

DOCUMENT RESUME

ED 334 724

EC 300 459

AUTHOR Ittenbach, Richard F.; And Others
 TITLE Community Integration of Young Adults with Mental Retardation: A Multivariate Analysis of Adjustment.
 SPONS AGENCY Office of Special Education and Rehabilitative Services (ED), Washington, DC.
 PUB DATE Apr 91
 CONTRACT G008630478
 NOTE 25p.; Paper presented at the Annual Meeting of the American Educational Research Association (72nd, Chicago, IL, April 3-7, 1991).
 PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)
 EDRS PRICE MF01/PC01 Plus Postage.
 DESCRIPTORS Friendship; Income; Independent Living; Individual Needs; *Mental Retardation; Multivariate Analysis; *Normalization (Handicapped); Quality of Life; Recreational Activities; Social Adjustment; *Social Integration; Social Life; Young Adults
 IDENTIFIERS *Impairment Severity

ABSTRACT

This study assessed the community adjustment of 105 young adults (35 with mild mental retardation, 35 with moderate mental retardation, and 35 with severe/profound mental retardation). The data were analyzed with level of mental retardation serving as the independent variable and the following dependent variable measures: number of friends, variety of friends, recreation/leisure--social, recreation/leisure--community, recreation/leisure--home, income support, earned income, daytime activity, living arrangement, number of limiting factors, and number of support services. The hypothesis that no difference existed among level of mental retardation for the 11 dependent variables was rejected. Of 14 paired comparisons conducted as follow-ups, seven were found to be statistically significant. The groups were differentiated on factors related to income, employment, and degree of independence in living arrangement. No significant differences across levels of retardation were found for social/network integration variables, and all groups appeared to participate at the same levels in social events outside of the home and in leisure activities within the home. (Includes 34 references.) (JDD)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

- This document has been reproduced as received from the person or organization originating it
- Minor changes have been made to improve reproduction quality
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

ED334724

Community Integration of Young Adults with Mental Retardation:

A Multivariate Analysis of Adjustment

Richard F. Ittenbach, Robert H. Bruininks, Martha L. Thurlow, and Kevin S. McGrew

Institute on Community Integration

University of Minnesota

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

R. F. Ittenbach

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Running Head: ANALYSIS OF ADJUSTMENT

Support for this research was provided by a grant from the United States Department Education Office of Special Education and Rehabilitative Services (#G008630478). Points of view or opinions stated in this report do not necessarily represent the official position of the United States Department of Education.

Abstract

A multivariate analysis of variance was conducted to assess the community adjustment of young adults with mental retardation by using data organized on the basis empirically validated factors identified in prior studies. This study examined differences in observed score performance by level of mental retardation for 11 measures of community integration using a design not routinely found in community integration literature. The hypothesis that no difference existed among level of mental retardation for the 11 dependent variables, jointly or separately, was rejected. Of the 14 paired comparisons conducted as follow-ups, seven were found to be statistically significant. Five of the seven differences were between samples of persons with mild and moderate degrees of mental retardation; the remaining two were between samples of persons with moderate and severe/profound degrees of mental retardation. Implications of the findings and suggestions for further research are discussed.

**Community Integration of Young Adults with Mental Retardation:
A Multivariate Analysis of Adjustment**

Interest in the extent to which young adults with mental retardation adjust to the demands of community life continues to grow as increasing emphasis is placed on the need for integrated services following the school years. No longer are employment outcomes the primary measures of successful community adjustment (Emerson, 1985; Landesman, 1986). It is now necessary to go beyond such measures and examine a variety of quality-of-life factors to better understand the adjustment process, a process that the U.S. Department of Education's *Ninth Annual Report to Congress* (1987) states is both necessary and justified.

