are hard to serve will also be difficult to place.

Client Population

The target population for this study consisted of all JTPA Title II-A eligible clients from the Job Training Services (SDA 13) who were assessed and counseled and referred to the Business Services Unit (BSU) for on-the-job training during PY-85 (July 1, 1985 to June 30, 1986) and PY-86 (July 1, 1986 to June 30, 1987), and were subsequently terminated from this unit or else placed in the 88-pool during the same program years. The 88-pool is a holding pool for nonenrollments ("applicants") who are no longer being served by program staff.

The target population does not include five clients that were referred by the counselors to the BSU for Job Search Assistance only. The counselors had reason to believe that these individuals were already skilled enough to enter the labor market.

When clients had been referred to two or more types of training offered by the Job Training Services during PY-85 and PY-86, the last training program enrolled
in following referral to the BSU for OJT training was used as a criterion for the study.

There were 682 clients in the target population originally, but after excluding 86 cases for reasons discussed in the next two paragraphs, the research population consisted of 596 cases. Table 1 provides a listing of the 86 cases that were eliminated from the target population for the study and the reasons for excluding them.

An in-house ruling was made by program decisionmakers on approximately June 1, 1987 temporarily prohibiting the placement of adult clients into training. This ruling was instituted by program decisionmakers because the agency had failed to meet certain performance standards for youth, and therefore, needed more youth placements. When this ruling was in effect, the counselors did not refer their adult clients for OJT training. However, some adult clients that had been referred to the BSU as early as December 1986 were placed in the 88-pool in June 1987, due to a lack of adult funds. After discussing the matter with program decisionmakers and a staff member from the BSU, a decision was made to eliminate all clients who were counseled and referred to the BSU after March 1, 1987 and subsequently placed in the 88-pool due to lack of adult funding. There was general agreement that those clients who had been referred to the BSU prior to March 1, 1987 and were placed in the 88-pool in June 1987 due to a "lack of adult funds" would probably not have been placed in OJT training anyway and it was acceptable to include them in the nonplacement group for the study. The BSU specialists had already worked with these clients for three or more months to place them in OJT training and were not successful in doing so. According to one staff member, if the BSU specialists are
### TABLE 1

**NUMBER OF CLIENTS OMITTED FROM THE STUDY FOR VARIOUS REASONS**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled in classroom training after being referred to BSU for OJT</td>
<td>20</td>
</tr>
<tr>
<td>Clients referred to the BSU for OJT after March 1 1987 and subsequently placed in the 88-pool due to &quot;lack of funds&quot; for adults</td>
<td>40</td>
</tr>
<tr>
<td>Dual referrals for OJT and classroom training which only enrolled in classroom training, BSU never worked with them.</td>
<td>3</td>
</tr>
<tr>
<td>Clients determined ineligible during eligibility update, following referral to the BSU.</td>
<td>6</td>
</tr>
<tr>
<td>Clients who were employer-selects but who received counseling and were referred to the BSU for OJT.</td>
<td>7</td>
</tr>
<tr>
<td>Clients referred to the BSU for OJT but never returned to have their eligibility updated. The BSU could not serve these clients.</td>
<td>4</td>
</tr>
<tr>
<td>Clients whose paperwork was not given clearance because they moved outside of the SDA either prior to counseling, or before their paperwork was sent to the BSU. The BSU could not work with these clients.</td>
<td>2</td>
</tr>
<tr>
<td>Psychiatrist would not approve client for on-the-job training. BSU could not serve client.</td>
<td>1</td>
</tr>
<tr>
<td>Client was already selected to be an OJT candidate by the BSU and was subsequently assessed and counseled.</td>
<td>1</td>
</tr>
<tr>
<td>Clients that were placed in OJT positions prior to receiving counseling.</td>
<td>2</td>
</tr>
</tbody>
</table>

Total N Cases Omitted = 86

(Note: There were 166 cases with missing values for reading and/or mathematics scores. A number of options were available for handling these cases, including omitting them from the study. These options and the final decision made will be addressed in-depth later in the chapter.)

unable to place the clients in a training slot after working with them for two weeks, the chances of doing so decrease significantly, and even more so as time goes on.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Analytic Systems Incorporated (ASI) confirmed this observation previously through an analysis of the Concentrated Employment Program termination data. ASI reported that enrollees who had the greatest chances for placement in jobs were placed shortly after enrolling.\textsuperscript{212}

One category of clients who were eliminated from the study were those individuals who were dually referred to classroom training and on-the-job training but only enrolled in classroom training. The BSU never worked with these people. Another category of clients that were eliminated were clients who were referred to the BSU for OJT but were later determined ineligible for the program. Some of these clients were living with their parents but were able to claim that they were self-supporting. However, after being unemployed for too many months, they were no longer self-supporting: Since eligibility for the program was based on their parents income, they exceeded the income guidelines for JTPA. A few clients were eliminated who had been referred to the BSU pending an eligibility update, because they never returned to be updated. The BSU was unable to work with these people.

Seven clients who were employer-selects were excluded from the research population. These particular clients were referred by the counselors for OJT training. However, they were excluded from the research population because the process they went through varied from that experienced by other clients. These employer-selects were first chosen by employers as potential trainees, and were then referred to the JTS to determine whether or not they were JTPA eligible. The BSU sent these particular employer-selects to the counselors for a counseling session to determine their suitability for OJT. As a given rule, employer-selects were generally
not provided with assessment and counseling services from the Training Control Center, although the seven clients under discussion did receive counseling.

A number of other clients were excluded from the research population for a variety of reasons. A few clients who had been referred to the BSU were excluded from the study because immediately after referral, it was determined that they had moved to a different jurisdiction outside of SDA-13. Their paperwork was never given clearance so that the BSU could work with them. One client was eliminated because the referral to the BSU was made pending the approval of the client's psychiatrist. The psychiatrist refused to approve the client for on-the-job training so the BSU was unable to work with this individual. Another client was omitted because the individual was already selected to be an OJT candidate by the BSU before counseling took place. Finally, two cases were eliminated because they were placed in OJT by the BSU before a TCC counselor could provide counseling to them.

Collection of Data

This section of the methodology contains a description of how the data were gathered for the study and the data sources that were used.

Data Collection Procedure

Historical data representing the predictor variables and the criterion variable were gathered from client file folders in the Training Control Center (TCC) and the Central Records Unit (CRU) of the Job Training Services. The TCC is responsible for Intake, Assessment and Counseling. The CRU operates the Management Information System for the agency and supplies computerized information on the JTS
clients to the Governor's Employment and Training Division, which oversees all of the SDA's in Virginia.

The CRU did not store computerized information on most of the nonenrollment group for the fiscal years involved in the study. Therefore, it was necessary to search through all of the Title II-A client file folders for FY-85 and FY-86 by hand in order to select the cases that met the criteria for the study. Beginning on the first of July 1988, all Virginia SDA's were required to maintain information on nonenrollments as well as enrollments. When there were questions pertaining to missing data, missing documents, accuracy and/or recentness of information, and legibility problems during the process of gathering data from TCC files, file folders on the clients were also pulled from the CRU and reviewed. Many of the forms that were contained in TCC files were also stored in CRU file folders. However, the CRU files generally contained the original copies, which were more legible. When staff of the Central Records Unit detected errors on the forms, they made the corrections.

Data Sources

File folders in the TCC contained the following instruments that were used in gathering data on client socio-demographic variables and the client outcome groups:

Participant Intake Form (age, gender, race, family status 1, family status 3, welfare grant status, highest grade completed, length of unemployment, veteran status, offender status, and handicapped status): The study used the most recent information that was available on these variables prior to enrollment of the clients in OJT or placement into the 88-pool as
nonenrollments. Some client folders had more than one Participant Intake Form due to updates or reapplications.

**Nelson Reading Skills Test:** Grade level for reading on this test represents "reading ability." The reading score used for the study was taken from the last Nelson Reading Skills Test administered to the client. Some of the clients had more than one score for reading in their folders because once the initial test was given, they were referred to the JTS Learning Center to upgrade in reading and were retested at a later date. The test was authored by Gerald Hanna, Leo Schell and Robert Schreiner, and was published by Houghton Mifflin Company, in 1977. The reliability estimates for Total Reading on this test ranges from .91 to .94. Validity information is less specific although the test publisher indicated much effort was taken to ensure test validity through item tryouts and content analysis.213

**Metropolitan Achievement Tests, Mathematics Section, 5th Edition:** Score on this test represents "mathematics ability." The mathematics test score used in the study was that attained on the last test taken prior to referral to the BSU. As with the Nelson Reading Skills Test, some of the clients were tested more than once on this test through use of an alternate form because they were referred to the Learning Center for upgrading in mathematics. The test was authored by Irving Balow, Roger Farr, Thomas P. Hogan, and George A. Prescott, and was published by The Psychological Corporation.214 The KR-20 reliability estimates for these test batteries, including mathematics, "are comparable to those of other high quality achievement tests of similar length."
Content validity of the test has to be determined separately for each school using the test, by comparing it to the curriculum offered.215

Participant Termination Form: Information on whether the clients became positive or negative terminations was gleaned from this form.

Job Training Services Selection Status Form: This form was used to determine which clients were nonenrollments. When the BSU specialists placed clients in the 88-pool, they documented the reason(s) for doing so on this form. Clients who were documented as being placed in the 88-pool formed the nonenrollment group for the study.

Activity Information Form: This form was used to track clients through the JTS system. It was also used to determine which of the outcome groups the clients should be placed in. File folders in the CRU were used to retrieve information on which of the outcome groups the clients from Gloucester, Williamsburg, and James City County should be placed into. Forms containing this information were generally not filed in the TCC file folders for these particular clients.

Data Analysis

This section provides a description of how the variables were coded and presents a breakdown of the study population (596 cases) by client socio-demographic characteristics, using frequencies and percentages for characteristics that are measured on a nominal level, and means, modes, minimum values, and maximum values for characteristics measured on an interval level. Frequencies are not presented for certain characteristics because of the extensive space that would have
been required. Similar breakdowns are presented for the positive and the negative termination population, which consisted of a total of 246 cases. The breakdowns for the enrollment and nonenrollment population, which was comprised of 596 cases, mirrored the breakdowns for the study population in (except that family status 3 was not used as a predictor for enrollments versus nonenrollments) and because the entire population was utilized for this part of the analysis. Therefore, a separate presentation of the breakdowns for the enrollments and the nonenrollments was deemed unnecessary since it would only replicate the breakdowns for the study population.

This section of the chapter also incorporates a brief description of the discriminant analysis procedure which was used to analyze the data. The section presents a discussion on the assumptions of discriminant analysis and tactics that were used in the study to avoid or reduce the likelihood of violating these assumptions. The way in which cases with missing data were handled is addressed. Finally, an in-depth discussion is presented on the statistical analysis of data for the study and the statistics that were used are summarized.

**Coding of Variables**

Dummy variable coding was used for the dichotomous variables. The remaining variables were on an interval level and did not require dummy variable coding. Presented below is an explanation of how the variables used for the study were coded.
Predictor Variables:

1. **Gender** - This is a dichotomous variable. The data are on a nominal level.
   
   - $0 = \text{Female}$
   - $1 = \text{Male}$

2. **Age** - This is a dichotomous variable. The data are a nominal level.
   
   - $0 = \text{Youth}$
   - $1 = \text{Adult}$

3. **Race** - This is a dichotomous variable. The data are a nominal level.
   
   - $0 = \text{Minority}$
   - $1 = \text{White}$

   Minority represents the following subgroups:
   - Black
   - Hispanic
   - Asian or Pacific Islander

   (American Indians or Alaskan natives were not represented in the study population)

4. **Highest Grade Completed** - This is a discrete variable. The data are on an interval level.

5. **Welfare Grant Status** - This is a dichotomous variable. The data are on a nominal level.
   
   - $0 = \text{Welfare grant recipient}$
   - $1 = \text{Not a welfare grant recipient}$

6. **Reading Score** - This is a continuous variable. The data are on an interval level. Reading scores could range from grade levels 1.0 to 13.5.

7. **Mathematics Score** - This is a continuous variable. The data are on an interval level. Although the mathematics scores could actually range from grade levels
2.7 to 12.9+, scores that were 12.9+ were transformed to grade 13.0 for this study. The change was made in order to differentiate between the scores of grade level 12.9 and 12.9+.

8. **Handicapped Status**- This is a dichotomous variable. The data are on a nominal level.

   0 = Handicapped
   
   1 = Not Handicapped

9. **Number of Weeks Unemployed**- This is a discrete variable. The data are on an interval scale. Number of weeks unemployed could range from a minimum of 0 weeks to a maximum of 26 weeks. The JTPA data collection requirements for number of weeks unemployed did not extend beyond 26 weeks.

10. **Offender Status**- This is a dichotomous variable. The data are on a nominal level.

    0 = Offender

    1 = Not an Offender

11. **Veteran Status**- This is a dichotomous variable. The data are on a nominal level.

    0 = Veteran

    1 = Not a Veteran

12. **Family Status 1**- (Single parent with one or more dependents (under age six, versus all other categories). This is a dichotomous variable. The data are on a nominal level.
.00 = All other categories:

- Single parent with one or more dependents age six or older
- Parent in two-parent family
- Other family member
- Nondependent individual

1.00 = Single parent with one or more dependents under age six

13. **Family Status.3-** (Parent in a two-parent family, verses all other categories).

This is a dichotomous variable. The data are on a nominal level.

.00 = All other categories:

- Single parent with one or more dependents under age six
- Single parent with one or more dependents age six or older
- Other family member
- Nondependent individual

1.00 = Parent in a two-parent family

**Criterion Variable:**

14. **Training Outcome**- This is a dichotomous variable. The data are on a nominal scale. Training outcome was coded for the first discriminant function analysis, as follows:

1 = Positive Terminations
2 = Negative Terminations

Training outcome was coded for the second discriminant function analysis, as follows:
Breakdown of the Study Population

A breakdown of the study population (and the enrollments verses the nonenrollments) by selected socio-demographic characteristics is presented in Table 2 and Table 3. As Table 2 indicates, the study population consisted of a greater proportion of females, adults, and minorities. These groups were over-enrolled in OJT and Job Search Assistance activities when compared to males, youth and whites. The study population was also comprised of a much larger proportion of non-welfare grant recipients, nonhandicapped individuals, nonoffenders, nonveterans in contrast to welfare grant recipients, handicapped individuals, offenders and veterans. Furthermore, for family status 1, there was a much larger proportion of individuals who fell into all other family status categories in comparison to those who were single parents with one or more dependents under age six. Finally, for family status 3, the all other category was much more heavily concentrated than the category for single parents with one or more dependents aged six and above.

Table 3 illustrates that the study population (and the population of enrollments verses nonenrollments), was comprised of individuals who on average, have obtained at least a high school education or its equivalent. The study population consisted of individuals who on average, had reading and mathematics skills on an eighth grade level. Their average number of weeks unemployed was 18.3 weeks, although almost half of the population was unemployed for 26 weeks or longer. An inspection of the minimum and maximum values for the selected
## TABLE 2
BREACKDOWN OF THE STUDY POPULATION BY SELECTED SOCIO-DEMOGRAPHIC CHARACTERISTICS
(also represents enrollments and nonenrollments)
(596 Cases)

<table>
<thead>
<tr>
<th>Selected Characteristics</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>159</td>
<td>26.7</td>
</tr>
<tr>
<td>Female</td>
<td>437</td>
<td>73.3</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth</td>
<td>91</td>
<td>15.3</td>
</tr>
<tr>
<td>Adult</td>
<td>505</td>
<td>84.7</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>191</td>
<td>32.0</td>
</tr>
<tr>
<td>Minority</td>
<td>405</td>
<td>68.0</td>
</tr>
<tr>
<td><strong>Welfare Grant Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not a welfare grant recipient</td>
<td>420</td>
<td>70.5</td>
</tr>
<tr>
<td>Welfare grant recipient</td>
<td>176</td>
<td>29.5</td>
</tr>
<tr>
<td><strong>Handicapped Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Handicapped</td>
<td>546</td>
<td>91.6</td>
</tr>
<tr>
<td>Handicapped</td>
<td>50</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>Offender Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not an Offender</td>
<td>555</td>
<td>93.1</td>
</tr>
<tr>
<td>Offender</td>
<td>41</td>
<td>6.9</td>
</tr>
<tr>
<td><strong>Veteran Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not a Veteran</td>
<td>521</td>
<td>87.4</td>
</tr>
<tr>
<td>Veteran</td>
<td>75</td>
<td>12.6</td>
</tr>
<tr>
<td><strong>Family Status 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other categories</td>
<td>466</td>
<td>78.2</td>
</tr>
<tr>
<td>Single parent with one or more dependents under age six</td>
<td>133</td>
<td>21.8</td>
</tr>
<tr>
<td><strong>Family Status 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other categories</td>
<td>531</td>
<td>89.1</td>
</tr>
<tr>
<td>Parent in a two-parent family</td>
<td>65</td>
<td>10.9</td>
</tr>
</tbody>
</table>

*Total N Cases = 596*
characteristics in Table 3 reveals that the population referred for OJT by the
counselors was very diverse. As an example, the lowest reading level achieved was
the first grade level, whereas the highest reading level obtained was above the high
school level.

**TABLE 3**

**BREAKDOWN OF THE STUDY POPULATION BY SELECTED SOCIO-DEMOGRAPHIC CHARACTERISTICS**
(Also represents enrollments and nonenrollments)
(596 cases)

<table>
<thead>
<tr>
<th>Selected Characteristics</th>
<th>Mean</th>
<th>Mode</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Grade Completed</td>
<td>12.1</td>
<td>12.0</td>
<td>3.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Reading Score</td>
<td>8.8</td>
<td>13.1</td>
<td>1.1</td>
<td>13.5</td>
</tr>
<tr>
<td>Mathematics Score</td>
<td>8.4</td>
<td>13.0</td>
<td>2.4</td>
<td>13.0</td>
</tr>
<tr>
<td>Number of Weeks Unemployed</td>
<td>18.3</td>
<td>26.0</td>
<td>.0</td>
<td>26.0</td>
</tr>
</tbody>
</table>

Total N Cases = 596
(Note: Reading score was based upon 430 cases, due to missing scores for 166 cases.
Mathematics score was based upon 500 cases, due to missing mathematics scores for
96 cases.)

Breakdown of the Positive and Negative Terminations

A breakdown of the combined positive termination group and negative
termination group for the study population is presented in Table 4 and Table 5. The
total number of cases for these groups is 246. Table 4 reveals that the study
population of positive and negative terminations for PY-85 and PY-86 consisted
primarily of females, adults, minorities and non-welfare grant recipients, in contrast
to males, youth, whites and welfare grant recipients. In addition, the concentration
of nonhandicapped enrollees and nonoffenders was notably greater than that of handicapped enrollees and offenders. In addition, for family status 3, there was a much greater proportion of enrollees who fell into all other family status categories when contrasted to the category for parent in a two-parent family.

**TABLE 4**

**BREAKDOWN OF THE POSITIVE AND NEGATIVE TERMINATIONS BY SELECTED SOCIO-DEMOGRAPHIC CHARACTERISTICS**

(246 Cases)

<table>
<thead>
<tr>
<th>Selected Characteristics</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>77</td>
<td>31.3</td>
</tr>
<tr>
<td>Female</td>
<td>169</td>
<td>68.7</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth</td>
<td>46</td>
<td>18.7</td>
</tr>
<tr>
<td>Adult</td>
<td>200</td>
<td>81.3</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>91</td>
<td>37.0</td>
</tr>
<tr>
<td>Minority</td>
<td>155</td>
<td>63.0</td>
</tr>
<tr>
<td>Welfare Grant Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not a welfare grant recipient</td>
<td>198</td>
<td>80.5</td>
</tr>
<tr>
<td>Welfare grant recipient</td>
<td>48</td>
<td>19.5</td>
</tr>
<tr>
<td>Handicapped Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Handicapped</td>
<td>233</td>
<td>94.7</td>
</tr>
<tr>
<td>Handicapped</td>
<td>13</td>
<td>5.3</td>
</tr>
<tr>
<td>Offender Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not an Offender</td>
<td>224</td>
<td>91.1</td>
</tr>
<tr>
<td>Offender</td>
<td>22</td>
<td>8.9</td>
</tr>
<tr>
<td>Family Status 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other categories</td>
<td>218</td>
<td>88.6</td>
</tr>
<tr>
<td>Parent in a two-parent family</td>
<td>18</td>
<td>11.4</td>
</tr>
</tbody>
</table>

Total N Cases = 246
An inspection of Table 5 indicates that the average grade level completed by the positive and negative termination groups was slightly above the high school level or its equivalent. These enrollees had reading skills that were, on the average, at a ninth grade level. However, the seventh grade level for reading had the largest number of cases, in comparison to all other possible grade levels for the reading test. Their mathematics skills were, on the average, at an eighth grade level. Interestingly enough, the largest number of enrollees achieved a mathematics skill level of 13.0, which was above high school or its equivalent, in comparison to all other possible grade levels for mathematics. The minimum and maximum values illustrate that the population of negative and positive termination was extremely diverse on the selected characteristics for reading score, mathematics score, and number of weeks.

TABLE 5

BREAKDOWN OF THE POSITIVE AND NEGATIVE TERMINATIONS BY SELECTED SOCIO-DEMOGRAPHIC CHARACTERISTICS
(246 Cases)

<table>
<thead>
<tr>
<th>Selected Characteristics</th>
<th>Mean</th>
<th>Mode</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Grade Completed</td>
<td>12.2</td>
<td>12.0</td>
<td>7.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Reading Score</td>
<td>9.2</td>
<td>7.8</td>
<td>1.1</td>
<td>13.5</td>
</tr>
<tr>
<td>Mathematics Score</td>
<td>8.9</td>
<td>13.0</td>
<td>2.7</td>
<td>13.0</td>
</tr>
<tr>
<td>Number of Weeks Unemployed</td>
<td>17.2</td>
<td>26.0</td>
<td>.0</td>
<td>26.0</td>
</tr>
</tbody>
</table>

Total N Cases = 246

(Note: Reading score was based upon 192 cases, due to missing scores for 54 cases. Mathematics score was based upon 213 cases, due to missing scores for 33 cases.)
unemployed. There was less diversity within this population for highest grade completed, which ranged from the lowest of a seventh grade level to the highest of the sixteenth grade level, which is well beyond high school.

**Discriminant Analysis Procedure**

Two-group discriminant function analysis, using the stepwise method of Wilks' as the criterion for variable selection, was used to analyze the data. The first discriminant analysis was performed on the positive and negative termination groups, using eleven selected client socio-demographic characteristics as discriminators. After the first discriminant analysis was performed, the positive and negative termination groups were merged, thereby forming an enrollment group. A second discriminant analysis was performed on the newly formed enrollment group, and the nonenrollment group which already existed, using twelve selected client socio-demographic variables as discriminators.

Norusis described discriminant analysis as a method in which "a linear combination of independent variables is formed and serves as the basis for assigning cases to groups."

In order to conduct the data analysis, the data were coded and a computer program was written using the SPSS User's Guide, 2d and 3d editions. From hence forward, any discussion of how the data were handled through the computer will refer to the SPSS package detailed in the books mentioned above.

**Assumptions of Discriminant Analysis**

There are several basic assumptions involved in using discriminant analysis. According to Klecka:

1. Each data case should be a member of only one group.
2. There must be at least three more cases in the study than the number of predictor variables.

3. Each group in the study should be selected from a multivariate normally distributed population.

4. No predictor variable can consist of a linear combination of other predictor variables.

5. The population covariance matrices should be equivalent for all groups in the study.

This study clearly met the first two assumptions listed above. Several steps were taken to determine whether or not any of the other assumptions were violated. In addition to the frequency analysis discussed earlier in this chapter, which was performed on the total study population, a frequency analysis was conducted for the positive termination group versus the negative termination group. Another frequency analysis was conducted for the enrollment group versus the nonenrollment group, although the results mirrored the first frequency analysis for the total population. The purpose of the two latter frequency analyses was to facilitate a determination of whether or not each group in the study was selected from a multivariate normally distributed population. In addition to simple frequencies, the frequency analyses provided additional descriptive statistics for each of the predictor variables, including the Mean, Median, Mode, Skewness, Variance and Range. Tabachnick and Fidell asserted that in using discriminant analysis, multivariate normality can be assumed when the scores for the discriminating variables "are independently and randomly sampled from a population of scores, and that the sampling distribution of any linear combination of predictor variables is normally distributed." The present study
used all of the cases that were referred for OJT during PY-85 and PY-86, with the exception of those that had to be excluded from the study population.

Since outliers can have a lot of influence on the outcome of the data analysis when using discriminate analysis, the frequencies that were calculated for each of the predictor variables permitted a detection of the presence of outliers. This approach provided a check to ensure that data were correctly entered into the computer. When errors were found, they were corrected. Cases with extremely low scores or extremely high scores for certain variables such as reading and mathematics were not eliminated because of the desire to include the data for all cases that were referred for OJT during PY-85 and PY-86, whenever possible. In order to ensure that none of the variables in the study consisted of a linear combination of other variables, a pooled within-groups correlation matrix of the discriminating variables was produced and examined. Predictor variables that were equivalent to a linear combination of other predictor variables, or duplicated other predictor variables were not included in the analysis. As an example, the study originally included the predictor variables of AFDC and welfare grant status. Inspection of the pooled within-groups correlation matrix indicated that the correlation between AFDC and welfare grant status was -0.97, which is extremely high. Therefore, the decision was made to use welfare grant status for the study but to drop AFDC, because most of the welfare grant recipients in the study consisted of AFDC recipients.

The final assumption listed above for discriminant function analysis is that the population covariance matrices are equal for all groups in the study. Although the sample sizes were not equivalent for each of the groups in the study, the number of
cases for the enrollment group (246 cases) and the nonenrollment group (350 cases) was large. However, the negative termination group (38 cases) had a small number of cases, especially when compared to the positive termination group (208 cases). According to Tabachnick and Fidell,\textsuperscript{222} the outcome of tests for significance can be inaccurate when the variance-covariance matrices are heterogeneous, the sample sizes are not equivalent and there are a small number of cases for each group. Based upon the assertion of these authors, even if heterogeneity of the variance-covariance matrices did exist for the present study, it should not be a problem for the enrollment group verses the nonenrollment group because of the large sample sizes.

Heterogeneity of the variance-covariance matrices could have presented a problem for the discriminant function analysis on the positive and negative terminations because of the small sample size for the negative termination group, in contrast to the positive termination group. However, Box's M test\textsuperscript{223} was used to ensure that the assumption of homogeneity of variance-covariance matrices was not violated.

Tabachnick and Fidell noted that variance-covariance matrices that are heterogeneous can create problems when classification procedures are used, by overclassifying cases into groups whose data are more dispersed.\textsuperscript{224} The authors recommended that when classification of cases into groups is an integral part of the study, one tactic that can be taken is to examine plots.\textsuperscript{225} Although classification was used for the present study, an all-groups scatterplot and a separate-groups scatterplot could not be produced and analyzed because only two groups were used for each discriminant function analysis. At least three groups are needed to produce
scatterplots. The purpose of the scatterplots is to depict cases that are incorrectly classified. However, an all-groups histogram and a separate groups histogram of the discriminant function scores was generated and examined for each discriminant analysis that was conducted. Histograms also depict incorrectly classified cases.

Harris was reported by Hair, Anderson and Tatham as providing evidence in A Primer of Multivariate Statistics indicating that the violation of assumptions number three and number five above does not have much impact on discriminant analysis unless the violations are severe. Hair, Anderson and Tatham noted that this is especially true with bigger samples. In addition to using Box's M test to evaluate homogeneity of variance-covariance matrices, the test was also used to detect whether or not the assumptions for multivariate normality were violated, for each discriminant function analysis that was performed.

Cases With Missing Data

This study originally began with 682 cases but 86 cases had to be deleted due to a variety of reasons (Reference back to Table 1). After deleting the 86 cases, 596 cases were left. Another problem that arose was that 68 cases had scores on a different reading test than the other clients were tested on, so their reading scores could not be used. An additional 98 clients were not tested on reading, which brought the number of cases with missing reading scores to 166. There were 96 cases with missing mathematics scores because they were not tested on mathematics. In the vast majority of cases, those clients who were not tested on mathematics were also not tested on reading.
According to Tabachnick and Fidell, if missing data points are randomly distributed throughout a data matrix, there is generally no real cause for concern. In the present study, cases with missing reading scores and mathematics scores appeared to be randomly distributed between positive terminations in comparison to the negative terminations, and the enrollments in contrast to the nonenrollments. However, with the exclusion of the cases who were tested on a different reading test than the other cases, those clients who were not tested on reading and mathematics tended to either have exceptional educational backgrounds, or to have extremely low levels of education or psychological disorders, which prohibited their taking the tests. More specifically, cases with missing data would most likely have obtained either high or low scores on reading and mathematics, rather than scoring on an average level, if they had been tested.