Research on the adjustment of adults with mental retardation is both extensive and longstanding (Craig & McCarver, 1984; Goldstein, 1964). Although this research has provided information about important aspects of adjustment, the research typically has focused on assessing a limited range of outcome measures or assessed outcomes using only one measure at a time, frequently with an over reliance on commonly employed univariate statistical analyses (Bruininks, Thurlow, Lewis, & Larson, 1988; Craig & McCarver, 1984; Halpern, Close, & Nelson, 1986; Heal, Sigelman, & Switzky, 1978; Thurlow, Bruininks, & Lange, 1989; Thurlow, Bruininks, Wolman, & Steffens, 1989). These limitations have resulted in an inability to capture the complexity of the adjustment process, one which is most likely multivariate in nature (Heal, 1985). As recently as a decade ago, Heal et al. (1978), concurring with Butler and Browning (1974), identified the absence of statistically powerful experimental and quasi-experimental designs as a major limitation of community adjustment research. However, with recent advances in statistical and computational methods, particularly multivariate methods, investigations are now possible that were not considered feasible even a few years ago. Simply put, multivariate methods allow investigators to examine issues of adjustment from a multidimensional perspective, thereby allowing researchers to "probe more deeply and realistically into phenomena" (Kerlinger, 1986, pp. 524-525).

Recently, over 250 different community adjustment outcome measures from several follow-up studies were organized into 21 composite variables and factor analyzed to identify broad and stable

dimensions of community adjustment and personal competence (Bruininks, McGrew, Thurlow, & Lewis, 1988; McGrew, Bruininks, Thurlow, & Lewis, 1989). A Principal Components analysis of the 21 composite variables produced eight meaningful factors. Four factors were related to the broad construct of personal competence (Personal Independence, Maladaptive Behavior, Physical Mobility, Extent of Physical Complications) and four were related to the broad construct of community adjustment (Social/Recreation/Leisure, Social and Service Support, Financial Independence, and Community Independence/Integration). Subsequent confirmatory factor analyses by McGrew et al. (1989) supported the existence of four unique dimensions of community adjustment: Social Network Integration, Recreation/Leisure Integration, Community/Economic Integration, Need for Support Services.

The personal competence factors identified by Bruininks et al. (1988) were derived primarily from responses to questions on the *Inventory for Client and Agency Planning (ICAP)* (Bruininks, Hill, Weatherman, & Woodcock, 1986a). The "Personal Independence" dimension consisted primarily of six variables, the *ICAP*'s four adaptive behavior scores (i.e., Personal Living, Community Living, Social/Communication, Motor Skills), and two additional scales, Need for Social Support and Economic Independence. The "Maladaptive Behavior" dimension was defined by the *ICAP*'s three maladaptive behavior indices: Externalized Maladaptive Behavior, Internalized Maladaptive Behavior, and Asocial Maladaptive Behavior. Two scales, Physical Mobility and Need for Health Care, comprised the "Physical Mobility" dimension, while the *ICAP*'s Vision, Hearing, and Frequency of Seizure items comprised the "Physical Complications" dimension.

The second set of factors, and the one used in the present analysis, reflected various aspects of community adjustment and was derived primarily from a 142-item follow-up interview used in the work of Bruininks, McGrew, Thurlow, and Lewis (1988). High loadings by Number of Friends, Variety of Friends, and Active Recreation/Leisure Outside the Home resulted in the identification of a "Community Social/Recreation/Leisure" factor. In subsequent confirmatory modeling research (McGrew et al., 1989), this dimension split into separate "Social Network Integration" and "Recreation/Leisure Integration" factors. The "Social and Service Support" dimension consisted of

Number of Limiting Factors for Social-Leisure Activities and Number of Support Services items from the *ICAP*. The "Community and Economic Integration" dimension was defined by Living Arrangement, Daytime Activities, Financial Independence, and Social and Service Support items. Finally, a singlet factor, "Financial Independence," consisted of a sole variable, Income Support. This singlet factor was found to merge with the broader "Community and Economic Integration" factor in later modeling analyses (McGrew et al., 1989).

Given these empirically derived community adjustment factors and the variables that comprise them, it is now possible to examine the construct of community integration from a more conceptual, multivariate perspective. The purpose of this study was threefold: (a) assess the community adjustment of adults with mental retardation by using data organized on the basis of empirically validated community adjustment factors identified in prior research; (b) determine whether differences in observed score performance by level of mental retardation existed for 11 measures of community integration, jointly and separately; and (c) use a multivariate statistical design not routinely found in the community integration literature that simultaneously takes into account and adjusts for the presence of multiple and related dependent variables.