A number of options were considered for handling cases with missing data for reading and mathematics. According to Tabachnick and Fidell, "if only a few cases have missing data and they seem to be a random subset of the whole sample," an appropriate procedure to use would be to drop those cases. If this evaluator had eliminated the 166 cases with missing reading and/or mathematics scores, a total of 430 cases would have been left for the study. Although a considerable amount of data would have been lost by excluding these cases, the number of cases for the study would still have been much greater than the number of predictor variables. Tabachnick and Fidell recommended that "the sample size of the smallest group should exceed the number of predictor variables." The authors explained that when stepwise discriminant analysis is used, overfitting may take place "if the number
of cases does not notably exceed the number of variables. In the present study, the smallest group was the negative terminations, which had 38 cases. If the seven cases with missing reading and mathematics scores had been deleted from this group, there would have been 31 cases left. However, even if these seven cases had been excluded, the 31 cases for the discriminant analysis procedure for the positive terminations and negative terminations would still have been greater than the number of predictor variables, which in this case, was eleven.

Omitting the 166 cases that had missing data was an option that could have been used. Usage of the option would have left 416 cases for the study. The major problem with this approach is that a substantial amount of data would have been lost. Another option was to omit the predictor variable of reading, which would have left 500 cases for the study (the 96 cases with missing mathematics scores would still have to be omitted). The disadvantage to using this option was that the collection of data on reading skills has recently been added to the data collection requirements under JTPA. The predictor variable of reading will contribute pertinent information to the body of literature on the relationship between reading level and client outcome for JTPA programs. This study will be one of the first studies on JTPA that have included this particular predictor variable because many SDA's never collected this data until it recently became mandatory to do so.

After exploring a number of options for handling missing data, including the options described above, this evaluator decided that it would be best to exclude cases that had missing data during the analysis phase of the discriminant analysis procedure, but to substitute means for missing values during the classification.
process.²³⁶ It was believed that creating mean values for cases with missing reading and mathematics scores and using them during the analysis phase would have biased the data. With the exclusion of clients who took a different reading test from the other clients, cases with missing reading and mathematics scores generally had either an exceptional educational background, or extremely low levels of education, or psychological problems, which prohibited their taking the tests. As discussed earlier, these cases tended not to be the "average" clients, so creating means for them and using the means during the analysis phase would have biased the data.

As a verification procedure to ensure that similar results would have been obtained if cases with missing data for reading and mathematics were not included, the discriminant analysis procedure was repeated using only significant discriminators, excluding the variables of reading and mathematics. This procedure enabled all 596 cases to be used in analyzing the enrollments versus the nonenrollments, and all 246 cases to be used in examining the positive terminations in contrast to the negative terminations. The results were found to be similar to those obtained when cases that had missing data were ignored during the analysis phase but were used during the classification procedure, as described in the paragraph above. Tabachnick and Fidell asserted that "if the results of analyses with and without missing data are similar, you can have confidence in them."²³⁷

Statistical Analysis of Data

A description of how the data were analyzed through discriminant analysis is presented in this section. In addition, the statistics that were used to conduct each discriminant analysis are listed, along with a description of them.
William Klecka defined discriminant analysis as "a statistical technique which allows the researcher to study the differences between two or more groups of objects with respect to several variables simultaneously." The author asserted that "the basic prerequisites are that two or more groups exist which we presume differ on several variables and that those variables can be measured at the interval or ratio level." The independent or "discriminating" variables need to "be measured at the interval or ratio level of measurement, so that means and variances can be calculated and so that they can be legitimately employed in mathematical equations." However, Norusis cited Gilbert and Moore as providing evidence indicating that for variables that are dichotomous, "the linear discriminant function often performs reasonably well." Many of the discriminating variables in this dissertation are dichotomous.

The first step taken in inspecting the data generated for each discriminant analysis was to review the table of group means and standard deviations to get some indication as to whether or not the unweighted group means differed for each of the predictor variables, and to what extent they differed. One should note that these groups means were developed on the cases which were used to establish the discriminant function, but not the cases which were used for the holdout sample. Additional discussion on the analysis sample verses the holdout sample will be presented later in this section.

The second step that was taken in analyzing the computer printouts for each discriminant function analysis conducted was to examine the pooled within-groups correlation matrix. This matrix was analyzed to determine whether or not the
assumption for multicollinearity and singularity had been violated. "Multicollinearity occurs when two variables in a matrix are perfectly (or nearly perfectly) correlated and when they show a similar pattern of correlations with the other variables."\textsuperscript{246} In contrast, singularity results "when one score is a linear (or nearly linear) combination of others."\textsuperscript{247} The stepwise entry of variables into the prediction equation was used for the data analysis, which was a solution to the problem of multicollinearity if it did exist.\textsuperscript{248} According to Tabachnick and Fidell, if two variables are highly correlated with one another when the stepwise method is used, the first predictor variable that enters the prediction equation "takes with it both its unique variance and the variance they share so that the second variable rarely has enough influence remaining to enter the equation."\textsuperscript{249}

The next step taken was to inspect the table containing Wilks' lambda (U-statistic) and univariate F-ratios. This table illustrated "the univariate analysis of variance used in testing the means of the individual variables between groups."\textsuperscript{250} An analysis of the table enabled this evaluator to inspect each individual predictor variable as a univariate statistic. The predictor variable that had the smallest Wilks' lambda entered the analysis first, on the first step, for each discriminant function analysis performed. The variable which entered the analysis first was the best discriminator when considered individually, in contrast to other predictor variables. In order to determine whether or not Wilks' lambda was significant, an F-test was used. Furthermore, since only two groups were used for each discriminant function analysis that was conducted, the F value represented "the square of the t value from the two-sample t-test."\textsuperscript{251}
The stepwise method was used to generate the predictor variables for inclusion in the discriminant function, for each discriminant function analysis that was performed. The stepwise procedure operates by combining the characteristics of forward selection and backward elimination of variables.252 The stepwise function enabled this evaluator to eliminate the predictor variables that were not good discriminators between the positive terminations verses the negative terminations, and the enrollments verses the nonenrollments, thereby developing a reduced set of predictor variables for each discriminant function analysis performed.253 WILKS was used as the criterion for variable selection. The stepping method of WILKS results in the selection of the predictor variable that minimizes the overall Wilks' lambda”254 "for the discriminant function" at each step.255

During the stepwise procedure, an F-test for selecting and discarding variables for the positive terminations and negative terminations was used to choose a linear combination of variables as discriminators. The same procedure and corresponding test was used for the enrollments and nonenrollments. Discriminating variables that were significant at the .05 level were retained. The tolerance level for entry of the variables into the prediction equation was left at the computer default, which was .001.256 Tolerance can be defined as "a measure of the degree of linear association between the independent variables." Variables that do not meet the tolerance level are prevented from entering the analysis.257

After the stepwise method was completed, a summary table containing all of the variables that entered the prediction equation was produced and inspected for the positive and negative terminations. During a separate analysis, another summary
table was produced and inspected for the enrollments verses the nonenrollments. Wilks' lambda was analyzed to determine the discriminatory power that existed for the variables in the prediction equation, at each step. The significance level of Wilks' lambda for each step was also reviewed, to determine whether or not the variables that were included at each step were significant, and if so, to what extent. For each discriminant analysis, step one of the summary table indicates the significance that was contributed by the first predictor variable that entered the prediction equation. For the second step, the significance level refers to the significance of the first variable that entered the prediction equation, plus the additional significance that was contributed by the second variable that entered the prediction equation, and so on, for each additional step.

A table for Fisher's linear discriminant functions was produced for each discriminant analysis. Fisher's linear discriminant functions can be used to classify future clients into outcome groups that they best fit. An example is presented in the next chapter to demonstrate how to use the table to classify one individual into the group that they best fit.

One canonical discriminant function was derived for the positive and negative termination groups. Another canonical discriminant function was derived for the enrollment and nonenrollment groups, in a separate analysis. The number of canonical discriminant functions that are derived in discriminant function analysis is always one less than the number of groups in the analysis. Kachigan described a discriminant function as a derived variable based upon a weighted sum of variables from the individual discriminating variables. A table for the canonical
discriminant function was produced and analyzed for each of the discriminant analyses performed. The eigenvalue for the discriminant function was reviewed to determine how much variation the function withdrew from the matrix. An eigenvalue represents "the ratio of the between-groups to within-groups sums of squares." A large eigenvalue for the canonical discriminant function is preferable because it suggests that the discriminant function is good. The canonical correlation was inspected next. The canonical correlation can be defined as "a measure of the degree of association between the discriminant scores and the groups." Norusis asserted that in a two-group analysis, "the canonical correlation is simply the usual Pearson correlation coefficient between the discriminant score and the group variable, which is coded 0 and 1." The higher the canonical correlation, the more strongly the discriminant function discriminates between the two groups. Wilks' lambda was used to "test the null hypothesis" that the negative and positive termination population means were equal. Wilks' lambda was also used to "test the null hypothesis" that the enrollment and nonenrollment population means were equal. As Norusis indicated, discrimination between the groups is impossible "if the means and covariance matrices are equal." Statistical significance of the discriminant function was determined, based upon the chi-square statistic, with the statistical level of significance set at probability less than .05. According to Hair, Anderson, and Tatham, "the conventional criterion of .05 or beyond is often used" to determine the level of significance for the discriminant function.

The next step in the procedure was to analyze the structure matrix for the pooled within-groups correlations between discriminating variables and canonical
discriminant functions. The size of the correlations within the discriminant function indicated which was the primary predictor variable (or variables) that was represented by the discriminant function. This information was used in conjunction with the table for canonical discriminant functions evaluated at group means (group centroids). The canonical discriminant function table was used by inspecting the group centroids, to determine whether the positive terminations or the negative terminations stood out. In another analysis, the table was used to determine whether the enrollments or the nonenrollments stood out. In order to determine direction of the primary predictor variable (and possibly secondary predictor variables) for the discriminant function, for the group which stood out from the other, this evaluator referred back to the Table of Group Means, which was discussed earlier.

Box's M test was used to determine whether or not the assumptions of variance-covariance matrices were violated. If a significant difference was found to exist between the variance-covariance matrices, there could have been a problem in the ability to satisfy these particular assumptions.

After the analysis portion of each discriminant analysis was completed, the classification procedures began, using the results generated during the analysis. For each discriminant analysis performed, separate histograms of the discriminant scores for each of the program outcome groups was produced and inspected. In addition, for each discriminant analysis conducted, an all-groups stacked histogram of the discriminant scores was produced and analyzed. The all-groups stacked histogram illustrates the groups into which the cases were classified.
The total number of cases for each discriminant analysis was randomly separated into an analysis sample and a holdout sample. The purpose of this procedure was "to validate the discriminant function through use of the classification matrices." Seventy percent of the cases were used for the analysis sample and 30 percent of the cases were used for the holdout sample. The analysis sample was "used to compute the discriminant function." In contrast, the holdout sample was used to classify cases that were not included in the analysis. The purpose of the holdout sample is to test the ability of the discriminant function to classify cases correctly. When cases were classified into the positive termination group versus the negative termination group, and the enrollment group versus the nonenrollment group, the prior probabilities was set to the size of each of the groups.

Based upon the results of the classification procedures described above, two tables of classification results were produced and analyzed, for each discriminant function analysis conducted. The first classification matrix was based upon results obtained for cases randomly selected for inclusion in the analysis. The second classification matrix was based upon the cases that were not randomly selected for inclusion in the analysis, or more specifically, the holdout sample. The classification matrices indicate the percentage of clients who were classified correctly for each group, and also revealed the percentage of clients that were incorrectly classified into another group. Finally, results of the classification matrices indicated the percent of grouped cases that were accurately classified into the two outcome groups, for the analysis sample, and the holdout sample. The classification matrix that was generated from the holdout sample was used to calculate the expected percentage of cases that
could be correctly classified by chance, in contrast to using the discriminant function analysis procedure.

Summary of Statistics

This section presents the statistics that were used in conducting the discriminant function analyses for the study. As discussed earlier, the data were inspected through the use of basic descriptive statistics, such as frequencies, prior to analyzing the data through discriminant analysis. The statistics listed below were used in conducting the discriminant analyses:

Statistic 1

Means. This is a univariate statistic. It provides both total and group means for the predictor variables. The group means enable one to compare the average of each predictor variable (IV) for each value on the criterion variable (DV). An examination of the group means provided an indication of how much the groups varied for each predictor variable. Inspection of the group means can be beneficial because it provides an indication of which variables may be the strongest discriminators between the groups. A large discrepancy between the means suggests that the predictor variables may be good discriminators between the groups. In contrast, means that are very close together suggest that the predictor variables may not be good discriminators between the groups. Inspection of the means also indicated in which direction the predictor variables discriminate, for each group. As a result, the means
contributed useful information in determining whether or not to accept or reject the null hypotheses. Total means represent the average for each predictor variable. The total means are obtained by adding together the group means for each value on the criterion variable and dividing this figure by the number of criterion groups in the analysis.

**Statistic 2**

**Standard Deviations.** This is also a univariate statistic. It provides both group standard deviations and total standard deviations for each of the predictor variables. The group standard deviations were used to compare the average standard deviation of each predictor variable (IV) for each value on the criterion variable (DV). The total standard deviation for each predictor variable was obtained by adding together the standard deviation for each value on the criterion variable, and dividing this figure by the number of criterion groups in the discriminant function analysis. The standard deviations also provide an indication of which variables provide the best discrimination between the criterion groups.

**Statistic 4**

**Pooled Within-Groups Correlation Matrix.** This matrix is constructed "by averaging the separate covariance matrices for all groups and then computing the correlation matrix." The correlation that exists between the predictor variables is provided by this matrix. When a high degree of correlation is
found to exist among variables, there is a high probability that these variables will not be good discriminators between criterion groups.

**Statistic 6**

**Univariate F Ratios.** This univariate statistic provides an F value for each individual predictor variable. The F-test is used to test the significance of Wilks’ lambda for each predictor variable. Wilks’ lambda is an inverse statistic, ranging from zero to one. The smaller Wilks’ lambda there is, the more discrimination that exists for that particular predictor variable. When there are only two outcome groups for the discriminant analysis, "the F value is just the square of the t value from the two-sample t-test."\(^2\)\(^7\)\(^2\) If the derived significance level is less than .05, this indicates that the group means for the predictor variables are not equal.\(^2\)\(^7\)\(^3\) It is desirable to have unequal groups means because this indicates that there is discrimination between the groups.

**Statistic 7**

**Box's M Test.** This statistic is used "to test equality of the group covariance matrices."\(^2\)\(^7\)\(^4\) Homogeneity of the variance-covariance matrices is desirable. When Box's M is found to be statistically significant, it indicates that the assumption concerning equivalent population covariance matrices for the groups in the discriminant function analysis has been violated. Norusis indicated that "if sample sizes are
unequal and Box's M test leads to rejection, at $p < .001$, of the assumption of homogeneity of variance-covariance matrices, then robustness is not guaranteed.\(^{275}\)

**Statistic 11**

**Unstandardized Discriminant Functions and Coefficients.** This statistic produces a table which lists the unstandardized canonical discriminant function coefficients for each of the predictor variables. The unstandardized discriminant function coefficients are based upon raw data because they have not been standardized. After these coefficients are standardized they are synonymous with beta weights in regression analysis.\(^{276}\)

**Statistic 15**

**All-Groups Scatterplot or Histogram.** In order for an all-groups scatterplot to be produced, the discriminant function analysis must contain at least three criterion groups. In the present study, there are only two outcome groups for each discriminant analysis, so all-groups stacked histograms were produced instead of all-groups scatterplots. The discriminant function scores for the two criterion groups are plotted on an all-groups histogram to illustrate the degree to which the two groups overlap and to illustrate how the discriminant scores are distributed.\(^{277}\) An inspection of this histogram reveals misclassified cases for the groups.\(^{278}\)
Statistic 16  
Separate Groups Scatterplot or Histogram. In order to produce scatterplots, three or more criterion groups are needed for the discriminant function analysis. Therefore, separate groups histograms were used for this study, which used two outcome groups, for each discriminant function analysis conducted. The discriminant scores for each group are plotted on separate histograms, to illustrate the extent to which cases from the group are correctly classified into that group, and are incorrectly classified into the other group.279

Two additional statistics that were included in each discriminant function analysis conducted for this study are listed below:280

Statistic 12  
Classification Function Coefficients. These are the coefficients that are used to classify cases into groups. "Each case has a classification score for each group. Then a case is assigned to the group for which it has the highest classification score."281

Statistic 13  
Classification Results Table. This table indicates the percentage of cases that are correctly classified for each group. The table compares actual group membership to predicted group membership. Inspection of the table reveals the number of cases that have been incorrectly classified into the other group. Finally, the overall percentage of correctly classified cases is presented beneath the table. A formula can be used to calculate the number of cases that are expected to be correctly
classified into the groups. The figure derived through the formula is then compared to the actual percentage of grouped cases that were correctly classified, to determine whether or not the discriminant procedure classified cases better than if they were simply classified by chance. This study used two classification results tables for each discriminant analysis performed. One of the tables was based upon the cases that were used to form the analysis sample. The other table was based upon the remaining cases, which formed the holdout sample.

Two final statistics which were used for each discriminant function analysis are discussed below. They are automatically printed on the computer printout when stepwise discriminant analysis is used.

1. **Structure Matrix: Pooled Within-Groups Correlations Between Discriminating Variables and Canonical Discriminant Functions.**

   This particular matrix presents the pooled correlations within the two groups on each particular predictor variable, for the discriminant function. The matrix indicates which predictor variables, if any, represent the discriminant function. Predictor variables that represent the discriminant function are designated by an asterisk.

2. **Canonical Discriminant Functions Evaluated at Group Means (Group Centroids).**

   When two criterion groups are used in a discriminant function analysis, this statistic takes the discriminant function, which generally represents
one or two primary predictor variables, and reveals how far apart the
groups are separated. Inspection of these group centroids, in
conjunction with the table of group means for the predictor variables,
provides an indication of direction. This statistic enables one to detect
group differences.
NOTES


4. Ibid., 284.


7. Ibid., 175.

8. Ibid.

9. Ibid., 177.


12. Ibid., 189-190.

13. Ibid, 35.


15. Ibid., 391.

219
10 Ibid., 391.
13Ibid., 5.
20Ibid., 51.
22Ibid., 152-153, 232.
23Ibid., 147.
31 Ibid., 785-786.


33 Ibid., 144.


37 Weidman, "Postsecondary High-Tech Training," 555-568.

38 Winkler, "An Administrative Perspective," ii-122.


41 Ibid., 66.

42 Barlow, Using Performance Management, ii-54.

43 General Accounting Office, Job Training Partnership Act: Services and Outcomes, 2-106.

44 Orfield, Job Training Under the New Federalism, 6.


46 Gibbard, "Government Retraining of the Unemployed," 52.

47 Levitan, A Second Chance, 58-60, 81-102 passim.


50 Ibid., 202-204.

51 Orfield, Job Training Under the New Federalism, 6, 205-206.

52 Ortiz, "A Case Study on Participation," 55-56.
53 Ibid., 68.
54 Ibid., 66.
55 Ibid.
56 Ibid.

58 Ibid., 62-63.

61 Ibid., 157-163 passim, 253.

63 Ibid., 114-115.


66 Ibid.
68 Ibid., 785.
69 Ibid., 785-786.
70 Ibid., 788.


Ibid., 566.

Ibid.

Levitan, A Second Chance, 173.


Ibid., 14.

Levitan, Jobs for the Disabled, 92.


Ibid., 6.

Barnow, Using Performance Management, 26-27.

Ibid., 13.


Analytic Systems, Analysis of CEP, 58.

Ibid., 2.

Ibid., 64.

Coffin, "Objectives, Inputs and Outputs," 786.

Ibid., 785, 788.

Ibid.

Analytic Systems, Analysis of CEP, 1-68.

Ibid., 41.


Ibid., 167, 170-171.


97 Ibid.


103 Ibid., 16.

104 Ibid., 112.


106 Ibid., 129.


Ibid., 13.


Sandell, *Who is Served in JTPA Programs*, 74.

Ibid., 28.


Ibid., 13-14.


127 Perry, *The Impact of Government Manpower Programs*, 151.


130 Ibid., 8.


135 Escutia, *Hispanic Youth*, 1.


137 Ibid., 266.


141 Perry, *The Impact of Government Manpower Programs*, 151.

142 Ibid., 103.


144 Orfield, *Job Training Under the New Federalism*, 198.


147 Ibid., 14.


149 Escutia, *Hispanic Youth*, 5.

150 Ibid.

151 Escutia, *Hispanic Youth*, 3.

152 Perry, *The Impact of Government Manpower Programs*, 151.


155 Ibid.


157 Sandell, *Who is Served in JTPA Programs*, 5, 60.


159 Ibid., 86.


161 Ibid., 73.


164 Ibid.


167 Ibid., 26-27.

168 Ibid., 2.


170 Barnow, Using Performance Management, 3.

171 Levitan, A Second Chance, 173.

172 Orfield, Job Training Under the New Federalism, 132.

173 Levitan, Jobs for the Disabled, 95.

174 Ibid., 16, 112.


176 Ibid.

177 Ibid.

178 Levitan, Jobs for the Disabled, 97.

179 Harris, The ICD Survey II, 27.

180 Barnow, Using Performance Management, 26-27.


182 Ibid., 130.


184 Ibid., 31.

185 Ibid., 12, 31.

186 Levitan, A Second Chance, 69.

Ibid., 42.

Levitan, A Second Chance, 69.

Analytic Systems, Analysis of CEP, 58.

Ibid.

Ibid., 26, 28-29.


Ibid.

Coffin, 786.


Barnow, Using Performance Management, 26-27.

Ibid., 13.


Barnow, Using Performance Management, 37.

Ibid., ii.


Ibid.
Department of Labor, Continuous Longitudinal Manpower Survey: Follow-Up Report No. 2, C-6 - C-7.

Sandell, "Who is Served in JTPA Programs," 1-80 passim.

Ibid., 57.

Barnow, Using Performance Management, 26-27.

Ibid., 14.

Analytic Systems, Analysis of CEP, 34.

Gerald Hanna, The Nelson Reading Skills Test, 3-4, 28-42.


Ibid., 74.

Ibid., 300.

Ibid., 233.

Ibid., 301.

Ibid.


228Norusis, SPSS® Advanced Statistics, 108.


230Ibid., 70.

231Ibid., 299.

232Ibid., 300.

233Ibid., 69.

234Ibid., 70.

235Ibid., 69.


239Ibid., 8.

240Ibid., 9.


243Ibid., 109.

244Hair, Multivariate Data Analysis, 94, 102.

245Ibid., 94.

247Ibid.

248Ibid., 83.

249Ibid.

250Hair, *Multivariate Data Analysis*, 95.

251Norusis, *SPSS* Advanced Statistics, 78.

252Ibid., 93.

253Hair, *Multivariate Data Analysis*, 84.


255Norusis, *SPSS* Advanced Statistics, 93.

256Ibid., 112.

257Ibid., 94.


259Norusis, *SPSS* Advanced Statistics, 89.

260Ibid.

261Ibid.

262Ibid., 90.

263Ibid.

264Ibid.

265Ibid.

266Hair, *Multivariate Data Analysis*, 84.


268Hair, *Multivariate Data Analysis*, 87.

269Ibid.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

271 Ibid., 79.

272 Ibid., 78.

273 Ibid.

274 Ibid., 108.


276 Ibid., 256.


278 Ibid., 86-87.

279 Ibid.


CHAPTER 4

RESULTS

This chapter provides the results for the positive and the negative terminations, and the enrollments versus the nonenrollments. The chapter concludes with a summary of the results for both program outcome analyses.

RESULTS: POSITIVE AND NEGATIVE TERMINATIONS

Data for the positive and negative termination groups were analyzed with discriminant function analysis, using the stepwise method. Wilks' lambda was used as the criterion for variable selection. The following eleven selected client socio-demographic characteristics were used as predictors of program outcome: gender, age, race, highest grade completed, welfare grant status, reading score, mathematics score, handicapped status, number of weeks unemployed, offender status, and family status 3 (parent in two-parent family versus all other categories). The criterion variable of program outcome was represented by two groups: positive terminations and negative terminations. The discriminating variables had to be statistically significant at the .05 level in order to be included in the canonical discriminant function.

A total of 246 cases were processed for the discriminant procedure: 208 cases in the positive termination group, and 38 cases in the negative termination group. There were 54 cases with missing values for reading and/or mathematics, which were
scattered proportionately between the two groups. There were no missing values for the remaining variables. Cases with missing values were excluded from the analysis procedure, but were added back in for both the analysis sample (70 percent of the cases) and the holdout sample (30 percent of the cases), before cases were classified. After the 54 cases with missing values were excluded, an additional 71 cases were randomly excluded as a result of the 70/30 split, to allow for the creation of a holdout sample. The purpose of the holdout sample was to validate the discriminant function. This resulted in 121 cases being used for the analysis procedure, with 103 cases for the positive termination group, and 18 cases for the negative termination group. During the classification procedure, 70 percent of the 246 cases were classified for the analysis sample (170 cases), and 30 percent of the cases were classified for the holdout sample (76 cases). The fact that there were only 18 cases in the negative termination group for the analysis was determined to be acceptable. According to Tabachnick and Fidell, "the sample size of the smallest group should exceed the number of predictor variables." The univariate results that will be presented throughout this discussion were obtained on the 121 cases included in the analysis procedure.

The use of both continuous and dichotomous predictor variables in the analysis could have been problematic. Krzanowski was reported by Johnson and Wichern as obtaining evidence from computer simulation tests which revealed that the performance of Fisher's linear discriminant function is contingent upon the correlations that exist between the continuous and qualitative variables. The author was cited as stating that "a low correlation in one population but a high correlation in
the other, or a change in the sign of the correlations between the two populations could indicate conditions unfavorable to Fisher's linear discriminant function. In order to determine whether or not the inclusion of both continuous and dichotomous variables in the analysis was a problem, a correlation matrix between the continuous and dichotomous predictor variables was produced separately for the positive and the negative termination groups. The correlation matrices for the two groups (Reference Table 6) were compared and no problems were revealed. Although there was a change in the sign of the correlation coefficients between the positive and the negative terminations in six instances, the coefficients were so close to zero that the change in sign was not relevant.

**TABLE 6**

**CORRELATION COEFFICIENTS BETWEEN CONTINUOUS AND DICHOTOMOUS VARIABLES FOR POSITIVE AND NEGATIVE TERMINATIONS**

<table>
<thead>
<tr>
<th></th>
<th>Welfare Grant</th>
<th>Gender</th>
<th>Offender Status</th>
<th>Handicapped Status</th>
<th>Age</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive Terminations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read</td>
<td>.2573**</td>
<td>-.0653</td>
<td>.0658</td>
<td>.0278</td>
<td>.0469</td>
<td>.3862**</td>
</tr>
<tr>
<td>Math</td>
<td>.1526*</td>
<td>.0151</td>
<td>.0290</td>
<td>.0149</td>
<td>-.0847</td>
<td>.3398**</td>
</tr>
<tr>
<td>* - .05**</td>
<td>p &lt; .1 (2-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative Terminations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read</td>
<td>.1546</td>
<td>.0986</td>
<td>-.1121</td>
<td>.0550</td>
<td>-.1894</td>
<td>.5162**</td>
</tr>
<tr>
<td>Math</td>
<td>-.0036</td>
<td>-.0759</td>
<td>-.1309</td>
<td>.1403</td>
<td>-.0631</td>
<td>.5136**</td>
</tr>
<tr>
<td>* - .05**</td>
<td>p &lt; .1 (2-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Frequency Analysis**

A frequency analysis of each group, and of both groups combined, was conducted prior to carrying out discriminant function analysis, in order to detect the presence of outliers. No outliers were noted. An inspection of the frequency output revealed that the data for the variables of highest grade completed and mathematics score had a normal distribution. The data for the remaining variables were skewed in one direction or the other, with the most severely skewed variables being handicapped status, offender status, and family status. According to Tabachnick and Fidell, discriminant function analysis "is robust to failures of normality if violation is caused by skewness rather than by outliers." Asymmetrical splits were observed for all of the dichotomous variables, but the splits were most pronounced for handicapped status, offender status, and family status, with a majority of the cases being nonhandicapped, nonoffenders, and all other family status categories other than parent in a two-parent family. Despite this, the time sample was determined to be large enough for a normal distribution to be assumed, as well as multivariate normality.

**Evaluation of the Assumptions for Discriminant Analysis**

An evaluation of the assumption of linearity indicated that this assumption was not violated. An inspection of the pooled within-groups correlation matrix (Reference Table 7) revealed that multicollinearity was a potential problem for reading score and mathematics score, because the correlation of .76061 between these two variables was high. Furthermore, moderate correlations were observed between race and reading score (.38320) and race and mathematics score (.35860). However,
### TABLE 7

**POOLED WITHIN-GROUPS CORRELATION MATRIX**

for **POSITIVE** and **NEGATIVE TERMINATIONS**

<table>
<thead>
<tr>
<th></th>
<th>Welfare Grant</th>
<th>Gender</th>
<th>Family Status 3</th>
<th>Reading Score</th>
<th>Math Score</th>
<th>Weeks Unemployed</th>
<th>Highest Grade</th>
<th>Offender Status</th>
<th>Handicapped Status</th>
<th>Age</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welfare Grant</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.24924</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Status 3</td>
<td>0.15503</td>
<td>0.05926</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Score</td>
<td>0.22844</td>
<td>-0.08670</td>
<td>0.01563</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math Score</td>
<td>0.17657</td>
<td>-0.05316</td>
<td>-0.01221</td>
<td>0.76061</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeks Unemployed</td>
<td>-0.19929</td>
<td>-0.17600</td>
<td>0.09600</td>
<td>-0.15269</td>
<td>-0.11010</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest Grade</td>
<td>-0.07798</td>
<td>-0.17600</td>
<td>-0.03895</td>
<td>0.17162</td>
<td>0.20203</td>
<td>0.06016</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offender Status</td>
<td>-0.05569</td>
<td>-0.32128</td>
<td>0.10445</td>
<td>0.08675</td>
<td>0.10242</td>
<td>-0.01111</td>
<td>0.16351</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handicapped Status</td>
<td>0.06196</td>
<td>-0.04043</td>
<td>0.09224</td>
<td>0.05627</td>
<td>0.04849</td>
<td>-0.09876</td>
<td>-0.09234</td>
<td>0.16267</td>
<td>1.00000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.17318</td>
<td>-0.13663</td>
<td>0.05132</td>
<td>0.04340</td>
<td>-0.08480</td>
<td>0.07920</td>
<td>0.14998</td>
<td>-0.00635</td>
<td>-0.06045</td>
<td>1.00000</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>0.27632</td>
<td>0.14363</td>
<td>0.14673</td>
<td>0.38320</td>
<td>0.35860</td>
<td>-0.06122</td>
<td>-0.04842</td>
<td>0.06138</td>
<td>-0.04416</td>
<td>-0.07208</td>
<td>1.00000</td>
</tr>
</tbody>
</table>

Correlations which cannot be computed are printed as 99.0
the tolerance level for entry of each of the discriminating variables into the stepwise analysis was left at 0.001, the computer default, which guarded against the occurrence of multicollinearity and singularity. Tolerance is the "proportion of the variation in the independent variables that is not explained by the variables already in the model (function)." A tolerance of 0 means that a predictor (independent variable) under consideration is a perfect linear combination of variables already in the model. A tolerance of 1 means that a predictor is totally independent of other predictors already in the model. The stepwise method which was used for the analysis also protected against multicollinearity. During the stepwise process, when two independent variables are highly correlated, the tolerance level operates by allowing only one of these variables to enter the discriminant function. The first independent variable to enter the function "takes with it both its unique variance and the variance they share so that the second variable rarely has enough influence remaining to enter the equation."

The test of equality of group covariance matrices using Box's M test (Reference Table 8) yielded an $F = 1.7841$, $p = .1818$, which indicates that there was not a statistically significant digression from homogeneity of variance-covariance matrices at $p > .05$. Therefore, this assumption was not violated.

**Univariate Equality of Group Means**

The significance tests for the univariate equality of group means for each of the discriminating variables are displayed in Table 9. An inspection of Wilks' lambda for each of these discriminating variables indicates that with the exception of race, group means on each variable were similar. The $F$ value for race was statistically
### TABLE 8

**TEST OF EQUALITY OF GROUP COVARIANCE MATRICES USING BOX’S M**

<table>
<thead>
<tr>
<th>Group Label</th>
<th>Rank</th>
<th>Log Determinant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 • Positive Terminations</td>
<td>1</td>
<td>-1.384203</td>
</tr>
<tr>
<td>2 • Negative Terminations</td>
<td>1</td>
<td>-1.916923</td>
</tr>
<tr>
<td>Pooled Within-Groups Covariance Matrix</td>
<td>1</td>
<td>-1.445014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Box's M</th>
<th>Approximate F</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8197</td>
<td>1.7841</td>
<td>1</td>
<td>7444.3</td>
</tr>
</tbody>
</table>

### TABLE 9

**WILKS’ LAMBDA (U-STATISTIC) AND UNIVARIATE F-RATIO WITH 1 AND 119 DEGREES OF FREEDOM**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Wilks' lambda</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welfare Grant Status</td>
<td>0.99589</td>
<td>0.4906</td>
<td>0.4850</td>
</tr>
<tr>
<td>Gender</td>
<td>0.99938</td>
<td>0.7439E-01</td>
<td>0.7855</td>
</tr>
<tr>
<td>Family Status 3</td>
<td>0.99998</td>
<td>0.2926E-02</td>
<td>0.9570</td>
</tr>
<tr>
<td>Reading Score</td>
<td>0.99688</td>
<td>0.3727</td>
<td>0.5427</td>
</tr>
<tr>
<td>Mathematics Score</td>
<td>0.99994</td>
<td>0.7384E-02</td>
<td>0.9317</td>
</tr>
<tr>
<td>Weeks Unemployed</td>
<td>0.98731</td>
<td>1.530</td>
<td>0.2186</td>
</tr>
<tr>
<td>Highest Grade Completed</td>
<td>0.99993</td>
<td>0.8745E-02</td>
<td>0.9257</td>
</tr>
<tr>
<td>Offender Status</td>
<td>0.99813</td>
<td>0.2227</td>
<td>0.6379</td>
</tr>
<tr>
<td>Handicapped Status</td>
<td>0.99968</td>
<td>0.3757E-01</td>
<td>0.8466</td>
</tr>
<tr>
<td>Age</td>
<td>0.98885</td>
<td>1.342</td>
<td>0.2490</td>
</tr>
<tr>
<td>Race</td>
<td>0.95619</td>
<td>5.453</td>
<td>0.0212</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
significant at the .05 level ($F = 5.453$, $p = .0212$), which indicates that there was a significant difference between group means for this variable. None of the other $F$ values were significant at the .05 level.

**Stepwise Procedure to Develop the Discriminant Function**

During the first step of the stepwise procedure, the discriminating variable of race produced "the smallest Wilks' lambda for the discriminant function"; therefore, race was selected for entry into the discriminant equation. After the variable of race entered the discriminant equation, no additional variables were entered because they did not meet the minimum tolerance level (.001) and the $F$ level needed for additional computation. The Summary Table for Significant Variables in the Discriminant Function (Reference Table 10) reveals that race was the only discriminating variable that entered the discriminant equation. Race was a statistically significant discriminator at the .05 level, based upon the minimization of Wilks' lambda as the standard for variable selection.

**TABLE 10**

**SUMMARY TABLE FOR SIGNIFICANT VARIABLES IN THE DISCRIMINANT FUNCTION**

<table>
<thead>
<tr>
<th>ACTION</th>
<th>VARIABLES</th>
<th>WILKS' LAMBDA</th>
<th>SIGNIFICANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEP ENTERED</td>
<td>REMOVED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Race</td>
<td>1</td>
<td>.95619</td>
<td>.0212</td>
</tr>
</tbody>
</table>

One canonical discriminant function was produced, using race (Reference Table 11), with $X^2 (1) = 5.3091$, $p = .0212$. The discriminant function had statistically significant discriminating power at the .05 level. Due to the fact that
TABLE 11

CANONICAL DISCRIMINANT FUNCTION
for POSITIVE and NEGATIVE TERMINATIONS

<table>
<thead>
<tr>
<th>Function</th>
<th>Eigenvalue</th>
<th>Percent of Variance</th>
<th>Cumulative Percent</th>
<th>Canonical Correlation</th>
<th>After Function</th>
<th>Wilks' Lambda</th>
<th>Chi-Squared</th>
<th>D.F.</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>0.04582</td>
<td>100.00</td>
<td>100.00</td>
<td>0.2093174</td>
<td>0</td>
<td>0.9561862</td>
<td>5.3091</td>
<td>1</td>
<td>0.0212</td>
</tr>
</tbody>
</table>

* Marks the 1 canonical discriminant functions remaining in the analysis.
there was only one discriminant function, the function accounted for 100 percent of the variance between the two groups. The canonical correlation squared \((0.2093174)^2\) equalled 0.0438, which indicates that the discriminant model which was produced accounted for only 4.38 percent of the variance in program outcome for the two groups.\(^1\)

Examination of the structure loadings matrix of the pooled within-groups correlations between discriminating variables and canonical discriminant functions (Reference Table 12) reveals that the discriminant function represents race. The Pearson correlation coefficient between the discriminant function and race is 1.00.

**TABLE 12**

<table>
<thead>
<tr>
<th>Variables ordered by size of correlation within function</th>
<th>Function 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>1.00000</td>
</tr>
<tr>
<td>Reading Scores</td>
<td>0.38320</td>
</tr>
<tr>
<td>Math Scores</td>
<td>0.35860</td>
</tr>
<tr>
<td>Welfare Grant Status</td>
<td>0.27632</td>
</tr>
<tr>
<td>Family Status 3</td>
<td>0.14673</td>
</tr>
<tr>
<td>Gender</td>
<td>0.14363</td>
</tr>
<tr>
<td>Age</td>
<td>-0.07208</td>
</tr>
<tr>
<td>Offender Status</td>
<td>0.06138</td>
</tr>
<tr>
<td>Weeks Unemployed</td>
<td>-0.06122</td>
</tr>
<tr>
<td>Highest Grade Completed</td>
<td>-0.04842</td>
</tr>
<tr>
<td>Handicapped Status</td>
<td>-0.04416</td>
</tr>
</tbody>
</table>

The canonical discriminant function was evaluated at the group centroids. The group centroid of 0.08874 for the positive terminations deviated less from the
overall mean (zero) of both groups than the group centroid of -0.50781 for the negative terminations.

**Validation of the Discriminant Function**

After the analysis stage was concluded, a determination was made as to whether or not the canonical discriminant function was a valid predictor of membership into the positive and negative termination groups. In order to classify cases into the two outcome groups, the cutting score was created by establishing prior probabilities to the size of the groups used for the analysis sample. The prior probabilities were 0.8529412 for Group 1 and 0.1470588 for Group 2. These figures indicate that the prior probability of a case falling into the positive termination group was 85 percent, verses the prior probability of 15 percent for a case to fall into the negative termination group.

Churchill explained that one way to assess "the actual predictive accuracy" of the discriminant model that is created, using the analysis sample, is to test the model on a holdout sample.12 This testing of the model on another sample is essential because "the criterion used to fit the model generates an equation that provides an optimal fit to the data at hand."13 Two classification matrices were created (Reference Table 13); one for the cases used in the analysis sample, and the other for the cases used in the holdout sample. The 85.29 percent classification accuracy for the analysis sample was only slightly higher than the 82.89 percent classification accuracy for the holdout sample.
### TABLE 13

CLASSIFICATION RESULTS FOR POSITIVE AND NEGATIVE TERMINATIONS

<table>
<thead>
<tr>
<th>Actual Group</th>
<th>No. of Cases</th>
<th>Predicted Group Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Group 1</td>
<td>145</td>
<td>145</td>
</tr>
<tr>
<td>Group 2</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>

Percent of "grouped" cases accurately classified: 85.29%

<table>
<thead>
<tr>
<th>Actual Group</th>
<th>No. of Cases</th>
<th>Predicted Group Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Group 1</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>Group 2</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

Percent of "grouped" cases accurately classified: 82.89%

**Proportional Chance Criterion**

Hair and others indicated that the proportional chance criterion is a chance model which can be used to determine if the discriminant model classifies cases better than by chance. The authors stated that "the proportional chance criterion should be used when group sizes are unequal and the analyst wishes to identify correctly members of the two (or more) groups." This study met both of these specifications for using the proportional chance criterion. Therefore, in order to
determine whether or not the classification model was effective, the 83 percent classification accuracy of the holdout sample (Reference back to Table 13) was compared to the proportional chance criterion (PCC).\textsuperscript{15}

\[
PCC = (\text{proportion in Group 1})^2 + (1 - \text{proportion in Group 1})^2
\]
\[
= (.83)^2 + (.17)^2
\]
\[
= .69 + .03
\]
\[
= 72\%
\]

The classification accuracy of the holdout sample was 83 percent, which represents an 11 percent increase over the 72 percent rate of accuracy (proportional chance criterion) which could be attained by classifying cases into the two groups by chance alone.

**Chi-Square Test of Significance for Discriminatory Power of the Classification Model**

A chi-square test of significance was performed to determine the discriminatory power of the classification model, which was tested on the holdout sample. The test is presented and explained in detail by Press, in *Applied Multivariate Analysis*.\textsuperscript{16} A \( Q = 32.89 \) was yielded from the test, where \( N = 76 \), \( n = 63 \), and \( K = 2 \). Using the .01 level of significance, with \( df = 1 \), \( X^2 = 6.635 \). Since the \( Q \) of 32.89 is greater than the \( X^2 \) value of 6.635, \( Q \) is statistically significant at \( p < .01 \). Therefore, the ability of the classification model to classify cases is statistically significant.

The formula for the test is presented below:

\[
Q = \frac{(N - nK)^2}{N (K - 1)}
\]
where:

\[ N = \text{Total number of observations that were classified} \]
\[ n = \text{Number of correct classifications} \]
\[ K = \text{Number of groups} \]

therefore:

\[
Q = \frac{(76 - 63(2))^2}{76(2 - 1)}
\]
\[
= \frac{(76 - 126)^2}{76}
\]
\[
= \frac{(-50)^2}{76}
\]
\[
= 2500
\]
\[
= \frac{2500}{76}
\]
\[
Q = 32.89
\]

**Maximum Chance Criterion**

The classification model did not correctly classify any members of the negative termination group. All of the negative termination cases were classified into the positive termination group. The hit ratio of 83 percent for the holdout sample was equivalent to the maximum chance criterion of 83 percent, which is "based on the sample size of the largest group."\(^{17}\) The maximum chance criterion "is determined by computing the percentage of the total sample represented by the largest of the two (or more) groups."\(^{18}\) This criterion "holds that any object chosen at random should be classified as belonging to the larger group, as that will maximize the proportion of cases correctly classified."\(^{19}\)
The hit ratio that was achieved for the discriminant function is the same as that which could have been attained if all the clients had been automatically placed into the positive termination group. Drawing upon the discussion presented by Hair and others, since the hit ratio of 83 percent for the discriminant function is not greater than the maximum chance criterion of 83 percent, "it has not helped us predict, based on this criterion." According to the maximum chance criterion, the classification model is not useful.

Interpretation of the Findings

The discriminant function, which is comprised of one variable (race), has been determined to be statistically significant. The classification model was found to classify cases better than by chance according to the proportional chance criterion, but not the maximum chance criterion. The classification model was determined to have statistically significant discriminating power. Hair and others have indicated that "if the discriminant function is statistically significant and the classification accuracy is acceptable, the analyst should continue to Stage Three, which focuses on making substantive interpretations of the findings." The classification model is not acceptable because it does not enable one to determine which cases are most likely to become negative terminations. Despite the 11 percent increase in accuracy over the proportional chance criterion that could be obtained using the classification model, the model which represents race, is still not useful. Even though race is statistically significant for the positive and negative terminations, this variable is not powerful enough to discriminate between the two groups. Use of the model will classify all
cases into the positive termination group. Perhaps race is strongly associated with
the attainment of a positive termination but not a negative termination.

The histogram of the discriminant function scores for Group 1, the positive
terminations, is presented in Table 14. The histogram for Group 1 graphically
demonstrates that all of the Group 1 cases were correctly classified into that group.
In contrast, the histogram for Group 2, the negative terminations (Reference Table
15), reveals that all of the Group 2 cases were incorrectly classified into Group 1.
The all-groups stacked histogram (Reference Table 16) graphically illustrates that all
of the cases were classified into Group 1, the positive terminations. One can
conclude from the histograms that the classification model is very effective in
classifying the positive terminations, but is ineffective in classifying the negative
terminations.

The only predictor variable which formed the discriminant function was race,
and the function was found to be statistically significant. Furthermore, race was the
strongest discriminator in comparison to the other predictor variables. According to
the structure loadings matrix for the pooled within-groups correlations between
discriminating variables and canonical discriminant functions which was presented
earlier (Reference back to Table 12), race had a strong positive correlation with the
discriminant function. Furthermore, race provided the strongest discrimination
between the groups, in comparison to the other predictor variables. Handicapped
status provided the least discrimination between the positive and negative
terminations, and this variable correlated negatively with the canonical discriminant
function.
# TABLE 14

## HISTOGRAM FOR GROUP 1: POSITIVE TERMINATIONS

Symbols used in histograms:

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>GROUP</th>
<th>LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Positive Terminations</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Negative Terminations</td>
</tr>
</tbody>
</table>

### HISTOGRAM FOR GROUP 1

**CANONICAL DISCRIMINANT FUNCTION 1**

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>1</td>
</tr>
<tr>
<td>120</td>
<td>1</td>
</tr>
<tr>
<td>80</td>
<td>1</td>
</tr>
<tr>
<td>40</td>
<td>1</td>
</tr>
</tbody>
</table>

---

**CENTROIDS**

<table>
<thead>
<tr>
<th>X</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3.0</td>
<td></td>
</tr>
<tr>
<td>-2.0</td>
<td></td>
</tr>
<tr>
<td>-1.0</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>OUT</td>
<td></td>
</tr>
</tbody>
</table>

---

250
TABLE 15

HISTOGRAM FOR GROUP 2:
NEGATIVE TERMINATIONS

Symbols used in histograms:

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>GROUP</th>
<th>LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Positive Terminations</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Negative Terminations</td>
</tr>
</tbody>
</table>

HISTOGRAM FOR GROUP 2
CANONICAL DISCRIMINANT FUNCTION 1

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>32</th>
<th>24</th>
<th>16</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYMBOL</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>NUMBER</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

CLASS CENTROIDS

<table>
<thead>
<tr>
<th>OUT</th>
<th>-3.0</th>
<th>-2.0</th>
<th>-1.0</th>
<th>.0</th>
<th>1.0</th>
<th>2.0</th>
<th>3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS</td>
<td>222222222211111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CENTER</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
### TABLE 16

ALL-GROUPS STACKED HISTOGRAM:
POSITIVE AND NEGATIVE TERMINATIONS

Symbols used in histograms:

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>GROUP</th>
<th>LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Positive Terminations</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Negative Terminations</td>
</tr>
</tbody>
</table>

**Canonical Discriminant Function 1**

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>GROUP</th>
<th>CLASS</th>
<th>CENTROIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>1</td>
<td>-3.0</td>
<td>2222222222</td>
</tr>
<tr>
<td>120</td>
<td>1</td>
<td>-2.0</td>
<td>1111111111</td>
</tr>
<tr>
<td>80</td>
<td>1</td>
<td>-1.0</td>
<td>1111111111</td>
</tr>
<tr>
<td>40</td>
<td>1</td>
<td>0</td>
<td>1111111111</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>GROUP</th>
<th>OUT</th>
<th>CENTROIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1111111111</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1111111111</td>
</tr>
</tbody>
</table>
Dummy variable coding was used for the discriminating variable of race (1 = white; 0 = minority). The table entitled Group Means and Standard Deviations for the Positive and the Negative Terminations (Reference Table 17) indicates that for race, a greater proportion of whites were positive terminations than were negative terminations. The positive termination group mean for race (.45631) is closer to dummy variable code 1 (white) than the negative termination group mean for race (.16667).

An example will be given, using one fictitious case, to demonstrate the use of Fisher's linear discriminant function (Reference Table 18) to predict program outcome for a future program applicant. The example assumes that a white male has been through the assessment and counseling process and was referred by his counselor for on-the-job training. The race of white is coded as 0. The JTS administrators and the OJT subcontractor would like to determine whether the client is more likely to become a positive or a negative termination. One can use his value for race, the classification coefficients for this variable, and the constant for each program outcome group to derive a score for each group, as illustrated below:

**Group 1: Positive Terminations**

\[
(1 \times 1.935629) + -0.6026857 \\
= 1.935629 + -0.6026857 \\
= 1.3329433
\]

**Group 2: Negative Terminations**

\[
(1 \times 0.706985) + -1.964334 \\
= 0.7069851 + -1.964334 \\
= -1.2573489
\]
<table>
<thead>
<tr>
<th>Training Outcome</th>
<th>Race</th>
<th>Welfare Grant</th>
<th>Gender</th>
<th>Reading Score</th>
<th>Math Score</th>
<th>Weeks Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Terminations = 1</td>
<td>0.45631</td>
<td>0.84466</td>
<td>0.30097</td>
<td>9.16408</td>
<td>9.09312</td>
<td>17.29126</td>
</tr>
<tr>
<td>Negative Terminations = 2</td>
<td>0.16667</td>
<td>0.77778</td>
<td>0.33333</td>
<td>8.66111</td>
<td>9.02778</td>
<td>20.16667</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.41322</td>
<td>0.83471</td>
<td>0.30579</td>
<td>9.08926</td>
<td>9.08595</td>
<td>17.71901</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Outcome</th>
<th>Race</th>
<th>Welfare Grant</th>
<th>Gender</th>
<th>Reading Score</th>
<th>Math Score</th>
<th>Weeks Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Offender</td>
<td>11.91262</td>
<td>0.92233</td>
<td>0.10680</td>
<td>0.93204</td>
<td>0.76699</td>
<td>11.91736</td>
</tr>
<tr>
<td>Family Handicapped</td>
<td>11.94444</td>
<td>0.88889</td>
<td>0.11111</td>
<td>0.94444</td>
<td>0.88889</td>
<td>11.91736</td>
</tr>
<tr>
<td>Status</td>
<td>TOTAL</td>
<td>0.91736</td>
<td>0.10744</td>
<td>0.93388</td>
<td>0.78512</td>
<td>11.91736</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Outcome</th>
<th>Race</th>
<th>Welfare Grant</th>
<th>Gender</th>
<th>Reading Score</th>
<th>Math Score</th>
<th>Weeks Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Terminations = 1</td>
<td>0.50052</td>
<td>0.36400</td>
<td>0.46092</td>
<td>3.24103</td>
<td>3.15958</td>
<td>9.26477</td>
</tr>
<tr>
<td>Negative Terminations = 2</td>
<td>0.38348</td>
<td>0.42779</td>
<td>0.48507</td>
<td>3.12733</td>
<td>2.81734</td>
<td>8.04582</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.49446</td>
<td>0.37299</td>
<td>0.46265</td>
<td>3.21659</td>
<td>3.10099</td>
<td>9.12069</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Outcome</th>
<th>Race</th>
<th>Welfare Grant</th>
<th>Gender</th>
<th>Reading Score</th>
<th>Math Score</th>
<th>Weeks Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Offender</td>
<td>1.33657</td>
<td>0.26896</td>
<td>0.31036</td>
<td>0.25291</td>
<td>0.42482</td>
<td>1.32657</td>
</tr>
<tr>
<td>Family Handicapped</td>
<td>1.30484</td>
<td>0.32338</td>
<td>0.32338</td>
<td>0.23570</td>
<td>0.32338</td>
<td>1.32657</td>
</tr>
<tr>
<td>Status</td>
<td>TOTAL</td>
<td>0.27649</td>
<td>0.31096</td>
<td>0.24952</td>
<td>0.41244</td>
<td>1.32657</td>
</tr>
</tbody>
</table>
TABLE 18
CLASSIFICATION FUNCTION COEFFICIENTS
(FISHER'S LINEAR DISCRIMINANT FUNCTIONS)

<table>
<thead>
<tr>
<th>Training Outcome =</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>1.935629</td>
<td>0.7069851</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-0.6026857</td>
<td>-1.964334</td>
</tr>
</tbody>
</table>

The computation presented above indicates that the client's derived score for Group 1 is 1.3329433 and his derived score for Group 2 is -1.2573489. Based upon Fisher's linear discriminant function, the white male is more likely to become a positive termination than a negative termination, because his score for Group 1 is larger than that for Group 2. When the example is repeated by substituting code 0 for minority in place of code 1 for white, the client is still more likely to become a positive termination, as illustrated below:

**Group 1: Positive Terminations**

\[
\begin{align*}
(0 \times 1.935629) + (-0.6026857) &= 0 - 0.6026857 \\
&= -0.6026857 \\
\end{align*}
\]

**Group 2: Positive Terminations**

\[
\begin{align*}
(0 \times 0.7069851) + (-1.964334) &= 0 - 1.964334 \\
&= -1.964334 \\
\end{align*}
\]

The two examples which have been presented demonstrate that use of Fisher's linear discriminant function would result in both whites and minorities being predicted to become positive terminations rather than negative terminations. Therefore, Fisher's linear discriminant function would be ineffective in predicting...
program outcome for future clients of the program who are assessed, counseled, and referred for placement in on-the-job training.

Univariate Tests for the Individual Predictor Variables

Univariate tests were conducted on the entire sample; the analysis sample and the holdout sample combined, in order to test the individual hypotheses for the positive and negative terminations. T-tests were used for the interval level variables (Reference Table 19), and chi-square tests were conducted on the nominal level variables (Reference Table 20). Univariate results for the discriminant function analysis were based on the 121 cases in the analysis procedure. The t-tests and chi-square tests of independence are based on all 246 cases that were processed for the study. However, two exceptions to t-tests being based on 246 cases are reading and mathematics scores. Reading score is based on 199 cases and mathematics score is based on 213 cases, because some cases had missing values on these two variables. The univariate results from the discriminant analysis procedure are not identical to those from the t-tests and chi-square tests because the t-tests and chi-square tests were conducted on a larger number of cases.

The t-test group means presented in Table 19 were used to interpret direction of the findings for the interval level variables. The proportions (p0 and p1) from
TABLE 19
T-TESTS FOR INDEPENDENT SAMPLES, FOR POSITIVE AND NEGATIVE TERMINATIONS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Cases</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Pooled Variance Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Score</td>
<td>Group 1</td>
<td>161</td>
<td>9.2286</td>
<td>.62</td>
</tr>
<tr>
<td></td>
<td>Group 2</td>
<td>38</td>
<td>8.8516</td>
<td>.267</td>
</tr>
<tr>
<td>Mathematics Score</td>
<td>Group 1</td>
<td>179</td>
<td>8.8475</td>
<td>-.94</td>
</tr>
<tr>
<td></td>
<td>Group 2</td>
<td>34</td>
<td>9.3824</td>
<td>.175</td>
</tr>
<tr>
<td>Number of Weeks</td>
<td>Group 1</td>
<td>208</td>
<td>16.9519</td>
<td>-1.13</td>
</tr>
<tr>
<td>Unemployed</td>
<td>Group 2</td>
<td>38</td>
<td>18.8258</td>
<td>.129</td>
</tr>
<tr>
<td>Highest Grade</td>
<td>Group 1</td>
<td>208</td>
<td>12.1731</td>
<td>.37</td>
</tr>
<tr>
<td>Completed</td>
<td>Group 2</td>
<td>28</td>
<td>12.0789</td>
<td>.354</td>
</tr>
</tbody>
</table>

NOTE: T-test results are presented for the interval level variables. ** p < .05

the chi-square tests that are contained in Table 20 were used to interpret direction of the findings for the nominal level variables. The proportions are presented for the positive termination group only. In order to determine the proportion that fell into the negative termination group, one would simply subtract the proportion presented in the table for p0 from 100 percent and for p1 from 100 percent.