Method

Participants

The records of 105 young adults with mild to severe levels of mental retardation were taken from a broader sample ($N = 239$) of subjects on whom community integration data were gathered (Bruininks, McGrew, Thurlow, & Lewis, 1988; McGrew et al., 1989). In this study, three samples of 35 persons per group were selected according to level of mental retardation: mild (IQs 60 to 79), moderate (IQs 40 to 59), severe/profound (IQs ≤ 39). All subjects in the mild group with complete data were included in the study. The records of subjects with moderate and severe/profound retardation were selected randomly from among their respective samples. The samples were limited to 35 persons per group for reasons which include: a disproportionate number of persons classified as mild, the need for a balanced design, and the requirement for complete sets of data. Level of

mental retardation was determined by formal classification information from previous records and standardized IQ and adaptive behavior scores.

Respondents ranged from 19 to 33 years of age ($M = 25$ years, $SD = 3$) and were interviewed 1 to 10 years after exiting high school. The total sample was divided evenly according to gender (50% female, 50% male); 1% were American Indian, 2% Asian, 3% Black, and 94% White. The majority of respondents (95%) were never married, 4% married, 1% separated, and 1% divorced. In terms of service level, 2% required total care, 9% extensive care, 25% regular care, 30% limited care, and 34% infrequent or no assistance for daily living. See Bruininks, McGrew, Thurlow, and Lewis (1988) for a description of the broader sample.

Instruments

Two instruments were used to provide information for this investigation. The first was a detailed 142-item questionnaire designed to represent 11 areas of community integration (viz., employment, education, social participation, support payments, social adjustment and living skills, health/physical status, family household characteristics, living arrangement, service and program participation, citizenship status, and miscellaneous information). Items on the questionnaire were based upon previous and extensive field research on community adjustment (Thurlow et al., 1989). The second instrument, the *Inventory for Client and Agency Planning (ICAP)* (Bruininks et al., 1986a), is a "comprehensive, structured instrument designed to assess the status, adaptive functioning, and service needs of clients" in large- and small-scale facilities; it is considered appropriate for the service and programming needs of clients regardless of ability (*Examiner's Manual*; Bruininks, Hill, Weatherman, & Woodcock, 1986b, p. 1). According to the *Manual* the *ICAP* was normed on a nationally-representative sample of about 1,700 persons from 3 to 42 years of age. Median split-half reliability estimates for the battery composite are high ($Mdn = .89$) with test-retest values in the .80s and .90s. There is substantial validity evidence for the *ICAP*, including data that indicate that the *ICAP* discriminates effectively among level of mental retardation, special education service, and restrictiveness in residential placement and employment, and between children who are and are not classified as behavior disordered (Bruininks et al., 1986b).

Procedures

Both instruments were administered directly to the subject or to an informed respondent. In each case, the *ICAP* was administered first (20 to 30 minutes) followed by the 142-item questionnaire (40 to 50 minutes). All interviewers were carefully trained and supervised to yield reliable results (Thurlow et al., 1989; Thurlow, Bruininks, Wolman, & Steffens, 1989). Procedures for treatment of participants and collection of data were in keeping with APA ethical guidelines.

Data Analysis

A one-way multivariate analysis of variance (MANOVA) design was used for the analysis. Level of mental retardation (mild, moderate, severe/profound) served as the independent variable. Dependent variable measures were as follows: number of friends, variety of friends, recreation/leisure--social, recreation/leisure--community, recreation/leisure--home, income support, earned income, daytime activity, living arrangement, number of limiting factors, number of support services. Table 1 presents a summary description of the 11 dependent variables organized according to the four areas of community adjustment validated in a prior study (McGrew et al., 1989). Two additional dependent measures used in prior analyses, economic independence and social support, were deleted from the present analysis due to a high degree of shared variability with the other dependent measures.

Insert Table 1 about here

All data were analyzed using SPSS/PC+ statistical software (SPSS/PC+, Inc., 1986). Pillai's trace (Pillai, 1955) was used as the multivariate test of choice because of the likelihood of two discriminant functions and the test's tendency to retain statistical power when violations of homogeneity of matrices and distributional normality are present ($\alpha = .10$; Bernstein, 1988; Stevens, 1986). One-way univariate analyses of variance (ANOVAs) were used as follow-ups to the significant multivariate *F*; statistically significant univariate ANOVAs were then followed-up with paired

comparisons based on apriori linear contrasts; p -values were adjusted using Bonferroni's correction for multiple comparisons (Dunn, 1961).