Results of the t-tests for independent samples (Reference back to Table 19) reveal that there is not a significant difference between the positive and negative
**TABLE 20**

CROSS-TABULATIONS: CHI-SQUARE TESTS OF INDEPENDENCE ON DICHTOMOUS VARIABLES FOR POSITIVE AND NEGATIVE TERMINATIONS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Chi-Square: Pearson Value</th>
<th>DF</th>
<th>Sign.</th>
<th>( p^0 )</th>
<th>( p^I )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>3.41473</td>
<td>1</td>
<td>.06462</td>
<td>81.3%</td>
<td>90.1%</td>
</tr>
<tr>
<td>(minority)</td>
<td></td>
<td></td>
<td></td>
<td>(white)</td>
<td></td>
</tr>
<tr>
<td>Welfare Grant</td>
<td>1.32463</td>
<td>1</td>
<td>.24976</td>
<td>79.2%</td>
<td>85.9%</td>
</tr>
<tr>
<td>(grant)</td>
<td></td>
<td></td>
<td></td>
<td>(no grant)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.17695</td>
<td>1</td>
<td>.67401</td>
<td>85.2%</td>
<td>83.1%</td>
</tr>
<tr>
<td>(female)</td>
<td></td>
<td></td>
<td></td>
<td>(male)</td>
<td></td>
</tr>
<tr>
<td>Family Status 3</td>
<td>1.66827</td>
<td>1</td>
<td>.19649</td>
<td>83.5%</td>
<td>82.9%</td>
</tr>
<tr>
<td>(all other categories)</td>
<td></td>
<td></td>
<td></td>
<td>(two parent family)</td>
<td></td>
</tr>
<tr>
<td>Offender Status</td>
<td>.13834</td>
<td>1</td>
<td>.70994</td>
<td>81.8%</td>
<td>84.8%</td>
</tr>
<tr>
<td>(offender)</td>
<td></td>
<td></td>
<td></td>
<td>(nonoffender)</td>
<td></td>
</tr>
<tr>
<td>Handicapped Status</td>
<td>.61174</td>
<td>1</td>
<td>.43413</td>
<td>76.9%</td>
<td>75.0%</td>
</tr>
<tr>
<td>(handicapped)</td>
<td></td>
<td></td>
<td></td>
<td>(not handicapped)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.16374</td>
<td>1</td>
<td>.68574</td>
<td>82.6%</td>
<td>85.0%</td>
</tr>
<tr>
<td>(youth)</td>
<td></td>
<td></td>
<td></td>
<td>(adult)</td>
<td></td>
</tr>
</tbody>
</table>

\( p^0 \) = Proportion of positive terminations for dummy variables coded 0

\( p^I \) = Proportion of positive terminations for dummy variables coded 1

** p < .05  
N = 246 Cases

termination group means for reading score (t = .62), mathematics score (t = -.94), number of weeks unemployed (t = -1.13), and highest grade completed (t = .37), at p > .05.

The t-test groups means (Reference back to Table 19) for the positive and negative terminations were inspected. Results indicate that clients who have higher reading scores are more likely to be positive terminations while those with lower
reading scores are more likely to be negative terminations. Interestingly enough, the findings were reversed for mathematics score. The findings also indicate that those clients who have fewer weeks of unemployment tend to be positive terminations, while those with a larger number of weeks unemployment have a greater tendency to be negative terminations.

Results of the chi-square tests of independence on the dichotomous variables (Reference back to Table 20) for the positive and negative termination groups were inspected next. Findings reveal that there was not a statistically significant difference between the proportion which fell into each program outcome group for race ($X^2 = 3.41473$), welfare grant status ($X^2 = 1.32463$), gender ($X^2 = .17695$), family status 3 ($X^2 = 1.66827$), offender status ($X^2 = .13834$), handicapped status ($X^2 = .61174$), and age ($X^2 = .16374$), at $p > .05$. Race approached statistical significance ($p = .06462$) at the .05 level. Furthermore, race was closer to being statistically significant than any of the other selected socio-demographic variables (both dichotomous and interval level variables) in the analysis. Therefore, the finding on race is consistent with results from the discriminant function analysis.

The last step was to interpret direction of results for the dichotomous variables, based upon proportions for the positive termination group (Reference back to Table 20). With respect to the variables of race, welfare status and gender, a greater proportion of whites, nonwelfare grant recipients, and females were positive terminations than minorities, welfare grant recipients and males. The reverse was true for the negative terminations. According to the data for family status 3, a greater proportion of parents in two-parent families were positive terminations than
those from all family status categories. The situation was reversed for the negative terminations. For the variables of offender status, handicapped status and age, a greater proportion of nonoffenders, nonhandicapped individuals, and adults were positive terminations than offenders, handicapped individuals, and youths. Again, the results were the opposite for the negative terminations.

**RESULTS: ENROLLMENTS AND NONENROLLMENTS**

Data for the enrollments and nonenrollments were analyzed with discriminant function analysis, using the stepwise method. Wilks' lambda served as the criterion for variable selection. Twelve selected client socio-demographic variables were used as discriminators between program outcome groups, as follows: gender, age, race, highest grade completed, welfare grant status, mathematics score, reading score, number of weeks unemployed, offender status, handicapped status, veteran status, and family status 1 (single parent with one or more dependents below age six, verses all other categories). The criterion variable of program outcome was represented by two groups: enrollments and nonenrollments. In order to be included in the canonical discriminant function, the discriminating variables had to be statistically significant at the .05 level.

A total of 596 cases were processed for the discriminant procedure, with 246 cases forming the enrollment group, and 350 cases forming the nonenrollment group. There were 166 cases with missing values for reading and/or mathematics, which were scattered proportionately between the enrollments and the nonenrollments. None of the other variables had missing values. Cases that had missing values were excluded from the analysis procedure, but were added back in for both the analysis sample and
the holdout sample, before the cases were classified. An additional 141 cases were randomly excluded from total number of cases in the study, which allowed for the creation of a holdout sample. The final overall sample size for the analysis procedure consisted of 289 cases, with 125 cases forming the enrollment group and 165 cases forming the nonenrollment group. During the classification procedure, 70 percent of the 596 processed cases were classified for the analysis sample (415 cases), and 30 percent of the cases were classified for the holdout sample (181 cases). The univariate results that will be presented throughout this discussion are based upon the 289 cases used in the analysis procedure.

A correlation matrix between the continuous and dichotomous predictor variables was produced (Reference Table 21), first for the enrollment group, then for the nonenrollment group, to determine if the inclusion of both types of variables in the analysis was a problem. A comparison of the correlation matrices for the two groups revealed that no problems existed. Although there was a change in the sign of the correlation coefficients between the enrollments and nonenrollments in five instances, the coefficients were still similar between the two program outcome groups.

**Frequency Analysis**

Prior to carrying out the discriminant analysis procedure, a frequency analysis of each outcome group, and of both outcome groups combined, was conducted to detect the presence of outliers. No outliers were detected. The frequency output was inspected, and it was determined that the data for mathematics score had a
normal distribution. The data for the remaining discriminating variables were skewed to either the left or right, with the most severely skewed variables being age, offender status, handicapped status, and veteran status. Asymmetrical splits were observed for all of the dichotomous variables. The splits were most prominent for age, offender status, handicapped status and veteran status, with a majority of the cases being adults, nonoffenders, nonhandicapped, and nonveterans. Despite the splits, the time sample was determined to be large enough for a normal distribution and multivariate normality to be assumed.

**Evaluation of the Assumptions for Discriminant Analysis**

An evaluation of the assumption of linearity indicated that this assumption was not violated. An inspection of the pooled within-groups correlation matrix (Reference Table 22) suggested that multicollinearity was a potential problem for
## TABLE 22

**POOLED WITHIN-GROUPS CORRELATION MATRIX FOR ENROLLMENTS VS NONENROLLMENTS**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Race</th>
<th>Highest Grade</th>
<th>Welfare Grant</th>
<th>Math Score</th>
<th>Reading Score</th>
<th>Weeks Unemployed</th>
<th>Offender</th>
<th>Handicapped Status</th>
<th>Vet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.10392</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>0.05162</td>
<td>-0.07132</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest Grade</td>
<td>-0.01565</td>
<td>0.11236</td>
<td>-0.09475</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welfare Grant</td>
<td>0.23802</td>
<td>-0.16063</td>
<td>0.22236</td>
<td>0.11565</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math Score</td>
<td>0.10137</td>
<td>-0.17289</td>
<td>0.37103</td>
<td>0.24918</td>
<td>0.20065</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Score</td>
<td>0.12642</td>
<td>-0.09520</td>
<td>0.45373</td>
<td>0.24247</td>
<td>0.28119</td>
<td>0.77090</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeks Unemployed</td>
<td>-0.14041</td>
<td>0.12457</td>
<td>-0.10023</td>
<td>0.02838</td>
<td>-0.19017</td>
<td>-0.14818</td>
<td>-0.15512</td>
<td>1.00000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offender</td>
<td>-0.31841</td>
<td>0.01291</td>
<td>0.05824</td>
<td>0.09229</td>
<td>-0.11772</td>
<td>0.02384</td>
<td>-0.00631</td>
<td>-0.02134</td>
<td>1.00000</td>
<td></td>
</tr>
<tr>
<td>Handicapped Status</td>
<td>-0.02301</td>
<td>-0.06066</td>
<td>-0.14103</td>
<td>-0.03092</td>
<td>-0.08663</td>
<td>-0.09558</td>
<td>-0.13017</td>
<td>-0.02476</td>
<td>0.01047</td>
<td>1.00000</td>
</tr>
<tr>
<td>Vet</td>
<td>-0.42835</td>
<td>-0.15111</td>
<td>0.08793</td>
<td>-0.12293</td>
<td>-0.08584</td>
<td>-0.13331</td>
<td>-0.16318</td>
<td>0.04720</td>
<td>0.24264</td>
<td>0.00352</td>
</tr>
<tr>
<td>Family Status 1</td>
<td>-0.02663</td>
<td>-0.36445</td>
<td>0.03423</td>
<td>-0.09911</td>
<td>0.04135</td>
<td>0.02696</td>
<td>0.01302</td>
<td>0.01267</td>
<td>0.05777</td>
<td>-0.04379</td>
</tr>
</tbody>
</table>

Correlations which cannot be computed are printed as 99.0
reading score and race, because the correlation of .45373 between the two variables was moderately high. In addition, reading score and mathematics score had a high correlation of .77090. Finally, veteran status had a moderately high negative correlation of -.42835 with gender. In spite of a high correlation between some of the predictor variables, the minimum tolerance level for entry of the variables into the stepwise analysis was left at the computer default, 0.001, which guarded against the occurrence of multicollinearity and singularity. Tolerance is "the proportion of variance for a potential predictor that is not already accounted for by other predictors in the stepwise analysis." Use of the stepwise method also protected against multicollinearity.

The assumption of homogeneity of variance-covariance matrices was also evaluated. The test of equality of group covariance matrices using Box's M (Reference Table 23) produced an F = 3.0462, p = 0.0056, which reveals that there was a statistically significant digression from homogeneity of variance-covariance matrices at p < .05, but not at p < .001. According to Tabachnick and Fidell, "if sample sizes are unequal and Box's M test leads to rejection, at p < .001, of the assumption of homogeneity of variance-covariance matrices, then robustness is not guaranteed."  

**Univariate Equality of Group Means**

The significance tests for the univariate equality of group means for each of the discriminating variables are presented in Table 24. An inspection of the univariate F values for Wilks' lambda revealed that the discriminating variables of
### TABLE 23

**TEST OF EQUALITY OF GROUP COVARIANCE MATRICES USING BOX'S M**

<table>
<thead>
<tr>
<th>Group Label</th>
<th>Rank</th>
<th>Log Determinant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollments</td>
<td>3</td>
<td>4.522214</td>
</tr>
<tr>
<td>Nonenrollments</td>
<td>3</td>
<td>4.903563</td>
</tr>
<tr>
<td>Pooled Within-Groups Covariance Matrix</td>
<td>3</td>
<td>4.803231</td>
</tr>
<tr>
<td><strong>Box's M</strong></td>
<td>18.492</td>
<td><strong>Approximate F</strong></td>
</tr>
</tbody>
</table>

### TABLE 24

**WILKS' LAMBDA (U-STATISTIC) AND UNIVARIATE F-RATIO WITH 1 AND 287 DEGREES OF FREEDOM**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Wilks' lambda</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.98748</td>
<td>3.640</td>
<td>0.0574</td>
</tr>
<tr>
<td>Age</td>
<td>0.99459</td>
<td>1.5626</td>
<td>0.2124</td>
</tr>
<tr>
<td>Race</td>
<td>0.99368</td>
<td>1.824</td>
<td>0.1779</td>
</tr>
<tr>
<td>Highest Grade Completed</td>
<td>0.99879</td>
<td>0.3469</td>
<td>0.5563</td>
</tr>
<tr>
<td>Welfare Grant Status</td>
<td>0.94068</td>
<td>18.10</td>
<td>0.0000</td>
</tr>
<tr>
<td>Mathematics Score</td>
<td>0.96279</td>
<td>11.09</td>
<td>0.0010</td>
</tr>
<tr>
<td>Reading Score</td>
<td>0.96814</td>
<td>9.444</td>
<td>0.0023</td>
</tr>
<tr>
<td>Weeks Unemployed</td>
<td>0.96703</td>
<td>9.7847</td>
<td>0.0019</td>
</tr>
<tr>
<td>Offender Status</td>
<td>0.99385</td>
<td>1.775</td>
<td>0.1838</td>
</tr>
<tr>
<td>Handicapped Status</td>
<td>0.99553</td>
<td>1.289</td>
<td>0.2572</td>
</tr>
<tr>
<td>Veteran Status</td>
<td>0.99423</td>
<td>1.666</td>
<td>0.1978</td>
</tr>
<tr>
<td>Family Status 1</td>
<td>0.99847</td>
<td>0.4409</td>
<td>0.5072</td>
</tr>
</tbody>
</table>
welfare grant status ($F = 18.10$, $p = .0000$), mathematics score ($F = 11.09$, $p = .0010$), reading score ($F = 9.444$, $p = .0023$), and number of weeks unemployed ($F = 9.7847$, $p = .0019$) had a statistically significant difference between group means, at $p < .05$.

**Stepwise Procedure to Develop the Discriminant Function**

The stepwise procedure was used to derive the canonical discriminant function. Minimization of Wilks' lambda served as the criterion for selection of discriminating variables for inclusion in the discriminant function. As indicated earlier, 289 cases were used for the final total analysis sample to develop the discriminant function. Minimum tolerance level, "or the proportion of variance for a potential predictor that is not already accounted for by other predictors in the stepwise analysis" was set at .001. Variables that did not meet this tolerance value were prevented from participating in the discriminant equation.

During the first step of the stepwise procedure, welfare grant status minimized Wilks' lambda the most, so this variable was chosen for entry into the discriminant function, followed by mathematics score. Number of weeks unemployed was the last variable to enter the discriminant function, with a Wilks' lambda value of .90868, when combined with welfare grant status and mathematics score. After number of weeks unemployed entered the discriminant equation, no additional variables were entered because they did not meet the minimum tolerance level (.001) and the $F$ level needed for additional computation.

The Summary Table for Significant Variables in the Discriminant Function (Reference Table 25) indicates that welfare grant status, mathematics score and
number of weeks unemployed were the socio-demographic variables that entered the
discriminant equation. The greatest discriminatory power was obtained through a
combination of these three variables.

**TABLE 25**

<table>
<thead>
<tr>
<th>ACTION</th>
<th>VARS IN</th>
<th>WILKS' LAMBDA</th>
<th>SIG.</th>
<th>LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEP</td>
<td>ENTERED</td>
<td>REMOVED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Wcgrant</td>
<td>1</td>
<td>.94068</td>
<td>.0000</td>
</tr>
<tr>
<td>2</td>
<td>Math</td>
<td>2</td>
<td>.92138</td>
<td>.0000</td>
</tr>
<tr>
<td>3</td>
<td>Wkunemp</td>
<td>3</td>
<td>.90868</td>
<td>.0000</td>
</tr>
</tbody>
</table>

One canonical discriminant function was produced (Reference Table 26), with
\(X^2 (3) = 27.341, p = .0000\). The discriminatory power of the discriminant function
was highly significant and it accounted for 100 percent of the variance between the
two groups.

The canonical correlation was .302, which reveals that the discriminant
function contributed only moderately to the relationship between the discriminant
scores and program outcome. The canonical correlation squared is .0913, which
reveals that the discriminant model which was produced accounted for 9 percent of
the variance in program outcome for the two groups. 29

An inspection of the structure loadings matrix of the pooled within-groups
correlations between discriminating variables and canonical discriminant functions
TABLE 26

CANONICAL DISCRIMINANT FUNCTION
for ENROLLMENTS VS NONENROLLMENTS

<table>
<thead>
<tr>
<th>Function</th>
<th>Eigenvalue</th>
<th>Percent of Variance</th>
<th>Cumulative Percent</th>
<th>Canonical Correlation</th>
<th>After Function</th>
<th>Wilks' Lambda</th>
<th>Chi-Squared</th>
<th>D.F.</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>0.10050</td>
<td>100.00</td>
<td>100.00</td>
<td>0.3021965</td>
<td>0</td>
<td>0.9086773</td>
<td>27.341</td>
<td>3</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

* Marks the 1 canonical discriminant functions remaining in the analysis.
(Reference Table 27) reveals that welfare grant status correlated most highly with the discriminant function, followed by mathematics score, then number of weeks unemployed. The Pearson correlation coefficient of .57394 between reading score and the discriminant function was moderately high, yet reading score failed to enter the function. However, it should be reiterated that the correlation between reading score and mathematics score in the pooled within-groups correlation matrix was .77090. According to Norusis, when two variables are highly correlated, they share a contribution to the discriminant function. In most cases, the variable which enters the discriminant function first (such as mathematics score in this case), generally brings its unique variance to the function, as well as the shared variance, which prevents the other variable (reading score in this case) from having enough impact left to enter the function.

**TABLE 27**

**STRUCTURE MATRIX: POOLED WITHIN-GROUPS CORRELATIONS BETWEEN DISCRIMINATING VARIABLES AND CANONICAL DISCRIMINANT FUNCTIONS**

(Variables ordered by size of correlation within function)

<table>
<thead>
<tr>
<th>Function 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Welfare Grant Status</td>
<td>0.79210</td>
</tr>
<tr>
<td>Mathematics Score</td>
<td>0.62015</td>
</tr>
<tr>
<td>Weeks Unemployed</td>
<td>-0.58242</td>
</tr>
<tr>
<td>Reading Score</td>
<td>0.57394</td>
</tr>
<tr>
<td>Race</td>
<td>0.34117</td>
</tr>
<tr>
<td>Gender</td>
<td>0.24975</td>
</tr>
<tr>
<td>Age</td>
<td>-0.22586</td>
</tr>
<tr>
<td>Highest Grade Completed</td>
<td>0.16982</td>
</tr>
<tr>
<td>Veteran Status</td>
<td>-0.13078</td>
</tr>
<tr>
<td>Handicapped Status</td>
<td>-0.08620</td>
</tr>
<tr>
<td>Offender Status</td>
<td>-0.05519</td>
</tr>
<tr>
<td>Family Status</td>
<td>0.03269</td>
</tr>
</tbody>
</table>
The canonical discriminant function was evaluated at the group means (group centroids). The group centroid of 0.36186 for the enrollments deviated more from the overall mean (zero) of both groups than the group centroid of -0.27581 for the nonenrollments.

**Validation of the Discriminant Function**

After completing the analysis stage, it was necessary to determine whether or not the canonical discriminant function was a valid predictor of membership in the enrollment and the nonenrollment group. A cutting score was developed by establishing prior probabilities to the size of the groups used for the analysis sample, so that cases could be classified into the two outcome groups. The prior probabilities were .43 for the enrollments (Group 1) and .57 for the nonenrollments (Group 2). These figures reveal that the prior probability of a case falling into the enrollment group was 43 percent, verses a 57 percent probability of a case falling into the nonenrollment group. The holdout sample consisted of 30 percent of the cases, which were used to validate the discriminant function.

Two classification matrices were created (Reference Table 28) in order to assess "the actual predictive accuracy" of the discriminant model that was created, using the analysis sample. One classification matrix was based on cases used for the analysis sample, and the other classification matrix consisted of cases used for the holdout sample. The classification accuracy of 60 percent for the analysis sample was only slightly lower than the 61.88 percent classification accuracy for the holdout sample.
TABLE 28
CLASSIFICATION RESULTS FOR ENROLLMENTS AND NONENROLLMENTS

CLASSIFICATION RESULTS OF CASES SELECTED FOR THE ANALYSIS SAMPLE

<table>
<thead>
<tr>
<th>Actual Group</th>
<th>No. of Cases</th>
<th>Predicted Group Membership</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>181</td>
<td>78</td>
<td>103</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>43.1%</td>
<td>56.9%</td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>234</td>
<td>63</td>
<td>171</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>26.9%</td>
<td>73.1%</td>
<td></td>
</tr>
</tbody>
</table>

Percent of "grouped" cases accurately classified: 60.00%

CLASSIFICATION RESULTS FOR CASES USED FOR THE HOLDOUT SAMPLE

<table>
<thead>
<tr>
<th>Actual Group</th>
<th>No. of Cases</th>
<th>Predicted Group Membership</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>65</td>
<td>28</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>43.1%</td>
<td>56.9%</td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>116</td>
<td>32</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>27.6%</td>
<td>72.4%</td>
<td></td>
</tr>
</tbody>
</table>

Percent of "grouped" cases accurately classified: 61.88%

Proportional Chance Criterion

The classification accuracy of the holdout sample (Reference Table 28) was compared to the proportional chance criterion (PCC), in order to determine whether or not the classification model was effective,35 as follows:

\[ \text{PCC} = (\text{proportion in Group 1})^2 + (1 - \text{proportion in Group 1})^2 \]

\[ = (0.36)^2 + (0.64)^2 \]

\[ = 0.13 + 0.41 \]
The classification accuracy of the holdout sample was 62 percent, which represents an 8 percent increase over the 54 percent rate of accuracy that could be achieved by classifying cases into the enrollment and nonenrollment groups by chance alone.

**Chi-Square Test of Significance for Discriminatory Power of the Classification Model**

A chi-square test of significance was conducted to determine the discriminatory power of the classification model, which was tested on the holdout sample. A Q of 10.22 was produced by the test, where \( N = 181 \), \( n = 112 \), and \( K = 2 \). Using the .01 level of significance, with df = 1, \( X^2 = 6.635 \). The Q of 10.22 is greater than the \( X^2 \) value of 6.635. Therefore, Q is statistically significant at \( p < .01 \). This indicates that the classification model has statistically significant discriminatory power, and it classifies cases better than they could be classified by chance alone.

The formula for the chi-square test is presented below:

\[
Q = \frac{(N - nK)^2}{N(K - 1)}
\]

where:

- \( N \) = Total number of observations that were classified
- \( n \) = Number of correct classifications
- \( K \) = Number of groups

therefore:

\[
Q = \frac{[(181 - 112)(2)]^2}{181(2 - 1)}
\]
The discriminant function has been found to be statistically significant at the .05 level. In addition, the classification model has been determined to be more effective than classifying cases by chance alone. According to a chi-square test of significance, the ability of the model to classify cases is statistically significant at the .01 level. The next stage involves interpretation of the results for the discriminant function analysis.

The histogram of the discriminant function scores for Group 1 (enrollments) is displayed in Table 29. The histogram for Group 1 illustrates that a larger proportion of the enrollments were incorrectly classified into the nonenrollment group, rather than being correctly classified into the enrollment group. The histogram for Group 2 (nonenrollments) is displayed in Table 30. The histogram indicates that the larger proportion of the nonenrollments were correctly classified into the nonenrollment group, although many of the nonenrollments were incorrectly classified into the enrollment group. The all-groups stacked histogram (Reference Table 31) for the discriminant function graphically demonstrates that both the enrollment group and the nonenrollment group had a number of misclassified cases, although a greater proportion of the enrollments were misclassified. One can conclude from the
TABLE 29

HISTOGRAM FOR GROUP 1:
ENROLLMENTS

Symbols used in histogram:

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>GROUP</th>
<th>LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Enrollments</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Nonenrollments</td>
</tr>
</tbody>
</table>

HISTOGRAM FOR GROUP 1
CANONICAL DISCRIMINANT FUNCTION 1
TABLE 30

HISTOGRAM FOR GROUP 2: NONENROLLMENTS

Symbols used in histogram:

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>GROUP</th>
<th>LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Enrollments</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Nonenrollments</td>
</tr>
</tbody>
</table>

HISTOGRAM FOR GROUP 2
CANONICAL DISCRIMINANT FUNCTION 1

- Class 2 Centroids
- Class 1 Centroids

X----------------+---------------+---------------+---------------+---------------+---------------+--------------x
OUT -3.0 -2.0 -1.0 0 1.0 2.0 3.0 OUT
CLASS 2
CENTROIDS 2
TABLE 31

ALL-GROUPS STACKED HISTOGRAM
ENROLLMENTS AND NONENROLLMENTS

Symbols used in histogram:

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>GROUP</th>
<th>LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Enrollments</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Nonenrollments</td>
</tr>
</tbody>
</table>

X-OUT CLASS CENTROIDS

-3.0 -2.0 -1.0 0 1.0 2.0 3.0 OUT

22222222222222222222222222222222222222222222222111111111111111111111111111111111111
histograms that the classification model classifies the nonenrollments better than the enrollments.

The canonical discriminant function that was formed is comprised of welfare grant status, mathematics score, and number of weeks unemployed. The discriminant function provides statistically significant discriminating power between the enrollments and the nonenrollments. The structure loadings matrix for the pooled within-groups correlations between discriminating variables and canonical discriminant functions, which was discussed earlier (Reference back to Table 27), indicates that welfare grant status had the strongest correlation with the discriminant function, followed by mathematics score, and number of weeks unemployed. Welfare grant status and mathematics score had a positive correlation with the discriminant function. In contrast, number of weeks unemployed correlated negatively with the discriminant function. Welfare grant status was the strongest discriminator between the enrollments and nonenrollments, followed by mathematics score, then number of weeks unemployed. However, the strongest discriminatory power between the program outcome groups was achieved through a combination of these three predictor variables.

According to univariate results for the discriminate function analysis, (Reference back to Table 24), reading score was highly significant at the .05 level. In addition, reading score had a moderately high correlation with the canonical discriminant function (Reference back to Table 26). However, reading score had high multicollinearity with mathematics score, which prevented reading score from entering the discriminant equation.
Inspection of the group means (Reference Table 32) for the 289 cases used in the analysis procedure indicates that the enrollments are more likely to be nonwelfare grant recipients, to have higher mathematics scores, and to have fewer weeks of unemployment. In comparison, the nonenrollments tend to be welfare grant recipients, to have lower mathematics scores, and to have more weeks of unemployment.

An example will be presented, using one fictitious case, to demonstrate the use of Fisher's linear discriminant function (Reference Table 33) to predict program outcome for one future program applicant.

The example assumes that a female welfare grant recipient has been assessed and counseled, and has been referred by her counselor for on-the-job training. Welfare grant recipient is coded as a 0. The applicant's mathematics score is grade level 8.2, and she has 20 weeks of unemployment. The JTS administrators and the OJT subcontractor would like to determine whether she is more likely to become an enrollment or a nonenrollment. One can use her values for welfare grant status, mathematics score, and number of weeks unemployed, the classification coefficients for these variables, and the constant for each program outcome group (Reference Table 33), to derive a score for each group, as illustrated below:

**Group 1: Enrollments**

\[
(0 \times 4.088131) + (8.2 \times 1.107773) + (20 \times 0.2671328) + -9.657068
\]

\[
= 0 + 9.083738 + 5.342656 + -9.657068
\]

\[
= 4.7693266
\]
### TABLE 32
**GROUP MEANS AND STANDARD DEVIATIONS FOR ENROLLMENTS AND NONENROLLMENTS**

<table>
<thead>
<tr>
<th>Training Outcome: Enrollments = 1 Nonenrollments = 2</th>
<th>NOTE: Based on 289 cases in the analysis procedure</th>
</tr>
</thead>
</table>

#### GROUP MEANS

<table>
<thead>
<tr>
<th>Training Two</th>
<th>Gender</th>
<th>Age</th>
<th>Race</th>
<th>Highest Grade</th>
<th>Welfare Grant</th>
<th>Math Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.31200</td>
<td>0.78400</td>
<td>0.40000</td>
<td>11.87200</td>
<td>0.84890</td>
<td>9.08080</td>
</tr>
<tr>
<td>2</td>
<td>0.21341</td>
<td>0.84146</td>
<td>0.32317</td>
<td>11.76829</td>
<td>0.62805</td>
<td>7.94695</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.25606</td>
<td>0.81661</td>
<td>0.35640</td>
<td>11.81315</td>
<td>0.72318</td>
<td>8.43737</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Two</th>
<th>Reading Score</th>
<th>Weeks</th>
<th>Unemployed</th>
<th>Offender Status</th>
<th>Handicapped Status</th>
<th>Vet</th>
<th>Family Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.48640</td>
<td>15.39200</td>
<td>0.91200</td>
<td>0.96800</td>
<td>0.82400</td>
<td>0.64800</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8.44634</td>
<td>18.82927</td>
<td>0.95122</td>
<td>0.93902</td>
<td>0.87805</td>
<td>0.60976</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>8.99619</td>
<td>17.34256</td>
<td>0.93426</td>
<td>0.95156</td>
<td>0.85467</td>
<td>0.62630</td>
<td></td>
</tr>
</tbody>
</table>

#### GROUP STANDARD DEVIATIONS

<table>
<thead>
<tr>
<th>Training Two</th>
<th>Gender</th>
<th>Age</th>
<th>Race</th>
<th>Highest Grade</th>
<th>Welfare Grant</th>
<th>Math Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.46517</td>
<td>0.41317</td>
<td>0.49187</td>
<td>1.33184</td>
<td>0.36047</td>
<td>2.99270</td>
</tr>
<tr>
<td>2</td>
<td>0.41097</td>
<td>0.36636</td>
<td>0.46912</td>
<td>1.58829</td>
<td>0.48481</td>
<td>2.76799</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.43721</td>
<td>0.38766</td>
<td>0.47977</td>
<td>1.48126</td>
<td>0.44820</td>
<td>2.91705</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Two</th>
<th>Reading Score</th>
<th>Weeks</th>
<th>Unemployed</th>
<th>Offender Status</th>
<th>Handicapped Status</th>
<th>Vet</th>
<th>Family Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.80904</td>
<td>9.30130</td>
<td>0.28443</td>
<td>0.17671</td>
<td>0.38235</td>
<td>0.47952</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2.88098</td>
<td>9.21962</td>
<td>0.21607</td>
<td>0.24002</td>
<td>0.32823</td>
<td>0.48930</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>2.89186</td>
<td>9.39509</td>
<td>0.24826</td>
<td>0.21507</td>
<td>0.35304</td>
<td>0.48463</td>
<td></td>
</tr>
</tbody>
</table>
Group 2: Nonenrollments

\[(0 \times 3.166928) + (8.2 \times 1.011053) + (20 \times 0.2945789) + \cdot -8.351799)\]
\[= 0 + 8.2906346 + 5.891578 + -8.351799\]
\[= 5.8304136\]

**TABLE 33**

CLASSIFICATION FUNCTION COEFFICIENTS
(FISHER'S LINEAR DISCRIMINANT FUNCTIONS)

<table>
<thead>
<tr>
<th>Training Outcome =</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welfare Grant Status</td>
<td>4.088131</td>
<td>3.166928</td>
</tr>
<tr>
<td>Mathematics Score</td>
<td>1.107773</td>
<td>1.011053</td>
</tr>
<tr>
<td>Weeks Unemployed</td>
<td>0.2671328</td>
<td>0.2945789</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-9.657068</td>
<td>-8.351799</td>
</tr>
</tbody>
</table>

The computations just presented indicate that the woman's derived score for Group 1 is 4.7693266 and her derived score for Group 2 is 5.8304136. Based upon Fisher's linear discriminant function, the woman is more likely to become a nonenrollment than an enrollment, because her score for Group 2 is larger than that for Group 1.

The Fisher's linear discriminant function for the enrollments and nonenrollments can be used to predict program outcome for any future clients of the program who are assessed and counseled, and referred for placement in on-the-job training.

**Univariate Tests for the Individual Predictor Variables**

Univariate tests were conducted on the entire sample; the analysis sample and the holdout sample combined, in order to test the individual hypotheses for the
enrollments and the nonenrollments. With the exception of reading score (based on 430 cases), and mathematics score (based on 500 cases), the univariate tests were based on 596 individual cases. The t-tests for independent samples were conducted on the interval level, continuous and discrete variables (Reference Table 34).

The univariate results for the discriminant function analysis were based on the 289 cases used in the analysis procedure. In comparison, the t-tests are based on all 596 cases in the study, with the exception of reading score and mathematics score. Reading score is based on 500 cases, due to the fact that some cases had missing values on the variables. The chi-square tests are based on all 596 cases in the study.

**TABLE 34**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group 1 - Enrollments</th>
<th>Group 2 - Nonenrollments</th>
<th>Pooled Variance Estimate t Value</th>
<th>Degrees of Freedom</th>
<th>1-tail Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Cases</td>
<td>Mean</td>
<td>Standard Deviation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Score</td>
<td>Group 1 192</td>
<td>9.1677</td>
<td>3.076</td>
<td>2.31</td>
<td>428</td>
</tr>
<tr>
<td></td>
<td>Group 2 238</td>
<td>8.5025</td>
<td>2.889</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics Score</td>
<td>Group 1 213</td>
<td>8.9329</td>
<td>3.055</td>
<td>3.71</td>
<td>498</td>
</tr>
<tr>
<td></td>
<td>Group 2 287</td>
<td>7.9624</td>
<td>2.770</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Weeks Unemployed</td>
<td>Group 1 246</td>
<td>17.2398</td>
<td>.596</td>
<td>-2.25</td>
<td>594</td>
</tr>
<tr>
<td></td>
<td>Group 2 350</td>
<td>19.0114</td>
<td>.511</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest Grade Completed</td>
<td>Group 1 246</td>
<td>12.1585</td>
<td>.091</td>
<td>1.05</td>
<td>594</td>
</tr>
<tr>
<td></td>
<td>Group 2 350</td>
<td>12.0143</td>
<td>.096</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** T-test results are presented for the interval level variables. ** p < .05

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The univariate results from the discriminant analysis procedure are not identical to those from the t-tests and chi-square tests because these tests were conducted on a larger number of cases. Despite this, the results are similar.

The group means for the t-tests were used to interpret direction of the findings. Chi-square tests were conducted on the dichotomous variables (Reference Table 35). The proportions that are contained in Table 35 (p0 and p1) were used to interpret direction of the findings for the dichotomous variables. The proportions are presented for the enrollment group only. In order to determine proportions for the nonenrollment group, one would subtract the proportion presented for p0 from 100 percent, and for p1 from 100 percent.

According to the results of the t-tests for independent samples (Reference back to Table 34), there was a statistically significant difference between the enrollment and nonenrollment group means for the variables of reading score (t = 2.31), mathematics score (t = 3.71), and number of weeks unemployed (t = -2.25), at p < .05. In contrast, there was not a statistically significant difference between the enrollment and nonenrollment group means for highest grade completed (t = 1.05), at p > .05. These results corroborate with those obtained through univariate tests in the discriminant function analysis.

The t-test group means (Reference back to Table 34) reveal that those clients who had higher reading and mathematics scores and fewer weeks of unemployment were more likely to be enrollments. The situation was reversed for the nonenrollments. The group means for highest grade completed were almost identical for the enrollments and the nonenrollments. Both program outcome groups
TABLE 35
CROSS-TABULATIONS: CHI-SQUARE TESTS OF INDEPENDENCE ON DICHOTOMOUS VARIABLES FOR ENROLLMENTS AND NONENROLLMENTS

<table>
<thead>
<tr>
<th></th>
<th>Chi-Square: Pearson Value</th>
<th>DF</th>
<th>Sign.</th>
<th>p0</th>
<th>p1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>4.57687</td>
<td>1</td>
<td>**.03241</td>
<td>38.3%</td>
<td>47.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(female)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(male)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>3.81107</td>
<td>1</td>
<td>.05092</td>
<td>50.5%</td>
<td>39.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(youth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(adult)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>4.70361</td>
<td>1</td>
<td>**.03010</td>
<td>38.3%</td>
<td>47.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(minority)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(white)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welfare Grant</td>
<td>20.20256</td>
<td>1</td>
<td>**.00001</td>
<td>27.3%</td>
<td>47.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(grant)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(no grant)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offender Status</td>
<td>2.78552</td>
<td>1</td>
<td>.09512</td>
<td>53.7%</td>
<td>40.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(offender)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(nonoffender)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handicapped Status</td>
<td>5.25393</td>
<td>1</td>
<td>**.02190</td>
<td>26.0%</td>
<td>42.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(handicapped)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(not handicapped)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veteran Status</td>
<td>4.07136</td>
<td>1</td>
<td>**.04362</td>
<td>52.0%</td>
<td>39.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(veteran)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(nonveteran)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Status 1</td>
<td>.88055</td>
<td>1</td>
<td>.34805</td>
<td>42.3%</td>
<td>37.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(all other categories)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(single parent with dependent children)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

p0 = Proportion of positive terminations for dummy variables coded 0

** p < .05

N = 596 Cases

completed an average of the 12th grade or its equivalent. Although the enrollment group had slightly more education (12.2 years) than the nonenrollment group (12.0 years) the difference was negligible. These results are in line with the group means
that were obtained for the enrollments and nonenrollments, using the 289 cases in the analysis procedure.

Results from the chi-square tests of independence on the dichotomous variables (Reference back to Table 35) for the enrollments and nonenrollments were inspected. Findings reveal that there was a statistically significant difference between the proportion which fell into each program outcome group for the following variables: gender ($X^2 = 4.57687$), race ($X^2 = 4.70361$), welfare grant status ($X^2 = 20.20256$), handicapped status ($X^2 = 5.25393$), and veteran status ($X^2 = 4.07136$), at $p < .05$. These results were similar to those obtained through univariate results for the analysis procedure, using discriminant analysis. However, welfare grant status was the only one of these dichotomous variables that was statistically significant according to univariate results from the analysis. In addition, gender approached statistical significance.

The differences in obtained significance levels between univariate results from the analysis, and chi-square test results, are associated with the differing sample sizes for the analysis procedure (based on 289 cases) and the chi-square tests of independence (based on 596 cases). There was not a statistically significant difference between the proportion which fell into the enrollment group verses the nonenrollment group for the variables of age ($X^2 = 3.81107$), offender status ($X^2 = 2.78552$), and family status 1 ($X^2 = .88055$), at $p > .05$. The results for age, offender status, and family status 1 are consistent with those obtained through univariate tests in the analysis procedure.
The direction of the results for the variables tested with the chi-square tests of independence (Reference back to Table 35) was interpreted, based upon the proportions for the enrollment group. The data reveal that for the variables of gender, age, and race, a greater proportion of males, youths and whites were enrollments. The reverse was true for their counterparts. As expected, according to welfare grant status, a greater proportion of nonwelfare grant recipients were enrollments. In contrast, welfare grant recipients were more likely to be nonenrollments. With respect to offender status, handicapped status and veteran status, a greater proportion of offenders, nonhandicapped individuals, and veterans were enrollments. In comparison, the nonenrollment group consisted of a larger proportion of nonoffenders, handicapped individuals, and nonveterans. Finally, for family status 1, a greater proportion of those from all other family status categories were enrollments than those who were single parents with one or more dependents below age six.

Summary of Results

This section presents an overview of the results for both the positive and negative terminations, and the enrollments verses the nonenrollments.

With regard to the discriminant function analysis for the positive and negative terminations, race was the only socio-demographic variable which entered the canonical discriminant function. The discriminant function, which represents race, was statistically significant \(X^2(1) = 5.301, p = 0.0212\) at \(p < .05\). Even though the classification model was found to classify cases better than they could be classified by chance alone (82.89 percent verses 72 percent), according to the proportional chance
criterion, the classification scheme was not effective in separating the positive terminations from the negative terminations. The positive terminations were classified well, but all of the negative terminations were also classified into the positive termination group. However, the classification model for the positive and negative terminations was found to have statistically significant discriminatory power.

Alternatively, in the analysis for the enrollments and the nonenrollments, welfare grant status, mathematics score, and number of weeks unemployed entered the canonical discriminant function. The discriminant function had highly significant discriminating power between these two program outcome groups ($X^2 (1) = 27.341$, $p = 0.000$), at the .05 level. Furthermore, the classification scheme classified cases more accurately than they could have been classified by chance alone (61.88 percent versus 54 percent). In addition, a chi-square test of significance indicated that the ability of the classification model to classify cases into the enrollment and nonenrollment groups was statistically significant at the .01 level.

Results from the t-tests for independent samples for the positive and negative terminations indicated that none of the selected socio-demographic variables that were measured on the interval level (reading score, mathematics score, number of weeks unemployed, and highest grade completed) had a statistically significant difference between group means. However, with the exception of highest grade completed, these same variables did have a statistically significant difference between group means for the enrollment and nonenrollment groups. This suggests that the variables under discussion which influence whether or not a client enrolls in training...
for OJT or Job Search Assistance do not have much influence on the attainment of a positive or a negative termination from these programs.

Results of the chi-square tests of independence for the dichotomous variables indicated that for the positive and negative terminations, there was not a statistically significant difference between the proportion which fell into each program outcome group for race, welfare grant status, gender, family status 3, offender status, handicapped status, and age, at the .05 level. Family status 3 was not a selected socio-demographic variable for the enrollments and nonenrollments, but the other variables under discussion were included in the evaluation of these two program outcome groups. With the exception of age and offender status, these variables did have a statistically significant difference between the proportion which fell into each program outcome group for the enrollments and the nonenrollments, at the .05 level. Family status 1 was not used to analyze the positive and negative termination groups, and this variable had little influence on whether or not a client enrolled in a training activity.

The chi-square test results suggest that the dichotomous socio-demographic variables which have a statistically significant influence on whether or not a client becomes an enrollment or a nonenrollment in on-the-job training or Job Search Assistance are not the same variables that are related to the attainment of a positive or a negative termination. Race tends to be one exception, due to the fact that this variable approached statistical significance for the positive and negative terminations, and was also statistically significant for the enrollments and nonenrollments.
Although an in-depth, detailed discussion could be given on the direction of the findings for the selected socio-demographic variables for the program outcome groups, only the discrepancies between the results for the positive and negative terminations, and the enrollments verses the nonenrollments, will be highlighted. Despite the fact that females and those with lower mathematics scores were more likely to be positive terminations, males and those with higher mathematics scores were associated with enrollment in training. The findings also revealed that although adults and nonoffenders were more likely to be positive terminations, youths and offenders were more likely to enroll in training.
NOTES


3Tabachnick, Using Multivariate Statistics, 300.


5Tabachnick, Using Multivariate Statistics, 301.


7Ibid.

8Tabachnick, Using Multivariate Statistics, 301.

9Ibid, 83.


13Ibid.

14Hair, Multivariate Data Analysis, 89.

15Ibid., 89-90.

17 Hair, Multivariate Data Analysis. 89.

18 Ibid.

19 Churchill, Marketing Research, 750.

20 Hair, Multivariate Data Analysis, 89.

21 Ibid.


24 Ibid., 317-318.

25 Ibid., 83.

26 Ibid., 233.

27 Ibid., 317-318.

28 Ibid., 301.


31 Tabachnick, Using Multivariate Statistics, 83.

32 Hair, Multivariate Data Analysis, 85-88.


35 Hair, Multivariate Data Analysis, 89-90.

Chapter 5 presents a discussion of results for the research questions and individual hypotheses. The positive and negative termination groups are addressed first, followed by a discussion of results for the enrollment and nonenrollment groups. The chapter also considers implications of the results, from both a theoretical and a practical point of view.

**DISCUSSION OF RESULTS AND THEORETICAL IMPLICATIONS**

**POSITIVE AND NEGATIVE TERMINATIONS**

**Research Question Number One:**

What is the best combination of socio-demographic variables to maximize the difference between the positive and the negative terminations?

Discriminating variables which were used as predictors of program outcome for the positive and negative termination groups were gender, age, race, highest grade completed, welfare grant status, reading score, mathematics score, handicapped status, number of weeks unemployed, offender status, and family status 3 (parent in a two-parent family). A linear combination of these selected socio-demographic variables which discriminated between the positive termination group and the negative termination group was not formed as a result of the analysis. Race was the

291

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
only statistically significant discriminator between the two program outcome groups. Direction of results revealed that whites were more likely to be positive terminations, while minorities had a greater tendency to be negative terminations.

With the exception of race, study findings were similar to the JTPA findings obtained by Castle, using the total R² value of a number of variables in multiple regression analysis. Castle determined that sex, race, education and family status did not have much influence on post-program success or failure, and concluded that other variables may have been responsible for post-program outcome. She also determined that program experiences, as measured by type of training enrolled in, and length of time enrolled in training; and economic conditions, as measured by unemployment rates, did not seem to influence post-program outcome.

The results are in contrast to those reported by Coffin, on the CETA program, using multiple regression analysis. The author determined that variable definitions pertaining to age, gender, education, employment status at the time of application, and offender status were significantly related to program outcome (when combined with several other variables not included in the current study, the variables produced an R² of .30.). None of these variables combined with race as significant discriminators between the positive and negative terminations in the present study.

Coffin's study population may have been more heterogenous than that of the present study. This could account for the difference in results between the two studies. Coffin's study included clients who had enrolled in classroom training. In contrast, the present study only included enrollees in OJT and Job Search Assistance. The difference in results may also be associated with labor market conditions that...
existed during Coffin's study, in comparison to those that existed when clients of the present study were served.

Some support for the results is provided by Franklin and Ripley's evaluation of the CETA program, although a multivariate statistical technique was not used. The authors determined that "participant 'creaming' was not associated with program performance with only two small exceptions." Although there was a weak inverse relationship between percent youth and percent nonwhite with the DOL placement rate indicators, the other socio-demographic characteristics; specifically, percent female, welfare status and education, were not found to be related to program performance. Race was a significant discriminator in the present study, but age was not. The authors interpreted the results as suggesting that participant characteristics are not associated "with levels of program performance," and as a result, they do not determine how well a program performs.

Results from the analysis are also in line with Ortiz's conclusion that the completion rates of the most in need clients were similar to those who were least in need. The socio-demographic variables that were analyzed by Ortiz were age, sex, education and economic status.

Implications.

The results suggest that with the exception of race, the socio-demographic variables in the study did not form a linear combination of variables to influence whether a positive or a negative termination was attained as a result of OJT or JSA. The research findings were generally in accordance with findings from other JTPA
studies discussed above. Some support for the findings was also provided by research on the CETA program.

It is very possible that other socio-demographic variables that were not included in the study would have combined with race to form a linear combination of variables to discriminate between program outcome groups. These variables include motivation, client attitude, OJT wages, and physical appearance. As an example, minorities may have been less motivated to complete OJT programs because the OJT hourly wages were lower than those received by whites. Additional multivariate research that includes the variables of motivation, client attitude, OJT hourly wages and physical appearance is suggested. Furthermore, additional multivariate research which uses the socio-demographic variable of race to discriminate between positive and negative terminations is needed.

Research Question Number Two:
Which of the selected socio-demographic variables provide the greatest distinction between the positive terminations and the negative terminations?

The same selected socio-demographic variables were used to test this research question as were used to test research question number one. Race was found to be the strongest discriminator between the positive and negative termination groups, and race had statistically significant discriminating power. None of the other variables were found to be significant discriminators.

Excluding the finding for race, results from the analysis are similar to those reported by Castle on post-program outcome, using the total $R^2$ value of a number of variables in multiple regression analysis. In addition to variables that pertained to
program experiences and economic conditions, the socio-demographic variables of sex, race, age, education and family status were included in Castle's study. All of these socio-demographic variables are also included in the present study. Castle determined that none of these variables had much influence on post-program outcome, as judged by success or failure. The author interpreted the findings as implying that variables other than those included in her study could affect post-program success.

Study findings were supported by those obtained by Ortiz on one JTPA SDA. The author determined that based upon the socio-demographic characteristics of age, sex, education and economic status, the clients who were "most in need" had program completion rates that were similar to those of clients who were less disadvantaged. Significance testing was not performed. The variable of race was not included in the study.

Results of the analysis were in partial agreement with Winkler's findings on one JTPA SDA, using the chi-square test of significance. The researcher determined that there was not a significant difference in the positive termination rate, nor the negative termination rate, for the variables of sex, educational level, and public assistance. None of these variables were significant discriminators between the positive and negative terminations in present study. However, the author determined that there was a significant difference in the positive termination rate, but not the negative termination rate, for age. Age was not a significant discriminator between program outcome groups in the current analysis. Race was not included among the selected socio-demographic variables in Winkler's study.
The study conducted by Franklin and Ripley on CETA provides some support for the finding that race was a significant discriminator between program outcome groups in this analysis. The researchers determined that there was a weak, inverse relationship between percent nonwhite and the DOL "placement rate indicator." Similar findings were reported for percent youth. However, age was not a significant discriminator in the present analysis. Results of this analysis are also in line with Franklin and Ripley's finding that percent female, welfare status, and education were not related to the placement rate indicator. Based upon their findings, the researchers determined that socio-demographic characteristics of CETA participants are not associated with program performance.

The results are in contrast to findings from Coffin's evaluation of a CETA program, using multiple regression analysis. The study was conducted to determine which variables influenced the attainment of a positive termination. Coffin concluded that the likelihood of attaining a positive termination was significantly decreased by being a female, older, and a high school dropout. In comparison, the likelihood of attaining a positive termination was significantly facilitated by "having more education, being employed at application (full- or part-time), and having a police record." In the present study, gender, age, highest grade completed, and offender status were not significant discriminators between the positive and negative terminations.

Weidman and White determined that the program completion of women enrolled in a WIN program was not associated with the socio-demographic characteristics of ethnicity, past employment experience, and welfare history, but it
was related to the individual having been enrolled in a geometry course in high school. The results on past employment experience and welfare history are in accordance with findings from the present analysis. However, race was a statistically significant predictor of program outcome in the analysis, which is in contrast to Weidman and White's finding on ethnicity. In addition, mathematics score was not a significant discriminator between program outcome groups in the present study, which seems to conflict with the researchers' finding that enrollment in a geometry course influenced program completion.

**Implications**

Evidence suggesting that race is one of the strongest socio-demographic discriminators of program outcome from Federal employment and training programs is mixed. The present study found race to be the strongest discriminator between positive and negative terminations. In comparison, Castle found that race was among a number of variables that had little influence on post-program outcome from training under JTPA. Although Franklin and Ripley obtained evidence suggesting that race and age are more strongly related to CETA program performance than other selected socio-demographic variables, the relationship was still a weak one. Furthermore, Weidman and White determined that ethnicity was among several other socio-demographic variables that had little influence on whether or not women completed a training program under WIN. Instead, the researchers found program completion to be associated with academic aptitude and mathematics skills.

Results of the analysis are largely in agreement with those presented by Castle, Ortiz, and Winkler, suggesting that socio-demographic characteristics
do not have a significant influence on program outcome from JTPA training. Two exceptions are the findings that race was a significant discriminator in the present analysis, and that age made a significant difference in the positive termination rate in Winkler's study.23

Some socio-demographic variables which had a significant influence on program outcome in Coffin's study on CETA, such as age, gender, and educational attainment,24 did not significantly influence program outcome in this study, nor in the other JTPA studies discussed for research question number two. Winkler's finding for age is an exception. This discrepancy in the results for CETA, when contrasted to those for JTPA, and most of Weidman and White's findings on women referred to training in WIN,25 may be due to differences in the client population for CETA, verses JTPA and the special WIN training program. The women that qualified for the WIN demonstration program had higher academic skills than those from the general WIN population.26

Another possibility to consider is that the differences in the findings for CETA, in comparison to JTPA and the special WIN training program, may be related to the screening process that was used in selecting clients for training. Given the strong incentive to "cream" for the most likely to succeed clients in order to meet JTPA performance standards, it is feasible that by the time clients are referred by the JTS counselors for entrance into OJT positions, the pool of potential enrollees has become more homogeneous than they were upon program application, or during earlier stages of the selection process. This could at least partially account for the
findings of the present analysis, suggesting that with the exception of race, socio-demographic variables do not have a significant influence on program outcome.

The possibility exists that some of the socio-demographic variables in this study could be strongly related to the attainment of a positive termination, but not to the attainment of a negative termination, and visa versa. This assertion is supported by Winkler's finding that age significantly influenced the positive termination rate of JTPA participants, but not the noncompletion rate. Additional research is suggested which analyzes separately each of the selected socio-demographic variables, first for the positive terminations, then for the negative terminations, similarly to the way Winkler's study was conducted using the chi-square test of significance.

One should be reminded that the clients in this study who entered unsubsidized employment through JSA (JSA) could not become negative terminations because they were not officially enrolled in training until they entered unsubsidized employment. Once clients entered employment through JSA, they became positive terminations. In comparison, clients who enrolled in OJT needed to enter unsubsidized employment to become positive terminations and avoid becoming negative terminations.

Perhaps this study's approach of combining all clients referred by a counselor for OJT into one group for the analysis was inappropriate, because although some clients entered OJT, others entered unsubsidized employment through JSA. Castle's study also combined clients enrolled in various types of training programs, including JSA, but the author also included program type as a predictor of success. Results from Castle's study suggested that none of the variables, including socio-demographic
characteristics and program type, seemed to account much for post-program success or failure. The researcher determined that results from another portion of her analysis, using the $R^2$ change values from multiple regression analysis, could not verify for certain that socio-demographic characteristics of trainees had a greater influence on program outcome "than . . . the type of program in which they were enrolled."

Results of this analysis may have differed if it had been restricted to only those clients referred for on-the-job training who actually enrolled in OJT, or to those who enrolled in JSA. Additional multivariate research is needed that is limited to OJT enrollees, or to JSA enrollees, using the selected socio-demographic variables in this portion of the study.

In order to respond most effectively to the research question posed above, a multivariate statistical method such as discriminant function analysis using the stepwise method, or multiple regression analysis using Beta weights, which provides one with a rank-ordering of the strongest discriminating or predictor variables, is needed. According to an extensive review of the literature, this program outcome evaluation appears to be the only JTPA study which has used discriminant function analysis to determine which socio-demographic variables are the strongest discriminators between positive and negative terminations. Castle's post-program outcome evaluation of JTPA is very similar to this study in some respects, but the researcher explained that her study was not designed to rank-order the strongest predictor variables, so the Beta coefficients from multiple regression analysis were not utilized. Additional research that replicates this study is needed, using
multivariate analysis of the data to determine which are the strongest discriminating, or predictor variables.

Research Question Number Three

How well do the selected socio-demographic variables distinguish between the positive terminations and the negative terminations?

Hypothesis Number One:

Rejected. Gender will distinguish between the positive terminations and the negative terminations: Males will be more likely to be positive terminations than females, and females will be more likely to be negative terminations than males.

Results indicated that there was not a significant difference between the proportion which fell into each program outcome group for gender. The proportion of females who were positive terminations was 85.2 percent, in comparison to 83.1 for males. Contrary to expectations, results also revealed that females were somewhat more likely to be positive terminations than males, whereas males had a slightly greater tendency to be negative terminations than females. The finding of not much difference between men and women for the two program outcome groups was in agreement with JTPA results obtained by Ortiz32 and Winkler33 on program completion. The finding was also in line with results reported by Perry on the Jobs program,34 and by Analytic Systems on dropout from the CEP.35 In addition, study results are in consonance with Analytic Systems' observation that men enrolled in the WIN program had a higher dropout rate than women.36 Finally, results were in

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
agreement with Franklin and Ripley's finding that percent female was not related to placement performance under CETA.37

Direction of results for gender are contrary to the findings that would be expected, based upon assertions by Barnow and Constantine,38 and Orfield and Slessarev,39 indicating that job placement is harder to achieve for women than for men enrolled in JTPA programs. The observed direction of results are also contrary to findings on program success that were reported by Castle40 and Ortiz41 on JTPA; by Taggart42 on CETA; and by Perry43 on the WIN program. Direction of results are also in contrast with Analytic Systems' finding that men enrolled in the WIN program had much higher job placement rates than women.44

Implications

Based upon results of the analysis, and results from the literature on Federal employment and training programs, gender does not seem to have much influence on the attainment of a positive or a negative termination. However, direction of results for gender are contrary to results that would generally be expected, based upon the literature. One exception to this was Analytic Systems' finding of a higher dropout rate for men than women in the WIN program.45

The difference in direction of results for the analysis, in comparison to those in the vast body of literature, may be due to the fact that the Job Training Services was located in the same building as the Hampton Department of Social Services. Many of the female clients of the Department of Social Services were also clients of the Job Training Services. The business services specialists of the JTS' Business Services Unit frequently communicated with certain staff members of the Department

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
of Social Services when serving JTS clients who were also Social Services clients. Both agencies had an interest in the clients' attainment of employment. The situation was similar in Gloucester County, where the JTS office was located directly across the street from the Department of Social Services in that County. If the close proximity of the Departments of Social Services to some of the JTS Intake Offices did enhance the attainment of positive terminations for female clients, the finding provides support for coordinating JTPA services "with other human resource systems."

The direction of findings also suggests that discrimination on the basis of gender may not have been a problem for the JTS. As an example, females may have been as likely as males to enter unsubsidized employment through Job Search Assistance.

**Hypothesis Number Two:**

**Rejected.** Age will distinguish between the positive terminations and the negative terminations: Youths will be more likely to be positive terminations than adults, and adults will be more likely to be negative terminations than youths.

Study results indicated that there was not a significant difference between the proportion which fell into each program outcome group for age. The proportion of youths who were positive terminations was 82.6 percent, in comparison to 85.0 percent for adults. These findings are in accordance with those reported by Analytic Systems on the CEP, and by Westat, using CLMS data on CETA. Results were also in line with those reported by Franklin and Ripley on CETA. Although the
difference between groups was not statistically significant, the groups did differ, based upon age. However, direction of results obtained was opposite of that predicted. Adults were found to be more likely to be positive terminations in comparison to youths, while the situation was reversed for negative terminations. These results are in line with findings reported by Analytic Systems,50 on job placement for the WIN program, and by Taggart,51 on dropout and job placement for the CETA program. Direction of results was also supported by Castle's recent finding that adults had better post-program outcomes from JTPA,52 in contrast to youth.

In comparison, results were opposite of those obtained on JTPA by Ortiz.53 Results were also opposite of Coffin's finding on CETA indicating that being older reduced the probability of a positive termination.54 Similarly, the results were in contrast to Winkler's finding on JTPA indicating that the 18-21 age group had more "positive termination participants" than any of the older age groups.55 Finally, results conflicted with Analytic Systems' finding that younger males were slightly more successful than older males in the CEP program.56

Implications.

Evidence on the influence of age on program outcome appears mixed. Although some studies, including the present one, have found adults to be more likely to have a more positive program outcome than youths, other studies have produced opposite results. Study findings suggest that the emphasis on serving youths under JTPA does not increase their chances of success in OJT and JSA programs.
Hypothesis Number Three:

Accepted. Race will distinguish between the positive terminations and the negative terminations: Whites will be more likely to be positive terminations than minorities, and minorities will be more likely to be negative terminations than whites.

There was not a statistically significant difference in the proportion which fell into each program outcome group for race. The proportion of whites who were positive terminations was 90.1 percent, in comparison to 81.3 percent for minorities. This finding is in accordance with results obtained by Analytic Systems on the CEP, Perry on the JOBS program, and Weidman and White on the WIN program.

Despite the fact that race was not statistically significant, there was a difference between groups for race. Direction of results revealed that a greater proportion of whites were positive terminations in comparison to minorities. Furthermore, a greater proportion of minorities were negative terminations in contrast to whites. These results are similar to those obtained by Taggart on the program completion and job placement of CETA trainees. The findings are also supported by results obtained by Castle on post-program outcome from JTPA programs. Furthermore, results are in accordance with Orfield and Slessarev's report that blacks have had problems in getting employment even following their completion of training under JTPA and CETA programs in Illinois. Findings were also in line with discussion by Barnow and Constantine on the lower job placement rates of minorities. The results were also supported by Franklin and Ripley's
evaluation of CETA.\textsuperscript{65} In contrast, direction of the findings was opposite of results presented by Analytic Systems on the CEP.\textsuperscript{66}

**Implications.**

The results for race are in line with the vast majority of pertinent research results gleaned from the literature on Federal employment and training programs. The finding that whites were more likely to be positive terminations than minorities may be attributed to a number of factors pertaining to discriminatory practices. It is possible that employment discrimination by either private sector employers, or by program staff, may have influenced the results. As an example, employers may have had a greater propensity to hire whites rather than minorities following OJT training, or to employ whites over minorities for JSA positions. Secondly, the possibility exists that minorities dropped out of OJT positions, or were less inclined to enter employment through Job Search Assistance because the wages that were either offered or provided to them were not as high as those offered to whites. Some evidence to support this supposition was obtained by Gromelski, who determined that during the first half of 1983, in an OJT program provided by the Peninsula Office of Manpower Programs (POMP), black terminees earned an average of $2,091 verses an average of $2,521 for white terminees. POMP was a predecessor of the current Job Training Services.\textsuperscript{67}

**Hypothesis Number Four:**

**Rejected.** Highest grade completed will distinguish between the positive terminations and the negative terminations: Those with higher levels of education will be more likely to be positive terminations, and
those with lower levels of education will have a greater tendency to be negative terminations.

There was not a significant difference between the group means for the positive terminations and the negative terminations, based upon the variable of highest grade completed. This finding is in accordance with results on program completion that were obtained by Ortiz68 and Winkler69 on JTPA, by Franklin and Ripley on CETA,70 and results on clients in the WIN program that were obtained by Gladstone and Trimmer.71

The highest grade level completed by the positive terminations and the negative terminations was the same; 12.2 years verses 12.1 years, for each respective group. These results are in contrast to findings that would be expected, based upon the notion that success in the labor market is positively correlated with the amount of education an individual has.72 The findings are also contrary to the concept that hard-to-serve clients may have a lower probability of success and are often "difficult-to-place."73 Dropouts are considered to be hard-to-serve.74 The findings also differ from those that would be expected, based upon results reported by Analytic Systems75 on CEP trainees, by Coffin76 and Taggart77 on CETA trainees, and by Turnage78 and Castle79 on JTPA terminees.

Implications.

The finding that the positive termination group and the negative termination group completed an average of the twelfth grade or its equivalent suggests that highest grade completed is not an influential factor on program outcome. The possibility exists that other variables may influence whether or not one becomes a
positive or a negative termination. Alternatively, it is very possible that "creaming" occurred during earlier stages of the selection process, either by program staff or private sector employers, or both. If "creaming" did take place, the group enrolled in OJT or Job Search Assistance would have been fairly homogeneous, since less educated individuals would most likely have been screened out. Support for this supposition is provided by Castle's determination that even though school dropouts had less successful JTPA program outcomes than more highly educated individuals, those with a high school education or its equivalent had almost identical success rates to those with post high school education.80

**Hypothesis Number Five:**

**Accepted.** Welfare grant status will distinguish between the positive terminations and the negative terminations: Nonwelfare grant recipients will be more likely to be positive terminations than welfare grant recipients, and welfare grant recipients will be more likely to be negative terminations than nonwelfare grant recipients.

The results revealed that there was not a statistically significant difference in the proportion which fell into the positive termination group, in comparison to the negative termination group, for welfare grant status. The proportion of nonwelfare grant recipients who were positive terminations was 85.9 percent, in comparison to 79.2 percent for welfare grant recipients. This finding was in agreement with results on JTPA that were obtained by Ortiz81 and Winkler.82 The results are also in line with those obtained by Franklin and Ripley on CETA.83
Despite the absence of a statistically significant difference between outcome groups for welfare grant status, a difference between groups did exist. A greater proportion of nonwelfare grant recipients were positive terminations while a greater proportion of welfare grant recipients were negative terminations. The direction of findings is in accordance with results obtained by Ortiz on program completion for JTPA, and by Westat, on the completion of CETA training. The results are supported by Barnow and Constantine's NCEP report which indicated that SDA's have had problems in placing welfare recipients. In addition, the findings are in line with results generated by Castle, and by Orfield and Slessarev, on JTPA program outcome. Finally, results are supported by research conducted by Friedlander and Long on welfare employment programs. Nonetheless, Hansen reported on a study which found AFDC recipients to be relatively successful in entering unsubsidized employment following JTPA training.

Implications.

One explanation for the finding that nonwelfare recipients had a better program outcome than welfare recipients is that the welfare recipients may have had less of a desire to enter training and unsubsidized employment. In the short-term, most of the welfare recipients had less to gain by entering unsubsidized employment through on-the-job training and Job Search Assistance. Motivation may have played a key role in the results. If motivation was an influential factor, results suggest that the Grant Diversion Program, which was implemented to increase the incentive of welfare recipients to enter unsubsidized employment, was warranted. The Grant Diversion Program was implemented subsequent to the time cases were served by the
JTS. The results support the recommendation to coordinate JTPA programs with other agencies, such as the Departments of Social Services. The results also suggest that job discrimination against welfare recipients may have occurred.

**Hypothesis Number Six:**

**Accepted.** Reading score will distinguish between the positive terminations and the negative terminations: Those with higher reading scores will be more likely to be positive terminations, while those with lower reading scores will be more likely to be positive terminations.

Despite the lack of a statistically significant difference in the group means for reading score, there was still a difference between the positive and negative terminations, based upon this variable. Those with higher reading scores were more likely to be positive terminations, while those with lower reading scores had a greater tendency to be negative terminations. The average reading score for the positive termination group was 9.2, in comparison to an average reading score of 8.9 for the negative termination group. Although there was a difference between the groups for reading score, the groups were more similar than expected. It is possible that those with lower reading scores were screened out of OJT or JSA programs during earlier stages of the selection process, thereby creating a somewhat homogeneous study population for the analysis.

The finding that positive terminations had a higher average reading score than the negative terminations supports the DOL Hard-to-Serve Task Force's identification of low reading level as an attribute of JTPA's hard-to-serve
The finding is in line with Barnow and Constantine's assertion that clients who have hard-to-serve characteristics are less likely to obtain employment. Implications.

Due to the lack of research on the relationship between reading scores and JTPA program outcome, additional research is needed. Research emphasis should be placed on determining if JTPA clients with lower reading scores are less likely to succeed because they are discriminated against by program staff or by private sector employers during the selection process.

Hypothesis Number Seven:

Rejected. Mathematics score will distinguish between the positive terminations and the negative terminations: Those with higher mathematics scores will be more likely to be positive terminations, while those with lower mathematics scores will have a greater tendency to be negative terminations.

Although there was not a statistically significant difference between outcome groups based upon mathematics score, there was still a difference between groups for this variable. Direction of results was opposite of that predicted. Those with lower mathematics scores were more likely to be positive terminations, while those with higher mathematics scores had a greater tendency to be negative terminations. The positive termination group achieved an average mathematics score of 8.8 verses an average score of 9.4 for the negative termination group.

Direction of results for mathematics score was in contrast to findings that were expected, based upon Barnow and Constantine's identification of hard-to-serve
clients as being less likely to obtain employment. The results are also in contrast to evidence presented by Weidman and White, suggesting that program completion may be associated with mathematics skills.

Implications.

The research results suggest that those with lower mathematics scores have a better program outcome for OJT and JSA programs than those with higher scores. Additional research is needed in this area.

Hypothesis Number Eight:

Accepted. Handicapped status will distinguish between the positive terminations and the negative terminations: The nonhandicapped will be more likely to be positive terminations than the handicapped, and the handicapped will be more likely to be negative terminations than the nonhandicapped.

There was not a statistically significant difference in proportions for handicapped status, but there was a practical difference. The proportion of nonhandicapped participants who were positive terminations was 85.0 percent, in comparison to 76.9 percent for handicapped participants.

The direction of the findings are consonant with those which would be expected, based upon assertions by Levitan and Taggart concerning the disabled, and according to JTPA studies by Barnow and Constantine, and the NCEP, which addressed hard-to-serve clients. The results seems to be in agreement with Westat's assertion that handicapped clients are often harder to place. The results also coincide with historical evidence from job training programs suggesting that
handicapped clients are less likely to have a positive program outcome. Furthermore, the results are in agreement with evidence presented by Levitan and Taggart, and the Veteran's Administration, indicating that the handicapped have a lower likelihood of completing job training programs than the nonhandicapped.

Implications.

The results for handicapped status are in agreement with previous findings on Federal employment and training programs. The results imply that the handicapped clients are indeed more difficult to place in unsubsidized employment, are less likely to complete training, and have a lower probability of attaining a positive program outcome.

One can also infer from the results that job discrimination against the handicapped may have occurred, to some extent. Job Search Assistance (JSA) positions contribute to the total number of positive terminations that occurred for JTS. It is possible that private sector employers were more likely to hire nonhandicapped clients over handicapped clients for the JSA training activity. In addition, the JTS BSU specialists may have discriminated against handicapped clients during the process of referring applicants for these unsubsidized positions.

Although a practical difference existed between the proportion of nonhandicapped verses handicapped clients that were positive terminations, the difference was less than expected, judging from the literature. The BSU specialists may have been proficient in the job placement of handicapped individuals. On the other hand, those with more severe handicaps which could have presented critical
barriers to employment may have been screened out of OJT or JSA during an earlier stage of the selection process. This would have resulted in the creation of a more homogeneous pool of applicants for training. Additional research is suggested that examines the types of handicaps clients had who were either screened out of the JTS altogether, or were not selected for OJT or JSA positions, in comparison to those of handicapped clients who did enroll in these positions.

**Hypothesis Number Nine:**

**Accepted.** Number of weeks unemployed will distinguish between the positive terminations and the negative terminations: Those who have fewer weeks of unemployment will tend to be positive terminations, while those with a larger number of weeks unemployed will have a greater tendency to be negative terminations.

Although there was not a statistically significant difference between program outcome group means for number of weeks unemployed, there was still a difference between groups for this variable. The average number of weeks unemployed for the positive terminations was 17.0, in comparison to an average of 18.8 weeks unemployed for the negative terminations. The direction of the findings is in accordance with results on positive terminations that was obtained by Analytic Systems\textsuperscript{102} on CEP terminees, and by Coffin\textsuperscript{103} on CETA terminees. However, Analytic Systems presented results suggesting that length of unemployment may not influence the attainment of a negative termination.\textsuperscript{104} The results that were obtained on number of weeks unemployed are also in line with evidence presented by
Westat, using CLMS data from CETA terminatees, and by Friedlander and Long on three welfare employment programs for the AFDC caseload.

Implications.

The results on number of weeks unemployed are in line with most of the findings gleaned from the employment and training literature on this variable. Findings suggest that in order to maximize the positive termination rate, program administrators may want to place emphasis on those with fewer weeks of unemployment. On the other hand, program staff could possibly provide additional efforts to those with a larger number of weeks of unemployment to increase their probability of a successful program outcome. It is not clear whether the results should be attributed to the job placement process, client motivation, or to additional factors. Research is suggested to determine why clients with fewer weeks of unemployment were more likely to be positive terminations, while those with more weeks of unemployment had a greater tendency to be negative terminations.

Hypothesis Number Ten:

Rejected. Offender status will distinguish between the positive terminations and the negative terminations: Offenders will be more likely to be positive terminations than nonoffenders, and nonoffenders will be more likely to be negative terminations than offenders.

Although there was not a statistically significant difference in the proportion which fell into each program outcome group for offender status, there was a slight difference between groups. The proportion of offenders who were positive terminations was 81.8 percent, in comparison to 84.8 percent for nonoffenders.
However, the results were in the opposite direction of that predicted. Nonoffenders were found to have a greater tendency to be positive terminations than offenders. Furthermore, offenders were more likely to be negative terminations than nonoffenders. The results are in accordance with NCEP reports suggesting that offender status is a barrier to obtaining employment, and is related to lower placement rates. Results are also in agreement with the Hard-to-Serve Task Force's identification of ex-offenders as being hard-to-serve. In contrast, the results diverge from Coffin's research findings on the CETA population, which revealed that "having a police record" increased the probability of becoming a positive termination.

Implications.

The results on offender status suggest that offenders may have had slightly more difficulty in completing OJT and entering unsubsidized employment afterwards. It is also possible that some private sector employers discriminated against those who were offenders. However, the difference in program outcome based upon offender status was minimal. Due to the lack of JTPA research on the program outcome of offenders, additional research is suggested.

Hypothesis Number Eleven:

Accepted. Family status of 3 (parent in two-parent family verses all other family status categories) will distinguish between the positive terminations and the negative terminations: Those who are parents in a two-parent family will be more likely to be positive terminations and
less likely to be negative terminations, in comparison to those from other family status categories.

Although there was not a statistically significant difference for family status 3 (parent in two-parent families verses all other family status categories), there was still a practical difference for the two program outcome groups. Parents in two-parent families were more likely to be positive terminations than all other family status categories. Furthermore, those from all other family status categories were more likely to be negative terminations than those from two-parent families. The proportion of parents from a two-parent family who were positive terminations was 92.9 percent, in comparison to 83.5 percent for those from all other family status categories.

The direction of the findings for family status 3 (parents in two-parent families verses all other family status categories) is in accordance with results presented by Analytic Systems on job placement and dropout rates for married male terminees of the CEP. Similarly, the results are supported by findings reported by Taggart on job placement of CETA enrollees, and by Castle, on post-program outcome of terminees from JTPA programs. Finally, the results are in line with Levitan and Gallo's assertion suggesting that parents in two-parent families do not have as great of an unemployment problem as "single mothers and households of single persons and unrelated individuals."

Implications.

The direction of results that was obtained for family status 3 (parents in two-parent families verses all other categories) is consistent with results obtained
from the literature on Federal employment and training programs. The findings suggest that the barriers to entering and completing training, and entering unsubsidized employment may be less severe for parents in two-parent families than they are for members of other family status categories.

Research is suggested to explore the reasons some individuals from other family status categories failed to complete training or to enter unsubsidized employment. The information that would be generated could provide the JTS program administrators with an indication of which forms of additional assistance may benefit these individuals and could increase their probability of success.

ENROLLMENTS AND NONENROLLMENTS

Research Question Number Four:

What is the best combination of selected socio-demographic variables to maximize the difference between the enrollments and the nonenrollments?

The socio-demographic variables which functioned as discriminators between the enrollment and nonenrollment program outcome groups were gender, age, race, highest grade completed, welfare grant, mathematics score, reading score, number of weeks unemployed, offender status, handicapped status, veteran status, and family status 1 (single parent with one or more dependents under age six, verses all other categories). The linear combination of variables that was found to discriminate the best between the two groups as a result of the discriminant function analysis consisted of welfare grant status, mathematics score, and number of weeks unemployed. The combination of variables that formed was determined to have

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
statistically significant discriminatory power between the enrollments and nonenrollments.

Direction of results indicated that nonwelfare grant recipients, and those with higher mathematics scores and fewer weeks of unemployment were more likely to be enrollments. In comparison, welfare grant recipients and those with lower mathematics scores and more weeks of unemployment had a greater tendency to be nonenrollments.

The linear combination of variables which formed the discriminant function, and the associated direction of results, is in accordance with Levitan and Gallo's assertion that every JTPA case study has detected "creaming". The results are also in line with reports of "creaming" for the best qualified clients under other employment and training programs, such as those by Franklin and Ripley, on the CETA PSIP program; and by Gibbard and Somers, on the Area Redevelopment Act, and the Area Vocational Training Program, in West Virginia.

The linear combination of variables that was formed strongly supports the DOL Hard-to-Serve Task Force's identification of low mathematics level and long-term welfare recipient among the eleven most frequently given responses to define JTPA's hard-to-serve population. The present study did not subdivide welfare recipient into long-term and short-term categories. The inclusion of number of weeks unemployed within the combination of variables that was formed is also in line with the Task Force's identification of long-term unemployment as a characteristic of JTPA's hard-to-serve population. Long-term unemployment was not one of the characteristics most frequently identified by the Task Force, but little or
no work history was.\textsuperscript{119} The possibility exists that clients in the study who had a longer length of unemployment also tended to have little or no work history. Further research is suggested.

The results are in partial agreement with labor queue theory, which postulates that workers can be categorized according to a combination of factors which pertain to their potential for productivity, and their desirability to employers.\textsuperscript{120} When this theory is applied to "creaming" among clients in the present analysis, results suggest that those who are welfare recipients, and who have lower mathematics scores and more weeks of unemployment are the least likely clients to be enrolled in OJT or JSA (JSA) positions. According to results of the analysis, this combination of factors would place clients at the bottom of the queue for entrance into job training activities. Interestingly enough, handicapped status was not among the variables that combined to discriminate between the enrollments and the nonenrollments. The disabled are often at the bottom of the labor queue.\textsuperscript{121}

**Implications.**

The results from the analysis imply that of the selected socio-demographic variables that were analyzed, the combination that was formed represents the hardest-to-enroll clients for the OJT and JSA programs offered by JTS. Welfare recipients with lower mathematics scores and a longer length of unemployment were found to be the least likely clients to enroll in training. Increased program efforts directed toward these individuals, such as additional or more intensified support services, could be beneficial.
It is very likely that a combination of factors contributed to the lower probability of clients who were welfare recipients with lower mathematics scores and a longer length of unemployment to enroll in training. These factors may include level of client motivation, and selectivity by private sector employers, BSU specialists, or both. Additional research is necessary to determine the reasons these individuals were less likely to enroll in training. This research could be conducted by inspecting reasons for nonselection in file folders prepared on the clients by BSU specialists.

If client motivation was an influencing factor in the decision of welfare recipients to enroll in training, the Trade Program, which was implemented subsequent to the time JTS clients in the study were served, should help to increase the enrollment of welfare recipients in training. Nevertheless, the results suggest that an increased emphasis needs to be placed on welfare recipients with lower mathematics scores and more weeks of unemployment, since these are the individuals who appear to be having the most difficulty in enrolling in training. These particular welfare recipients should probably be targeted for services under JTPA, rather than targeting welfare recipients in general. Furthermore, the enrollment of these individuals could possibly be facilitated through a more formalized coordination of program efforts between JTS and its OJT subcontractor, with the various Departments of Social Services, and educational programs that are located in the localities served by JTS.

The fact that handicapped status was not one of the variables that combined with the others to discriminate between the enrollments and nonenrollments was somewhat unexpected. Those with more severe handicaps which would have
presented greater barriers to entering and completing training, and entering unsubsidized employment, could have been screened out of the OJT and JSA programs during earlier stages of the selection process, such as intake, or counseling. An alternative explanation is that the staff of the BSU may have been very proficient at placing handicapped clients in training.

The combination of variables that was created provides some support for one of the seven major recommendations advanced by the Job Training Partnership Act Advisory Committee, to make the best use of the limited JTPA funds. The Advisory Committee proposed that "within the eligible economically disadvantaged population, a significant majority of those served should either be deficient in basic skills or be welfare recipients—those targeted for services under the Family Support Act JOBS program and those with a history of substantial dependency." The Job Opportunity and Basic Skills (JOBS) program provides education and training to individuals receiving AFDC grants, or in the Commonwealth of Virginia, to those receiving ADC.

Although reading score was not among those variables which formed a linear combination to discriminate between the enrollments and nonenrollments, this does not necessarily indicate that reading skills do not have much influence on program outcome. According to the univariate statistics, reading score was a highly significant discriminator between the two program outcome groups. It is very likely that reading score was not among the variables that formed the best linear combination, because its high multicollinearity with mathematics score probably prevented it from entering the discriminant function. Further research is warranted that replicates this study,
excluding the variable of mathematics, to determine if reading score will be among the variables that form a best linear combination.

Additional multivariate studies are needed on JTPA programs similar to the JTS, to examine the socio-demographic variables of clients referred to training (using the selected variables in this study), in order to determine which combination of variables discriminates the best between enrollments and nonenrollments.

**Research Question Number Five:**

Which of the selected socio-demographic variables provide the greatest distinction between the enrollments and the nonenrollments?

The selected socio-demographic variables which were used to address research question number four were also used to test research question five above. The variables which were determined to be the strongest discriminators between the two program outcome groups, listed in order of strength, were welfare grant status, mathematics score, and number of weeks unemployed. These variables were found to have statistically significant discriminating power between the enrollments and nonenrollments.

The fact that welfare grant status and mathematics score are two of the three strongest discriminators is in line with the DOL Hard-to-Serve Task Force's identification of low mathematics level and long-term welfare recipients among the eleven most frequently given responses to describe JTPA's hard-to-serve population.\(^{123}\) Number of weeks unemployed was the third strongest discriminator in the analysis. This finding was somewhat unexpected, considering that long-term unemployed was not among the eleven most common responses given by the Task
Force to identify JTPA's hard-to-serve population, whereas a number of other variables in this study were among the most common responses. However, little or no work history was included among the Task Force's most frequent responses. As discussed earlier, it is possible that many of the clients in this study who had a longer length of unemployment also had little or no work history. Additional research is needed.

As anticipated, welfare grant status was the strongest discriminator among the selected socio-demographic variables in the analysis. According to Barnow and Constantine, welfare recipients are among the groups "for whom evidence has shown that SDAs are likely to obtain below average placement rates." Welfare recipients, especially at the time cases in the study were served by the JTS, generally had little incentive to enroll in training and enter unsubsidized employment, in comparison to other clients. Furthermore, a majority of the welfare recipients in the study were female ADC recipients. Sandell and Rupp reported on documentation which indicated that many AFDC mothers "have little interest in employment." This appears to be especially true for those AFDC recipients who have to register for the WIN program in order to obtain benefits.

Ortiz found welfare recipients to be underserved in the JTPA program in Bayamon, Puerto Rico, in comparison to nonwelfare recipients. The finding was attributed to three potential causes; namely, a lack of awareness of the program's existence, a disinterest in receiving job training, and a programmatic lack of consideration for this population subgroup. This researcher concurs with Sandell
and Rupp that there is a need for further research on the motivation of welfare recipients to enter the job market.\textsuperscript{139} Research is extremely sparse in this area.

The finding that mathematics score was one of the strongest discriminators between the enrollments and nonenrollments, and the associated direction of results for this variable, was also not surprising. The results provide some support for Levitan and Gallo's assertion that in order to be successful, "local programs have tended to include the functional illiterates JTPA was presumably meant to serve."\textsuperscript{131} The results are also in line with Barnow and Constantine's report that weak basic skills are considered to be the most frequently mentioned "labor market deficiencies."\textsuperscript{132} However, the researchers emphasized that low reading level is mentioned even more often as a labor market deficiency than low mathematics skills.\textsuperscript{133}

The present analysis found mathematics score to be an even stronger predictor of program outcome than reading score. Although mathematics score entered the linear discriminant function, reading score did not. Nevertheless, according to univariate tests, reading score was also a statistically significant predictor of program outcome. It is highly probable that reading score did not enter the discriminant function because of its high multicollinearity with mathematics score.

Implications.

The strongest discriminators between the enrollments and the nonenrollments were welfare grant status, followed by mathematics score, and number of weeks unemployed. For each of these variables, the direction of the results revealed that
those with easier-to-serve attributes were more likely to enroll in training than those with harder-to-serve attributes.

There is a strong probability that the tendency of welfare grant recipients to be nonenrollments is at least partially due to their lack of motivation toward entering training and obtaining unsubsidized employment. Other factors could also play a role, such as a programmatic emphasis on serving applicants with other characteristics, over welfare recipients. Additional research is needed in this area. If level of motivation is determined to be a strong influential factor, this author agrees with Sandell and Rupp's suggestion that "changing welfare rules may be more important than changing the behavior of JTPA operators in increasing service to AFDC recipients."134

The direction of results for mathematics score suggests that either the JTS BSU specialists, private sector employers, or both, tended to select those for training who were most likely to succeed (the same can be said for reading score, although reading did not enter the discriminant function). Considering the fact that private sector employers were generally not provided with the test scores of clients, selectivity can probably be at least partially attributed to the BSU specialists. If the BSU specialists are at least partially responsible for the apparent "creaming," the establishment of JTPA policies to either reduce disincentives and/or to increase incentives to serve hard-to-serve individuals, as discussed by Barnow and Constantine, should be highly beneficial.135 Further research is needed before a definitive cause of selectivity based upon mathematics score can be established.
Another implication of the results is that mathematics score is even more important than reading score in discriminating between the enrollments and nonenrollments. Perhaps the BSU specialists and the private sector employers considered mathematics skills to be a stronger prerequisite for entering OJT, and unsubsidized employment through JSA, than reading skills. Additional research is needed. It is very likely that the high multicollinearity between reading score and mathematics score may have prevented reading score from entering the discriminant function. Further research that replicates this study, excluding mathematics score, is needed to determine if reading score will enter the discriminant function and become one of the strongest discriminators. The assessment of reading skills for JTPA participants is now required, due to a fairly recent amendment to JTPA. A policy implication that should be considered, based upon the observed results for mathematics score, is an amendment that requires the assessment of mathematics skills of JTPA participants.

Direction of results for welfare grant status, mathematics score, and number of weeks unemployed revealed that those who were easier-to-serve were more likely to be enrolled in training. A policy implication of these results is that the emphasis in Virginia on meeting or exceeding performance standards in order to obtain incentive funds may have influenced the enrollment of clients who were easier-to-serve over those who were harder-to-serve. A 1988 NCEP report by SRI International confirmed the occurrence of this practice in states which accentuate exceeding these standards.\textsuperscript{136}
The finding that welfare grant status and mathematics score were the two strongest discriminators between program outcome groups, and the associated direction of results for these variables, provides support for the JTPA Advisory Committee's proposal that a large majority of the individuals served under Title II should either be welfare recipients or have significant basic skills deficiencies.137

The fact that welfare grant status, mathematics score and number of weeks unemployed were the strongest discriminators provides some implications for tightening the eligibility requirements for JTPA, which has been under consideration over the past few years. The results suggest that since welfare recipients, those with lower mathematics scores, and those with more weeks of employment are the least likely clients to be enrolled in training, consideration should be given to ensuring that a certain percentage of these individuals are enrolled in the program. The results imply that these particular socio-demographic characteristics present even greater barriers to entrance into OJT and JSA programs than other characteristics, such as having a lower level of education, being a former offender, or having a handicap.

The results do not offer support for the conception that "the disabled . . . are at the end of the labor queue."138 Handicapped status was not among the variables that were found to be the strongest discriminators between the enrollments and the nonenrollments. The possibility exists that those with more severe handicaps were screened out of the program during earlier stages of the selection process. This would have created a more similar group for the analysis, based upon the variable of handicapped status. Additional research is indicated.
Further research on the influence of the selected socio-demographic characteristics of JTPA applicants and participants on program outcome, as measured by enrollments and nonenrollments, is warranted. There appears to be very little research in this area. Evaluative studies involving multivariate analysis of the data are particularly needed.

Research Question Number Six:
How well do the selected socio-demographic variables distinguish between the enrollments and the nonenrollments?

Hypothesis Number Twelve:
Accepted. Welfare grant status will distinguish between the enrollments and the nonenrollments: Nonwelfare grant recipients will be more likely to enroll in a training activity while welfare grant recipients will be less likely to enroll.

Results revealed that there was a statistically significant difference between the proportion which fell into each program outcome group for welfare grant status. As expected, the results also revealed that nonwelfare grant recipients were more likely to be enrollments than welfare grant recipients. Furthermore, welfare grant recipients had a greater tendency to be nonenrollments than nonwelfare grant recipients.

The results seem to be similar to those that would be expected, based upon findings on JTPA services to welfare recipients under JTPA Title II-A programs, which were obtained by Westat,139 and Ortiz.140 However, the majority of the welfare recipients in this study are ADC recipients, and Westat found AFDC
recipients to be one of the two welfare subgroups that were overrepresented in JTPA programs. The results are in agreement with Levitan and Gallo's report that nonwelfare recipients are more heavily concentrated in JTPA OJT programs. Furthermore, the results provide some support for the DOL Hard-to-Serve Task Force's identification of long-term welfare recipient as a hard-to-serve characteristic, although the present study focused only on welfare recipients in general. The results also offer some support for Sandell and Rupp's finding that many AFDC mothers are not interested in entering employment.

In comparison, the direction of results are opposite of those which would be anticipated, based on JTPA evaluative studies conducted by the NCEP, and Walker and others, which found welfare recipients to be well-represented in training programs. Furthermore, the results appear to be in contrast to the GAO's determination that AFDC recipients are equitably served in JTPA training programs, although the GAO study did not focus solely on OJT or Job Search Assistance programs as did the present study.

**Implications.**

The results seem to imply that the JTS OJT and Job Search Assistance programs offered by the BSU may not have been meeting the needs of welfare recipients for income and benefits in addition to that already being provided through the welfare system. Furthermore, the JTS may not have been providing the support services needed by the welfare clients, such as child care assistance. The JTS could consider providing child care assistance to welfare recipients with young children in order to facilitate the enrollment of this group in training.
The possibility exists that the threat of losing welfare benefits was a factor that many of the welfare recipients considered prior to enrolling in training. The results provide support for the Domestic Policy Council Low Income Opportunity Working Group’s assertion that the welfare system discourages welfare recipients from working. Assuming that their assertion is correct, the results suggest that the Grant Diversion program will probably be successful in facilitating the enrollment of welfare grant recipients in OJT and Job Search Assistance programs. More intensive and formal coordination of JTS services with the Departments of Social Services located in SDA-13 may also enhance the enrollment of welfare recipients in training. Another implication of the results is that job discrimination against welfare recipients may have occurred in placing clients in training. Barnow and Constantine offered job discrimination as an factor that can have a negative impact on the placement of welfare recipients, especially in regard to jobs which provide good salaries.

The results could indicate that the job placement specialists selected nonwelfare grant recipients for placement in training over welfare grant recipients, because nonwelfare grant recipients were perceived to be more likely to have a positive program outcome. Support for this assumption was provided by a 1988 NCEP report prepared by ABT Associates, which revealed that JTPA SDAs are unable to serve AFDC recipients "as effectively" as other JTPA population groups. Based upon unpublished data from the JTLS, the report revealed that "AFDC recipients experience lower placement rates and hourly placement wages than their counterparts." Better service to welfare recipients may be provided if the JTPA performance standards system was revised to take into account the difficulty in
serving this group, especially those welfare recipients receiving AFDC (or ADC in Virginia) benefits. A strong possibility exists that the results could have been influenced by a JTS focus on meeting the cost standard per entered employment. During PY-84 the JTS failed to meet its two cost standards for performance, although the standard for welfare entered employment rate was met. According to a 1988 NCEP report, "states that place a high weight on the cost standard lead SDAs to serve fewer welfare recipients."159

Further research on the relationship between welfare grant status and program outcome (enrollment versus nonenrollment) is needed. Additional research is also needed on the factors which influenced the observed relationship. Although definitive conclusions on factors that influence program outcome, speculations can be made.

**Hypothesis Number Thirteen:**

**Accepted.** Gender will distinguish between the enrollments and the nonenrollments: Males will be more likely to enroll in a training activity while females will be less likely to enroll.

A statistically significant difference was found to exist between the proportion which fell into each program outcome group for gender. As predicted, males were more likely to enroll in a training activity, whereas females were less likely to enroll. The results are supported by a number of JTPA studies, including those by the Chicago Urban League,151 the GAO,152 Levitan and Gallo,153 Orfield and Slessarev,154 and Solow and Walker.155 Some support for the results was also provided by Castle, who determined that women were less likely to receive OJT and
Job Search Assistance under JTPA. Furthermore, the results are similar to those that would be expected, based upon findings by Taggart, on training under CETA, and Perry, on training under MDTA.

The results are also in line with Barnow and Constantine's report which indicated that women are one of the "groups for whom evidence has shown that SDAs are likely to experience problems in obtaining placements." If employers are more likely to employ males than females, it seems reasonable to assume that they would also be less likely to select females for OJT. In addition, the JTS Job Search Assistance placements are synonymous with entrance into unsubsidized employment.

In contrast, the results appear to conflict with JTPA findings obtained by Ortiz, which revealed that women were overserved under JTPA, while men were underserved. The results also seem to conflict with Sandell and Rupp's finding of similar rates of participation for men and women under JTPA.

Implications.

The finding that males were more likely to be enrollments and females were more likely to be nonenrollments provides an indication that "creaming" may have occurred. Furthermore, the results suggest that discrimination against females may have taken place, either by BSU job placement specialists, private sector employers, or both. Section 167(a)(2) of JTPA prohibits discrimination on the basis of sex. Further investigation of this factor is suggested. The results could also indicate that the services provided by the JTS Business Services Unit were not meeting the needs of female clients. The JTS may wish to consider expanding its services to women,
and to develop closer coordination with other pertinent agencies that provide services to this group, in order to facilitate the enrollment of women in training.

The finding of a higher proportion of males in the enrollment group in comparison to females could also be due to the fact that many of the females clients were welfare recipients. The present study found welfare recipients to be less likely to enroll in training. Closer coordination of JTS services (and services provided by the OJT subcontractor) with the Departments of Social Services located in the localities served by SDA-13 could be beneficial.

Additional research using applicant data is needed on the relationship between gender and JTPA program outcome, and the factors which influence this relationship.

**Hypothesis Number Fourteen:**

**Rejected.** Age will distinguish between the enrollments and the nonenrollments: Adults will be more likely to enroll in a training activity, while youth will be less likely to enroll.

There was a slight difference between the program outcome groups for age, although this difference was not statistically significant. Furthermore, results were opposite of those predicted. Findings indicated that youths were more likely to be enrollments than adults. In addition, adults had a greater tendency to be nonenrollments than youth.

The study findings appear to be in accordance with results obtained by Ortiz, Westat, and Sandell and Rupp, on youth participation in JTPA programs. In contrast, the results are opposite of those expected, based upon

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
assertions by Levitan and Gallo,166 and Escutia,167 signifying that youths face a severe unemployment problem. The results also seem to diverge from Orfield and Slessarev's report that employers are hesitant to hire youth. Furthermore, the results do not lend support for the researchers' claim of an increased probability that JTPA programs will avoid serving this subgroup.168 In addition, the results are in contrast to Castle's findings which revealed that a lower percentage of youths than adults were enrolled in OJT and Job Search Assistance programs under JTPA.169 Finally, the results differ from those anticipated, based upon the DOL Hard-to-Serve Task Force's identification of youth as a characteristic of JTPA's hard-to-serve population.170

Implications.
Section 203 of JTPA emphasizes services to youth under Title II-A, with a requirement that at least 40 percent of the funds be targeted on this subgroup.171 Results from this analysis indicate that youth were even slightly more likely than adults to be enrolled in OJT and Job Search Assistance programs, which suggests that they were well-served. The results provide strong evidence which suggests that selectivity by the BSU specialists and private sector employers for adults over youths did not occur.

A possibility that must be considered is that the Job Training Services' recruiting efforts targeted toward youths could have influenced the success of this program in enrolling this subgroup in training. The agency participated in several recruiting efforts by setting up a booth at several job fairs to encourage those who were JTPA eligible to apply for the program.
Additional research is needed, however, before a conclusive determination can be made that selectivity based upon age did not occur within the JTPA system. The possibility remains that "creaming" for adults over youths could have occurred during earlier stages of the selection process. Furthermore, the JTS counselors may have tended to refer only the most qualified youths for OJT, thereby enhancing their chances of being selected for OJT or hired for unsubsidized employment through Job Search Assistance.

**Hypothesis Number Fifteen:**

**Accepted.** Race will distinguish between the enrollments and the nonenrollments: Whites will be more likely to enroll in a training activity, while minorities will be less likely to enroll.

A statistically significant difference was found to exist between the two program outcome groups, with results in the predicted direction. A greater proportion of whites were enrollments in comparison to minorities. In contrast, a larger proportion of minorities were nonenrollments in comparison to whites.

The results are supported by findings reported by Perry on OJT and classroom training under MDTA, Taggart on OJT under CETA, and Levitan and Gallo, Orfield and Slessarev, and the Chicago Urban League on OJT programs under JTPA. The results are also in line with Escutia's and Levitan and Gallo's reference to the unemployment problem confronting minorities. Similarly, the findings are in accordance with the DOL Hard-to-Serve Task Force's identification of minorities as characteristic of JTPA's hard-to-serve population. Some support for the results is provided by Castle's finding that blacks were less
likely to receive on-the-job training than whites and Hispanics, because the study population consists primarily of whites and blacks. Concomitantly, the author determined that blacks were more likely to receive Job Search Assistance than other racial groups, which seems to conflict with results from the present analysis. A definitive conclusion concerning enrollment in OJT verses Job Search Assistance cannot be drawn because this study did not examine program outcome for these programs individually.

On the other hand, study results appear to be in contrast to JTPA studies conducted by the GAO, and Sandell and Rupp, which found equitable service to minorities. Furthermore, the results appear to be in contrast to the study by Walker and others, which indicated that SDAs "generally came close to their goals for enrolling . . . minorities." The present analysis did not find equitable service to minorities, based upon their existence in the study population.

Implications.

The results seem to imply that discrimination against minorities occurred, either by the BSU specialists, the private sector employers, or both. Further research is warranted in this area. Should discrimination be found to exist, the JTS should take action to ensure that the agency, its OJT subcontractors, and the private sector employers fall into compliance with section 167(a)(2) of JTPA, which prohibits discrimination on the basis of race under the activities of the program.

In agreement with Orfield and Slessarev, an alternative explanation for the differential enrollment of minorities in comparison to whites is that other factors such as dissimilar skill levels for the two groups could have influenced the results.
Selectivity on the basis of literacy skill levels could have occurred. Some support for this assertion is provided by study results.

Additional research needs to be conducted by examining program outcome based upon race for the OJT program, separately from the Job Search Assistance program. The present study found minorities to be less likely to enroll in training. As indicated earlier, Castle found blacks to be less likely to enroll in OJT programs, but more likely to enroll in Job Search Assistance programs.\textsuperscript{187} Combining the enrollments for OJT and Job Search Assistance may have influenced the results of the current study.

**Hypothesis Number Sixteen:**

**Rejected.** Highest grade completed will distinguish between the enrollments and the nonenrollments: Those with higher levels of education will be more likely to be enrollments, while those with lower levels of education will have a greater tendency to be nonenrollments.

A significant difference between the enrollment and nonenrollments groups for highest grade completed was not obtained. Both groups completed an average of the 12th grade or its equivalent. Although the enrollment group completed slightly more education than the nonenrollment group (12.2 years versus 12.0 years), the difference was barely noticeable.

The obtained results differ from those expected, based upon reports by Perry on MDTA,\textsuperscript{188} Taggart on CETA,\textsuperscript{189} and Levitan and Gallo on JTPA,\textsuperscript{190} suggesting that high school graduates are more likely than dropouts to receive OJT. The results also diverge from those anticipated, based upon national, state and local
level JTPA studies, including those by Orfield and Slessarev, Ortiz, Sandell and Rupp, Turnage, and Westat, which found high school graduates to be overrepresented in training, whereas dropouts were underrepresented. Finally, the results differed from those expected, when considering Analytic Systems' finding that males were less likely to become a neutral termination from CEP, than a positive or a negative termination, as level of education increased.

Implications.

According to results, highest grade completed has little influence on whether or not one enrolls in OJT or Job Search Assistance programs provided by the JTS. The results may have differed if education was categorized as high school dropout versus high school graduate or its equivalent. Further research is suggested.

One possibility that must be considered is that "creaming" may have taken place during earlier stages of the selection process, thereby creating a more homogeneous group for the analysis. Many of those with lower levels of education could have been screened out of the program and referred to other agencies, or referred to classroom training or the JTS Learning Center for GED preparation. Some support for this assertion is provided by the fact that 80 percent of the study population for the analysis consisted of those who had at least a high school education or its equivalent. This figure is large. According to the JTPA Advisory Committee, "some 56 percent of JTPA enrollees are high school graduates."

An alternative explanation is that many of those with higher levels of education, above a high school education or its equivalent, could have had additional
barriers to employment. These barriers may have negated the positive effects of having more education.

**Hypothesis Number Seventeen:**

*Accepted.* Reading score will distinguish between the enrollments and the nonenrollments: Those with higher reading scores will be more likely to be enrollments, while those with lower reading scores will have a greater tendency to be nonenrollments.

A statistically significant difference between program outcome groups was produced for reading score. Those individuals with higher reading scores were more likely to be enrollments, whereas those with lower reading scores had a greater tendency to be nonenrollments.

The results are in agreement with the identification of low reading level as a characteristic JTPA's hard-to-serve population. The findings are also in accordance with Barnow and Constantine's assertion that those with basic skills deficiencies are less likely to enter employment. The results provide support for the NCEP's observation that states which encourage surpassing performance standards to receive incentive funds have SDAs which enroll fewer hard-to-serve clients, because Virginia places emphasis in this area. Furthermore, the results imply that, with respect to reading skills, the JTS may operate similarly to other SDAs described by Levitan and Gallo, in which "functional illiterates" tended to be passed over for training. The results suggest that, as with other SDAs, poor basic skills may be hindering the ability of the BSU to enroll certain JTPA applicants in training.
Implications.

A major implication of the results is that the BSU staff "creamed" for clients with higher reading scores. Doing so may have enhanced the JTS' chances of obtaining incentive funds, because according to evidence, those with poor basic skills have a lower probability of obtaining employment. A possibility to be considered concerning JTPA policy in Virginia is that the enrollment of those with lower reading skills could increase if less competitive pressure was put on the SDAs regarding the achievement of performance standards to obtain incentive funds. Adding a measure for reading skills to the JTPA DOL adjustment models for performance standards may also be beneficial. These models "were developed to hold SDAs harmless" for enrolling clients who were less likely to obtain employment after training, more likely to obtain lower salaries, and more costly to serve.

The BSU staff may have had difficulty in placing those with lower reading scores in training slots or jobs that were available because the positions required a higher level of reading skills. The apparent "creaming" may not have been deliberate. The results may also be attributed to selectivity by private sector employers, although in the majority of cases, reading scores were not shared with the employers. Nevertheless, this evaluator agrees with Levitan and Gallo, in that employers should not be subsidized to employ those they would have hired without Federal subsidies. It appears as if more emphasis needs to be placed on serving those with lower reading scores. A greater focus on the provision of either part-time or full-time OJT or JSA positions, along with additional training to upgrade reading skills, may be beneficial for those who need it. The upgrading in reading skills could
be provided through the JTS Learning Center or by contracting out with the local school systems or the community colleges.

**Hypothesis Number Eighteen:**

**Accepted.** Mathematics score will distinguish between the enrollments and the nonenrollments: Those with higher mathematics scores will be more likely to be enrollments, while those with lower mathematics scores will have a greater tendency to be nonenrollments.

There was a statistically significant difference between program outcome groups for mathematics score. Those individuals with higher mathematics scores were more likely to be enrollments, whereas those with lower mathematics scores had a greater tendency to be nonenrollments.

The results support the DOL Hard-to-Serve Task Force's identification of low mathematics level as a characteristic of JTPA's hard-to-serve population.\(^{205}\) The findings are in accordance with the observation that those with basic skill deficiencies are less likely to become employed.\(^{206}\) The results back up the NCEP's finding that states which stress surpassing performance standards to acquire incentive funds have SDA's which enroll fewer hard-to-serve clients.\(^{207}\) As discussed earlier, Virginia places emphasis in this area. When the results for mathematics are considered, they seem to lend support for Levitan and Gallo's observation that JTPA SDAs tend to screen out functional illiterates.\(^{208}\) The results also appear to corroborate with Orfield and Slessarev's finding that JTPA SDAs cannot enroll some applicants in training or place them in jobs, due to poor basic skills.\(^{209}\)
Implications.

The results provide some indication that "creaming" occurred, based upon mathematics score. The BSU staff may have placed those with higher mathematics skills, in the hopes that they would be more likely to have a successful program outcome, thereby increasing the probability of obtaining incentive funds. A JTPA policy implication for Virginia is that the enrollment of those with lower mathematics skills could increase if less competitive pressure was placed on the SDAs regarding the achievement of performance standards to obtain incentive funds. Furthermore, adding a measure for mathematics skills to the JTPA DOL adjustment model may facilitate the enrollment of those with lower scores in mathematics. Before this can be done, JTPA must be amended to require the assessment of mathematics skills under Title II-A.

The JTS BSU staff may not have intentionally creamed clients on the basis of mathematics skills, but instead, may have been unable to place those with lower skills in the OJT positions and job slots that were available. The results suggest that greater emphasis needs to be placed on developing training positions and job opportunities for those with lower skills in mathematics. The provision of training to upgrade skills in mathematics through the JTS Learning Center, the local school systems, or the community colleges, in conjunction with either full-time or part-time OJT or JSA positions, may facilitate the enrollment of those with weak mathematics skills. Should this solution prove to be too demanding for some clients, another option would be to provide them with part-time training and Job Search Assistance positions, along with upgrading in mathematics through the JTS Learning Center.
The results could be at least partially due to selectivity on the part of private sector employers. However, support to counter this speculation is rendered by the fact that the BSU staff generally did not provide employers with test scores.

**Hypothesis Number Nineteen:**

**Accepted.** Handicapped status will distinguish between the enrollments and the nonenrollments: The nonhandicapped will be more likely to be enrollments while the handicapped will have a higher probability of being nonenrollments.

There was a statistically significant difference between program outcome groups for handicapped status, and the results were in the predicted direction. A greater proportion of nonhandicapped clients were in the enrollment group, in comparison to handicapped clients. In contrast, there was a larger proportion of handicapped clients in the nonenrollment group in comparison to nonhandicapped clients.

The results are in line with Levitan and Taggart's assertion that the disabled are at the bottom of the labor queue, and they have lower employment rates than those who are not disabled. The findings are supported by studies conducted by Louis Harris and Associates, and the Virginia Employment Commission, which suggest that handicapped individuals have difficulty in obtaining employment because of employer discrimination. In addition, the results are similar to those expected, based upon JTPA studies by Barnow and Constantine, the NCEP, and Westat.
The results are supported to some extent by JTPA studies conducted by the NCEP,\textsuperscript{217} and the President's Committee on Employment of the Handicapped,\textsuperscript{218} which revealed that handicapped adults were underserved. However, both of these studies found handicapped youth to be overserved. The client population for the present analysis consisted of approximately five times as many adults as youth.

Implications.

The results seem to imply that private sector employers may have discriminated against those with a handicap when selecting clients for OJT positions or hiring them through JSA. Further investigation into this area is suggested. If employment discrimination against the handicapped has taken place, additional program efforts must be directed toward preventing its occurrence in the future. Discrimination against the handicapped is prohibited under Section 167 (a)(2) of JTPA.\textsuperscript{219}

Alternatively, the BSU job placement staff could have selected nonhandicapped clients over handicapped clients when developing training slots and JSA positions for them. According to an NCEP report on JTPA, clients with hard-to-serve characteristics, such as a handicap, have a harder time in achieving a successful program outcome.\textsuperscript{220} The JTS BSU staff may have believed that the handicapped clients were more likely to become negative terminations, thereby posing a threat to the achievement of JTPA performance standards. Based upon an observation by the NCEP concerning JTPA SDAs,\textsuperscript{221} if the Virginia GETD would focus less on encouraging its SDAs to meet or exceed the performance standards in order to obtain incentive funds, more handicapped individuals may be enrolled in

---

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
training programs in the future. Policies to increase SDA's incentives to serve handicapped clients should also be considered, such as those described by Barnow and Constantine to facilitate services to hard-to-serve individuals.222 As an example, the SDAs "could receive credit for 1.5 or 2.0 people placed"223 if the client is handicapped.

The enrollment of the handicapped clients in JTS OJT and JSA programs could also increase if the JTS OJT subcontractor (the services were formerly provided by BSU staff) coordinated their staff efforts more extensively with agencies which refer handicapped clients to the JTS, such as rehabilitative agencies. Professional staff from those agencies could provide consultation to the JTS OJT subcontractors to increase their understanding of the handicapping conditions and associated limitations faced by the clients, as well as their strengths. The OJT subcontractors could subsequently provide this information to the private sector employers, pending prior approval by the clients. Training services to the handicapped clients could also increase if professional staff from rehabilitative facilities provided more ongoing supportive services to the JTS handicapped clients than in the past, both prior to and following enrollment in training, to facilitate a successful transition to the world of work.

**Hypothesis Number Twenty:**

**Accepted.** Number of weeks unemployed will distinguish between the enrollments and the nonenrollments: Enrollments will be more likely to have a shorter length of unemployment, while nonenrollments will tend to have a longer length of unemployment.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
There was a statistically significant difference between program outcome groups for number of weeks unemployed. The average length of unemployment was shorter for the enrollments than the nonenrollments (17.2 weeks verses 19.0 weeks).

The results are similar to those expected, based upon the fact that one predictor of success in the job market is having recent work experience. The findings are also in accordance with results obtained by Analytic Systems on the CEP, Friedlander and Long on three welfare employment programs, and Coffin on the CETA program in Indianapolis. Some support for the results is provided by the DOL Hard-to-Serve Task Force's identification of long-term unemployment as a characteristic of JTPA's hard-to-serve population.

Implications.

The results imply that the JTS BSU job placement specialists and/or the private sector employers selected those with fewer weeks of unemployment for OJT or JSA positions over those with a larger number of weeks of unemployment. Based upon the literature, it appears as if those individuals with fewer weeks of unemployment have a greater probability of success in the labor market. Therefore, the clients who need training the most seem to be those with longer lengths of unemployment.

In order to increase the enrollment of those with a larger number of weeks of unemployment, it is suggested that a measure of this characteristic be added to the optional adjustment models that are created by the DOL for the JTPA performance standards. As Barnow and Constantine have pointed out, "the current models do not include measures of labor market deficiencies or barriers to employment that
characterize hard-to-serve individuals. Long-term unemployment is considered to be a labor market deficiency. Some of the policies discussed by Barnow and Constantine to increase incentives for SDAs to provide services to JTPA's hard-to-serve population may be effective in increasing the enrollment of those with a larger number of weeks of unemployment. An example using one of these policies would be for the Virginia GETD to award credit for serving 1.5 or 2.0 people for placing a client with a longer length of unemployment in an unsubsidized position.

A final suggestion is to expand the number of weeks unemployed for the 26 week period prior to enrollment that is documented for JTPA applicants on the intake forms to at least one year. Too many clients are unemployed for the entire 26 week period covered, and expanding the number of weeks documented would more precisely pinpoint the hardest to serve clients.

**Hypothesis Number Twenty-One:**

**Rejected.** Offender status will distinguish between the enrollments and the nonenrollments: Nonoffenders will be more likely to be enrollments, while offenders will have a greater tendency to be nonenrollments.

Although there was not a statistically significant difference between proportions for offender status, there was a practical difference. The proportion of those with an offender status who were enrollments was 53.7 percent, in comparison to 40.4 percent who were nonoffenders. The direction of the results was opposite of that predicted. Offenders were more likely to enroll in training than nonoffenders.
The observed direction of results is contrary to that expected, based upon reports by the NCEP, and by Barnow and Constantine, which indicated that offenders are considered to be hard to serve under JTPA. The results are also in contrast to JTPA findings obtained by Walker and others. Furthermore, the results are contradictory to Barnow and Constantine's report that offenders are associated with lower placement rates, and with the NCEP's report that they are viewed as having unique needs for placement.

Implications.

The results do not support the notion that selectivity occurs in JTPA programs, with a preference given to enrolling those who are nonoffenders. On the contrary, the results suggest that the JTS BSU specialists may have favored offenders over nonoffenders. The possibility should be considered that the BSU specialists may have made special efforts in placing offenders in OJT and JSA positions.

The results also insinuate that the private sector employers did not discriminate against offenders in selecting clients for OJT positions or hiring them for unsubsidized employment through JSA. However, it is possible that information on offender status was not always provided to the employers, unless it was absolutely necessary for the position being filled.

Based upon the findings, there does not appear to be a need to make offenders a target group for training under JTPA. However, further research is needed. The findings can possibly be attributed to selectivity during earlier stages of the selection process. Many of the offenders who appeared to be less likely to likely
to succeed could have been screened out of OJT or JSA positions during intake, assessment or counseling.

**Hypothesis Number Twenty-Two:**

**Rejected.** Veteran status will distinguish between the enrollments and the nonenrollments: Nonveterans will be more likely to be enrollments, while veterans will have a greater tendency to be nonenrollments.

There was a statistically significant difference between the proportion which fell into each program outcome group for veteran status, but the results were in the opposite direction of that predicted. Veterans were more likely to be enrollments, in comparison to nonveterans, who had a greater tendency to be nonenrollments.

The significant difference between program outcome groups for veteran status seems to conflict with reports by Cohany\textsuperscript{238} and the VEC,\textsuperscript{239} which revealed a similar labor force status for Vietnam-era veterans and nonveterans. Many of the veterans in the present study were Vietnam-era veterans. The results do not support the Hard-to-Serve Task Force's identification of veterans as a hard-to-serve group under JTPA.\textsuperscript{240} In addition, the results seem to be in contrast to reports made by panelists at DOL conference, which indicated that veterans are poorly served under JTPA.\textsuperscript{241} Furthermore, the results do not substantiate the need to designate veterans as a special population or target group under the Act.\textsuperscript{242}

**Implications.**

Contrary to expectations, the results indicate that veterans were even more likely to enroll in OJT or enter JSA positions than nonveterans. According to the
results, veterans do not seem to need special services or targeting under the JTS OJT and JSA. However, the agency’s success in placing veterans may be partially due to the fact that one of the JTS BSU specialists was a Vietnam-era veteran. His special alliance with veterans could have motivated him to exert even more effort than usual in placing members of this subgroup into jobs or training positions. Further research is indicated.

Hypothesis Number Twenty-Three:

Accepted. Family status of 1 (single parent with one or more dependent(s) under the age of six) will distinguish between the enrollments and the nonenrollments: Single parents with one or more dependents under age six will be more likely to be nonenrollments, whereas clients who do not fall under this family status will have a greater tendency to be enrollments.

There was a difference between the proportion which fell into each program outcome group for family status of one, although the difference was not statistically significant. Single parents with one or more dependents under age six were more likely to be nonenrollments. In contrast, those from all other family status categories had a greater tendency to be enrollments.

The results are the same as those expected, based upon discussions by Levitan and Gallo, and Sklar pertaining to the unemployment and poverty concerns faced by single mothers. The results are also in line with the DOL Hard-to-Serve Task Force’s identification of being a single parent as one of the most common characteristics of JTPA’s hard-to-serve population. Additional support for the
results is provided by JTPA studies conducted by Harper, and Sandell and Rupp, and by Taggart's study on CETA.

**Implications.**

The results imply that single parents with one or more children below the age of six have more difficulty than those from other family status categories in entering OJT positions, or unsubsidized employment through JSA. Their difficulty in enrolling in training can largely be attributed to a lack of adequate child care services, or the excessive costs of obtaining such care for their children. One way for the JTS to increase the enrollment of single parents with children below age six may be to provide child care subsidies (as authorized under Section 204(11) of JTPA), and to assist this JTPA subgroup to obtain suitable child care services.
NOTES


2 Ibid.


5 Ibid., 202-204.

6 Ibid., 204.

7 Jose M. Ortiz, "A Case Study on Participation in the Job Training Partnership Act" (Ph.D. diss., University of Maryland, College Park, 1988), 52, 68.


9 Ibid., 232.

10 Ortiz, "A Case Study on Participation," 52-54, 68.


12 Ibid., 107.


14 Ibid., 204.

15 Coffin, "Objectives, Inputs and Outputs," 785-786.

353


19 Weidman, "Postsecondary 'High Tech' Training," 566.


21 Ortiz, "A Case Study on Participation," 68.


23 Ibid., 111.

24 Coffin, "Objectives, Inputs and Outputs," 785.

25 Weidman, "Postsecondary 'High Tech' Training, 566.

26 Ibid., 556.

27 Winkler, "An Administrative Perspective," 111.

28 Ibid., 1-117.


30 Ibid., 233.

31 Ibid., 231.


33 Winkler, "An Administrative Perspective," 11.


36 Ibid.


41 Ortiz, "A Case Study on Participation," 66.


Department of Labor, Employment and Training Administration, Office of Program Evaluation, 1979), C-6 - C-7.


54 Coffin, "Objectives, Inputs and Outputs," 302.

55 Winkler, "An Administrative Perspective," 52, 111.


57 Ibid., 4, 50.


63 Orfield, Job Training Under the New Federalism, 119.

64 Barnow, Using Performance Management, 13.


Raymond A. Gromelski, "The Impact of CETA Activities on Selected Hampton Roads Manpower Programs: Cost-Benefit Analysis and Utilization-Focused Evaluation" (Ph.D. diss., Old Dominion University, 1984), 138.

Ortiz, "A Case Study on Participation," 68.

Winkler, "An Administrative Perspective," 112.


Analytic Systems, Inc., Analysis of CEP Automated Termination Data, 56.

Coffin, "Objectives, Inputs and Outputs," 785.


Wayne Tumage, Serving the School Dropout Through the Job Training Partnership Act, prepared for the Commonwealth of Virginia, Governor's Employment and Training Department (Richmond, VA: Governor's Employment and Training Department, 1987), 4.13, 4.15.


Ibid., 160.

Ortiz, "A Case Study on Participation," 66, 68.


Ortiz, "A Case Study on Participation," 66, 68.
85Department of Labor, Continuous Longitudinal Manpower Survey: Follow-up Report No. 2 (18 Months After Entry), C-5.

86Barnow, Using Performance Management, 38.


88Orfield, Job Training Under the New Federalism, 6.


92Ibid., 2.

93Ibid., 26-28

94Weidman, "Post-Secondary 'High-Tech' Training, 566.


100Levitan, Jobs for the Disabled, 92.


102Analytic Systems Inc., Analysis of CEP Automated Termination Data, 58.

103Coffin, "Objectives, Inputs and Outputs," 785-786.
Analytic Systems Inc., *Analysis of CEP Automated Termination Data*, 58.


Ibid., 26-27.

Coffin, "Objectives, Inputs and Outputs," 786.

Analytic Systems, Inc., *Analysis of CEP Automated Termination Data*, 42.


Ibid., 58.


Ibid., 27-28.


Ibid., 112.


Ibid., 27-28.

Ibid.

Ibid., i.


Ibid., 56.

Ortiz, "A Case Study on Participation," 75.

Sandell, *Who is Served in JTPA Programs*, 29.


Ibid.

Sandell, *Who is Served in JTPA Programs*, 74.


Sandell, *Who is Served in JTPA Programs*, 74.


161 Sandell, Who is Served in JTPA Programs, 41.


164 Westat, Inc., Implementation of the Job Training Partnership Act, 5-5.

165 Sandell, Who is Served in JTPA Programs, 73.

166 Levitan, A Second Chance: Training for Jobs, 2.

167 Escutia, Hispanic Youth: Obstacles to Labor Market Success, 1, 11.

168 Orfield, Job Training Under the New Federalism, 247, 266.


170 Barnow, Using Performance Management, 28.

171 Congress, Job Training Partnership Act, P.L. 97-300, sec. 203 b(1).

172 Perry, The Impact of Government Manpower Programs, 103.


175 Orfield, Job Training Under the New Federalism, 205.

176 Chicago Urban League, Racial Inequalities, 32.

177 Escutia, Hispanic Youth: Obstacles to Labor Market Success, 5.


180 Castle, "The Job Training Partnership Act: Policy and Program Directions," 188.

181 Ibid.

Sandell, Who is Served in JTPA Programs, 72.


Orfield, Job Training Under the New Federalism, 205, 210.

Castle, "The Job Training Partnership Act: Policy and Program Directions," 188.


Orfield, Job Training Under the New Federalism.

Ortiz, "A Case Study on Participation," 73.

Sandell, Who is Served in JTPA Programs, 5, 60.

Turnage, Serving the School Dropout, 3.4 - 3.5.


Job Training Partnership Act Advisory Committee, Working Capital: JTPA Investments for the 90's, 12.

Barnow, Using Performance Management, 26-27.

Ibid., 2.


Orfield, Job Training Under the New Federalism, 132.

204 Ibid., 15.


207 Ibid., 2.


212 Levitan, *Jobs for the Disabled*, 95, 97.


224 Ibid., 44.


228 Coffin, "Objectives, Inputs and Outputs," 786.


230 Ibid., ii.

231 Ibid., 28.

232 Ibid., iii-iv.


243 Ibid.

244 Levitan, A Second Chance: Training for Jobs, 2.


248 Sandell, Who is Served in JTPA Programs, 57.

CHAPTER 6

FINAL CONCLUSIONS AND RECOMMENDATIONS

This chapter provides final conclusions and recommendations for the study. Multivariate results for the positive and negative terminations, and the enrollments and nonenrollments, are synthesized. Final conclusions are also provided on the program outcome groups by synthesizing univariate results, and their accompanying direction. After presenting a summary conclusion, the chapter culminates with recommendations for the Job Training Services, JTPA policy, and future research.

Conclusions Based on Consideration of a Variety of Characteristics to Distinguish Between Groups

When considered in conjunction with other socio-demographic characteristics, race was the only variable that had more than a practical effect on program outcome, as represented by the positive and the negative terminations. Some support for the finding on race was provided by Franklin and Ripley's evaluation of CETA, although the researchers found only a weak, inverse relationship to exist between percent nonwhite, and placement performance of the program.¹ With the exception of race, this evaluator concurs with Castle,² and Franklin and Ripley,³ that socio-demographic characteristics have little influence of program outcome. Other variables that were not included in the analysis, such as client motivation, attitude, hourly OJT wages, family problems, personal appearance, staff attitude, and employer
attitude may intervene between race and the attainment of a positive or a negative
termination. Further research on the relationship between race and program
outcome that includes these variables is suggested, using the LISREL model (also
known as the linear structural relations model)\(^4\) to analyze the data.

Race affects whether a participant becomes a positive or a negative
termination. In contrast, race has little influence on program outcome for the
enrollments and nonenrollments when considered among other socio-demographic
characteristics. The characteristics of welfare grant status, mathematics score and
number of weeks unemployed were determined to have the strongest influence on
program outcome for these two groups. Race was found to have a noticeable
difference between proportions for the enrollments and nonenrollments when tested
on a univariate basis, which suggests that some job discrimination based on race may
be occurring within the JTS program, or by private sector employers. However,
results for the enrollments and the nonenrollments suggest that selectivity is
occurring more on the basis of welfare grant status, mathematics score, and number
of weeks unemployed. Again, an exploration of variables that intervene between race
and the attainment of a positive or a negative termination is suggested.

The difference in results for the positive and the negative terminations in
contrast to the enrollments and nonenrollments could possibly be associated with a
difference in clientele between the two analyses. Enrollments either become positive
or negative terminations from training but nonenrollments were never terminated
because they did not enroll in training. Although some overlap of clientele between
the two analyses occurs by using the positive and negative termination cases to also
represent the enrollment group, the nonenrollments represent an entirely different group of clients. One possibility to consider is that the positive and negative terminations were probably more homogeneous with respect to many characteristics than the enrollments and nonenrollments, because of selectivity early on in the program.

The possibility exists that socio-demographic characteristics may be related to the tendency to become positive terminations but not negative terminations. Support for this assertion is garnered from the fact that all of the cases were classified into the positive termination group during the analysis. If this assertion is correct, the notion that one can use socio-demographic variables to discriminate between these two program outcome groups, or to predict program outcome, may be incorrect. Race may be related to the attainment of a positive termination but not a negative termination.

Excluding race, inability of socio-demographic characteristics to distinguish between the positive and negative terminations could be associated with the fact that clients who entered unsubsidized employment through JSA could only become positive terminations. Clients were not enrolled in the JSA activity until they entered unsubsidized employment.

Results for the enrollments and nonenrollments revealed that welfare grant status, mathematics score, and number of weeks unemployed combined to distinguish between the two outcome groups. These three variables provided the strongest differentiation between the enrollments and nonenrollments. Welfare grant recipients who had lower mathematics scores and more weeks of unemployment were
found to be the least likely individuals to enroll in training. In contrast, welfare grant status, mathematics score, and number of weeks unemployed provided little differentiation between the positive and negative terminations, which implies that selectivity based upon these variables has little influence on program success. The results support the recommendation made by the JTPA Advisory Committee to revise the Act to require that a large majority of enrollees have "either basic skills deficits or dependence on welfare."\(^5\) The findings are not conclusive because selectivity may have taken place during earlier stages of the selection process. Selectivity could have created a more homogeneous sample for the study, consisting of those more likely to succeed.

Mathematics score was one variable that distinguished well between the enrollments and the nonenrollments. Those individuals with higher mathematics scores were more likely to be enrolled in training. This finding suggests that the JTS is not focusing its OJT and JSA training efforts on those with weaker mathematics skills. It should be recalled that these clients had already passed through earlier stages of the selection process where "creaming" could have taken place, potentially screening out those with even weaker skills in mathematics. Additional research is needed to determine whether this finding is applicable to other JTPA SDAs. Based upon the results, the JTS needs to place more emphasis on ensuring that those with weaker mathematics skills are enrolled in OJT and JSA positions.

The results suggest that strong skills in mathematics may be even more important in helping clients to qualify for OJT positions and unsubsidized employment through JSA than strong reading skills. Based upon the results, the
DOL should consider revising JTPA to require assessment of mathematics skills under Title II-A, in addition to the existing requirement to assess reading skills. This discussion is not intended to imply that reading skills are not strongly related to program outcome. On the contrary, when considered at the univariate level, reading score distinguishes well between program outcome groups.

Enrolling those with weaker mathematics skills in OJT and JSA positions would facilitate JTPA's use as an instrument of public policy at the local level to contribute toward "eliminating the skills gap and enhancing our nation's competitive position." Coordination with school systems and community colleges in the localities served by the JTS may be necessary to provide upgrading in mathematics skills, in conjunction with client enrollment in OJT or JSA positions.

**Conclusions Based on Consideration of Individual Socio-Demographic Characteristics to Distinguish Between Groups**

None of the individually selected socio-demographic variables for the positive and negative terminations provided strong differentiation between these two outcome groups. Of the same variables that were also used to analyze the enrollments and nonenrollments, gender, race, welfare grant status, handicapped status, veteran status, reading score, mathematics score, and number of weeks unemployed distinguished well between groups. The results suggest that selectivity or discrimination may have occurred on the basis of these characteristics for the enrollments and nonenrollments, although the characteristics did not have much influence on the attainment of a positive or a negative termination. Race is one exception, according to an analysis of race in conjunction with other variables. In
addition, when considered alone, race provided more differentiation between groups than any of the other selected variables for the positive and negative terminations.

Conclusions Based on Direction of Results for Individual Socio-Demographic Characteristics

Results indicated that whites, nonwelfare grant recipients, the nonhandicapped, and those with higher reading scores and fewer weeks of unemployment were more likely to be positive terminations. These same subgroups were also more likely to be enrollments. The findings imply that enrolling these subgroups will increase the program's chances of success, albeit to a small extent in some cases. Policies to reduce disincentives to serve JTPA's hard-to-serve clients, and to increase incentives to serve these clients, as discussed by Barnow and Constantine, should be effective in enrolling the counterparts to the subgroups listed above, as well as the other hard-to-serve subgroups in this study which were found to be less likely to enroll in training. Motivation to enter and complete training, and to obtain unsubsidized employment may have been an intervening factor in the tendency for welfare recipients to become negative terminations and nonenrollments. Further research using an approach such as the LISREL method to analyze the data is needed.

Somewhat surprising was the finding that females, adults, and those with lower mathematics scores had a greater tendency to be positive terminations, while males, youths and those with higher mathematics scores were more likely to be enrollments. These results imply that enrolling subgroups based upon gender, age, and mathematics scores, which have been found in the past to have a higher probability
of success (males, youths, and those with higher mathematics scores), does not increase the program's chances for a positive program outcome.

The results seem to imply that JTS' probability of maximizing the number of positive terminations attained could actually be hindered by enrolling males, youths, and those with higher mathematics scores over females, adults, and those with lower mathematics scores (the situation was reversed for mathematics score, when analyzed in conjunction with other variables, based on a smaller sample). The results are possibly related to the nature of the clientele served by the JTS, in comparison to that of other JTPA SDAs. Furthermore, the BSU staff could have exerted special efforts in serving these particular subgroups which have often been determined to have a lower probability of success. Finally, those least likely to succeed out of these subgroups could have been screened out of OJT or JSA during earlier stages of the selection process. Further research that replicates this study is needed on other JTPA SDAs.

Nonoffenders were somewhat more likely to be positive terminations than offenders. However, offenders were more likely to be enrolled in OJT and JSA positions than nonoffenders. This finding indicates that even though offenders have a lower probability of success, the JTS was successful in enrolling them in training. The results imply that offenders do not need to be targeted for enrollment in training, but they may benefit from some assistance in completing training and entering unsubsidized employment afterwards. Additional research on SDAs similar to JTS is needed.
Highest grade completed made no difference in program outcome for the positive and negative terminations, as well the enrollments and nonenrollments. Results suggest that highest grade completed may not be as important as others in being placed in training, entering unsubsidized employment, and in propensity for success in the program. This finding is not conclusive. The study population could have been the result of selectivity earlier on in the program, thereby creating a more highly educated group for referral to the BSU for OJT.

An interesting finding was that even though the average grade level completed by the enrollments and the nonenrollments was almost identical (12.2 years verses 12.0 years), their average reading scores (grade level 9.2 verses 8.5) and mathematics scores (grade level 8.9 verses 8.0) differed significantly, in favor of the enrollments. These results appear to be in line with other studies which "have shown that a high school diploma is no guarantee of basic skill competencies."

The findings provide support for the JTPA amendment which requires the assessment of reading skills of JTPA participants under Title II-A programs. The findings also demonstrate the need to amend the Act to require the assessment of mathematics skills under JTPA Title II-A.

Parents in two-parent families were found to have the highest probability of a positive program outcome, in comparison to those from all other family status categories. Furthermore, they are among those categories that are most likely to be enrolled in training. In comparison, single parents with one or more children aged six or below are among the family status categories that are less likely to have a positive program outcome, and they are least likely to be enrolled in training. The
results imply that additional program efforts need to be directed toward enrolling single parents that have children below age six, and in facilitating their success in the program, through such means as child care assistance.

Veterans were found to be more likely to enroll in training than nonveterans. Policies to provide special services to veterans, or to target them for training under JTPA Title II-A programs, appear unnecessary. Additional research is suggested on other JTPA SDAS.

Summary Conclusion

With the exception of race, none of the selected socio-demographic variables that were used to evaluate both the positive and negative termination groups, and the enrollment and nonenrollment groups, had a considerable amount of influence on success in the program. Based upon these results, it seems almost futile, and in some cases, is actually counterproductive, for the JTS to selectively enroll those who have been found in the past to be most likely to succeed, or for private sector employers to discriminate against their counterparts. Furthermore, discrimination on the basis of race and several other variables in the study is prohibited under JTPA, and by provisions of other Acts and amendments. In addition, discrimination against minorities may actually be a factor that decreases their likelihood for becoming positive terminations.

Some subgroups in addition to minorities, which have been found to have a lower probability of success in the past, were somewhat less likely to be positive terminations than others. Additional program efforts directed toward these subgroups may facilitate their chances for success. Certain subgroups which have
been observed to be less successful in the past (such as females, minorities, welfare grant recipients, the handicapped, and those with lower mathematics and reading scores, and more weeks of unemployment) were also much less likely to be enrolled in the Job Training Services' OJT and JSA programs. Policies that encourage the enrollment of these particular subgroups, and reduce the incentives to screen them out, may be beneficial.

Special efforts should be directed toward determining the reasons minorities were less likely to be positive terminations than any of the other subgroups that were analyzed. Employment discrimination against minorities is one possible cause. Slessarev's 1988 study of JTPA program's in Chicago, which was conducted for the Chicago Urban League, found evidence of "racial differences in access to types of training, entered employment, entry wages, and occupation placement." Research to identify other variables which may have intervened between the construct of race and program outcome for the positive and negative terminations is needed, using an approach such as the LISREL method to analyze the data. Similar research is suggested to identify variables which may have intervened between the constructs of welfare grant status, mathematics score, and number of weeks unemployed, and program outcome for the enrollments and nonenrollments.

Recommendations

The recommendations presented below are based upon the results and conclusions for the program outcome evaluation which was conducted for the positive and negative terminations, and the enrollments and nonenrollments. The
recommendations are subdivided into three categories; recommendations for the program, for policy considerations, and for further research.

**Program Recommendations**

1. Staff responsible for placing clients in OJT positions, and unsubsidized employment through JSA, should be discouraged from selecting clients that have what is considered to be easier-to-serve characteristics over those with harder-to-serve characteristics. Socio-demographic variables do not appear to have a significant influence on the attainment of a positive or a negative termination, with the exception of race. Discrimination on the basis of race is prohibited. Furthermore, employment discrimination may be one of the very reasons for minorities being less likely to become positive terminations.

2. Increased program emphasis should be directed toward the enrollment of certain subgroups, with special efforts channeled toward those who are welfare recipients and those with lower scores in mathematics and more weeks of unemployment.

3. Greater coordination is strongly recommended between the JTS (and its OJT subcontractor) and the local school systems, community colleges, social service agencies, rehabilitation agencies, and other service providers, to increase the enrollment of certain subgroups in training, and when necessary, to facilitate their success in the program.

4. Further investigation is recommended to determine if program staff or private sector employers are discriminating against certain subgroups that are protected by statute (minorities, females, and the handicapped) during the
placement process. If discrimination is detected, programmatic efforts should be directed toward its prevention.

5. Staff training (including staff of the OJT subcontractor) in placing the handicapped, and in understanding their special limitations, is suggested as a means to facilitate their enrollment in training and entrance into unsubsidized employment.

6. The JTS may wish to consider the provision of subsidies for child care services to certain subgroups that need such support, or to assist them in obtaining suitable child care services.

7. The JTS and its OJT subcontractor should not use the model was developed on the positive and negative terminations to determine which clients are most likely to have a positive program outcome. The model is not that useful because it classifies all cases into the positive termination group.

8. The JTS and its OJT subcontractor should consider using the model that was developed on the enrollments and nonenrollments, to determine which clients are most likely to enroll in training. This model provides better classification than could be attained by chance.

Policy Recommendations

9. The refocusing of JTPA on those who are either welfare recipients, or who have poor literacy skills in reading and mathematics (especially mathematics) as advocated by the JTPA Advisory Committee, is strongly supported by this study.
10. The study results also support the DOL Commission on Workforce Quality and Labor Market Efficiency's endorsement of JTPA "amendments to increase targeting of resources on those in need of remedial education, to improve coordination of JTPA with other human resource systems, and to increase the emphasis on basic skills remediation."\(^{11}\)

11. Consideration should also be given to redirecting JTPA training toward those with more weeks of unemployment.

12. It is recommended that the number of weeks unemployed within the past 26 weeks prior to JTPA application for JTPA services be expanded to at least one year, because too many clients are unemployed for the entire 26 week period.

13. The Virginia GETD should consider using certain policies to increase incentives to enroll certain subgroups and to decrease disincentives to enroll them, such as those described in Bamow and Constantine's report for the NCEP.\(^{12}\)

14. The DOL should consider requiring SDAs to assess mathematics skills under JTPA Title II-A programs, and to report this data, because this was an even stronger predictor of program outcome for the enrollments and nonenrollments than reading skills.

15. It is recommended that the OMB should consider approving a requirement for SDAs to report applicant data, due to its relevance in evaluating program outcome for JTPA programs.
16. Consideration should be given to paying private sector employers subsidies based on a sliding scale for training JTPA clients, according to how employable they are. A number of factors should be considered, such as welfare grant status, mathematics skills, and number of weeks unemployed. Employers should be paid more for training those less likely to enter employment on their own.

17. Study results do not support the need to make offenders and veterans target groups for JTPA services. Veterans and offenders were more even more likely to enroll in training than nonveterans and nonoffenders. However, further research on other JTPA SDAs is suggested.

Research Recommendations

18. Further research that uses multivariate analysis of the data is needed on the influence of socio-demographic characteristics of JTPA participants on program outcome, as defined by positive and negative terminations.

19. Additional multivariate research is needed that uses the socio-demographic characteristics of JTPA applicants to evaluate program outcome, as represented by enrollments and nonenrollments.

20. The study should be replicated in other JTPA SDAs to determine whether the results are similar to those of this program outcome evaluation.

21. The study should be repeated for the enrollment and nonenrollment groups, starting at an earlier stage in the selection process, such as at Intake, to determine if results are similar to those of this study. Such research would use applicant data, and would provide further indication of whether or not,
and to what extent, selectivity or discrimination may have occurred in the program.

22. It is recommended that the study be replicated on individuals who are referred for classroom training.

23. The study should be repeated for the positive and negative terminations, using only the data for enrollees in OJT. The reason for this is that the clients who entered unsubsidized employment through JSA are automatically considered to be positive terminations once they begin work.

24. Since the time applicant data for this study were recorded on documents in client file folders, the Grant Diversion Program for welfare recipients has been implemented by some of the Departments of Social Services. Replicating this study would provide some indication of whether or not welfare recipients are more likely to enroll in JTPA on-the-job training and Job Search Assistance programs now, in comparison to the past. The results could provide supporting evidence to encourage the Departments of Social Services that are not currently using the Grant Diversion Program to implement it, perhaps in coordination with the JTPA program operated by the Job Training Services.

25. It is possible that the selected socio-demographic characteristics are associated with the attainment of a positive termination, but not a negative termination. Consideration should be given to examining the attainment of a positive termination verses a negative termination as two separate issues, rather than
viewing these program outcome groups as dichotomies. Further research is warranted.

26. Other variables not included in the present evaluation, such as client motivation, attitude, OJT hourly earnings, family problems, physical appearance, staff attitude, and employer attitude may have intervened between race and program outcome, as defined by positive and negative terminations. Further research using the LISREL approach to analyze the data is strongly recommended.

27. Variables such as those mentioned above may also have intervened between welfare grant status, mathematics score and number of weeks unemployed, and program outcome, as defined by enrollments and nonenrollments. Again, further research using the LISREL approach to analyze the data is recommended.
NOTES


8 Department of Labor, Job Training Partnership Act Advisory Committee, Working Capital: JTPA Investments for the 90's, 12.


10 Ibid., 8.
$^{12}$Department of Labor, Commission on Workforce Quality and Labor Market Efficiency, *Investing in People*, 22.

APPENDIX

DEFINITION OF TERMS

The terms and the accompanying definitions contained in this glossary have been largely selected from the following documents: Job Training Partnership Act (P.L. 97-300), "Job Training Partnership Act Eligibility Determination and Verification Guidebook" and "Private Industry Council Instructions 86-1".

Aid to Families with Dependent Children (AFDC) Recipient: Either the applicant or the applicant's family is being provided with financial assistance in accordance with the state plan that has been sanctioned under Title IV of the Social Security Act. In Virginia, the approved plan is the Aid to Dependent Children (ADC) program, which provides monetary assistance for needy children who reside with a parent or a relative. The ADC program may also provide monetary assistance to another person, organization, or other provider of specified goods and services for benefit of the children.

Adult: An individual 22 years or above.

Applicant: An individual who has applied for JTPA services. The individual may have been determined JTPA eligible and may have received assessment, counseling, and job placement services, but has not officially enrolled in a training program.

Central Records Unit: The JTS program component which stores the original applicant and participant documents and is responsible for the JTS Management Information System.

Client: An individual who has received services from the JTS. The individual may or may not have officially enrolled in a training program.

Creaming: Selecting "more employable individuals" among program applicants in an effort to enhance program results. Creaming can be done by both service providers and employers.
**Enrollments:** JTPA applicants who have officially been enrolled in a training activity.

**Entered Unsubsidized Employment:** Participant obtained either full-time or part-time unsubsidized employment following their participation in the sub-recipient's program. Encompasses the following types of employment following enrollment in an activity or training program funded under JTPA: entrance into the U.S. Armed Forces, and entrance into an apprenticeship program that is registered. The only way in which a positive termination can be obtained in the Business Services Unit is to enter unsubsidized employment.

**Family Status:** Refers to the family situation under which the individual resides. There are five family status codes, as indicated below:
1) Single parent with one or more dependent(s) below age 6.
2) Single parent with one or more dependent(s) age 6 or above.
3) Parent in a two-parent family.
4) Other family member.
5) Non-Dependent individual.

**Food Stamps Recipient:** The individual is being provided with food stamps in accordance with the Food Stamp Act of 1977. They are in coupon form and can be used to purchase groceries, excluding "alcoholic beverages, cigarettes or non-food items."6

**Governor's Employment and Training Department (GETD):** The state department which is responsible for assisting the Governor to administer the JTPA program in Virginia.

**Handicapped Individual:** Any person who has a physical or mental disability which for that person creates or results in a substantial handicap to employment (Section 4(10) of JTPA). Includes the following categories of handicapped individuals:

A. **Adult Handicapped**- An adult handicapped person who meets the requirements needed to be considered economically disadvantaged under JTPA but who is a member of a family whose income does not meet the economically disadvantaged specifications.

B. **Youth Handicapped**- A handicapped youth who is between the ages of 14 to 21 years.

C. **As a Barrier**- An individual who does not meet the economically disadvantaged specifications but who has a physical or mental disability which produces or results in a considerable impediment to employment.

**Highest Grade Completed:** The highest number of years of education the applicant has completed. A GED is considered equal to the 12th grade.
**Holding Pool:** An activity that JTS participants can be placed in for up to 90 days without receiving any type of JTPA services. Is also referred to as the #88 Pool.

**Intake Center:** Determines eligibility of applicants for JTPA services. During the time of the study, four Intake Centers were in existence to determine whether or not applicants were eligible to receive JTPA services from the JTS.

**Management Information System (MIS):** The automated system is used to handle the enormous amount of participant data that is gathered and processed for the JTS. The central MIS unit for the 14 SDAs in Virginia operates under the direction of the GETD.

**Negative Termination:** An individual who enrolls in OJT and subsequently drops out of training and/or fails to obtain unsubsidized employment afterwards.

**Nonenrollment:** A JTPA eligible individual who was referred to the BSU for OJT, but either could not be placed in training or in unsubsidized employment as a direct placement, or else chose not to be placed.

**Offender:** An individual who has either been arrested or convicted for a crime other than a misdemeanor and who needs JTPA assistance in order to overcome barriers to employment that have been created as a result of the arrest or conviction record.

**On-the-Job Training (OJT):** Subsidized training through productive work, which is provided to a JTPA-eligible participant in the private sector. The training enables the individual to attain the knowledge and skills that are necessary to function in the job as a regular employee. Following the subsidized period, the individual enters unsubsidized employment.

**Participant:** An individual who has been determined JTPA-eligible and who has enrolled in a training activity.

**Positive Termination:** An individual who enters unsubsidized employment after enrolling in OJT, or as a direct result of job placement services received from the Business Services Unit.
NOTES

1Congress, Job Training Partnership Act, P.L. 97-300, 97th Congress (October 13, 1982), Sec. 2 - Sec. 203 (c)(2) passim.

2Governor's Employment and Training Department, MIS Unit, Job Training Partnership Act Eligibility Determination and Verification Guidebook ([Richmond, VA]: Governor's Employment and Training Department, MIS Unit, 1985), 2-63 passim.


4Commonwealth of Virginia, Department of Social Services, "Virginia Aid to Dependent Children Program," Richmond, VA: Virginia Department of Social Services, 1986.


6Commonwealth of Virginia, Department of Social Services, "Virginia Food Stamp Program," Richmond, VA: Virginia Department of Social Services.
BIBLIOGRAPHY


Governor's Employment and Training Department. A Summary of Performance and Outcomes by SPA for Program Year 1984. Prepared by Ron Barcikowski, Jan Pearson and Frank Sansone. Richmond, VA: Governor's Employment and Training Department, Monitoring and Evaluation Unit, 1985, Section XIII.


AUTOBIOGRAPHICAL STATEMENT

Denise Vanasse Siegfledt was born in Newport News, Virginia on December 27, 1957. Ms. Siegfledt earned an Associate in Arts degree in Liberal Arts from Thomas Nelson Community College in 1977 and a Bachelor of Science in Psychology degree from Old Dominion University in December 1978. She also received a Master of Science in Education degree from Old Dominion University in December 1980. She is a member of Pi Alpha Alpha and the American Society for Public Administration.

Ms. Siegfledt is presently an Instructor for Troy State University, Virginia Region. She has served on the adjunct faculty for Golden Gate University, Langley Resident Center. She was employed as a Counselor for the Job Training Services, which operates under the Job Training Partnership Act. She was also employed as an Assessment Counselor and a Vocational Evaluator for the Peninsula Vocational Assessment Center, which functioned under the Comprehensive Employment and Training Act.