Violations of both homogeneity of matrices and univariate normality were observed but were not considered threatening enough to abandon the model. For example, a Bartlett's Box- M observed X^2 (66) of 129.42, $p = .000$, exceeded the critical X^2 (.01; 66) of 88.38, a violation that may have been as due to the relatively large sample size as to meaningfully and statistically significant differences among groups. Univariate normality was tested with a z transformation of the 11 dependent variable scores using the Kolmogorov-Smirnov procedure (Stephens, 1974). The transformed z scores exceeded two standard deviations for all but a few cases, suggesting distributions that were statistically different from "normal." The decision to proceed with a multivariate analysis was made, with caution, given (a) the belief that these data represent fairly the general population of persons with mental retardation, and (b) that the synthetic variable is usually normally distributed even when the dependent variables, taken independently, are not (Barker & Barker, 1984; Harris, 1986).

Results

Prior to conducting the MANOVA, mean and standard deviation values were computed on each of the 11 dependent variable scales according to level of classification (see Table 2).

Insert Table 2 about here

It was hypothesized that no statistically significant differences existed among dependent variable scores, jointly or separately, across level of mental retardation. The hypothesis was rejected based on a calculated Pillai F (.10; 2, 102) of 5.91, $p = .001$, which suggested that a statistically significant difference existed among levels of mental retardation for the entire group of 11 community adjustment variables. Further, a post-hoc analysis of power computed using criteria outlined by Stephens (1980) exceeded .96 ($\beta \leq .04$) and suggested that the test was indeed capable of detecting statistically significant differences at the .10 level, a level of power that is in part traceable

to η^2 in which 74% of the total variance was accounted for by level of mental retardation.

Follow-up univariate ANOVAs to the statistically significant multivariate F identified statistically significant ($\alpha_{adj} \leq .009$) values for 7 of the 11 dependent variables (see Table 3). Measures of substantive significance for the seven statistically significant univariate ANOVAs ranged from 10% to 40% and are reported in Table 3.

 Insert Table 3 about here

Follow-up comparisons to statistically significant univariate F s took two forms and were tested using directional hypotheses. Trends in the data were anticipated based on expectations that the response pattern for certain variables would be positively associated with level of functioning (corollary 1) while the response pattern for other variables would be negatively associated with level of functioning (corollary 2). A priori contrasts were organized according to one of two corollaries and written to maintain the experiment-wise error rate at the .10 level; the adjusted hypothesis-wise error rate for each pair-wise contrast was therefore set at $\alpha_{adj} \leq .001$ across 14 separate comparisons.

Corollary 1: The scores of persons with mild retardation will be significantly higher than those of persons with moderate retardation and the scores of persons with moderate retardation will be significantly higher than those of persons with severe/profound retardation for each of the following variables: (a) earned income, (b) daytime activities, and (c) living arrangement.

For corollary 1a, earned income, the differences in reported monthly income between those with mild retardation ($M = \$540/\text{month}$) and those with moderate retardation ($M = \$180$) and between those with moderate retardation and those with severe/profound retardation ($M = \$39/\text{month}$) were both statistically significant.

For corollary 1b, daytime activities, the difference between those with mild retardation ($M = 6.114$) and those with moderate retardation ($M = 4.343$) was statistically significant. The difference between those with moderate retardation and those with severe/profound retardation ($M = 3.314, p = .014$) was not statistically significant.

For corollary 1c, living arrangement, the difference between those with mild retardation ($M = 3.457$) and those with moderate retardation ($M = 2.800, p = .002$) was not statistically significant; the difference between those with moderate retardation and those with severe/profound retardation ($M = 2.314$) was statistically significant.

Corollary 2: The scores of persons with mild retardation will be significantly lower than those of persons with moderate retardation and the scores of persons with moderate retardation will be significantly lower than those of persons with severe/profound retardation for each of the following variables: (a) recreation/leisure--community, (b) income support, (c) number of limiting functions, and (d) number of support services.

For corollary 2a, recreation/leisure--community, neither the difference between those with mild retardation ($M = .800$) and those with moderate retardation ($M = .914, p = .002$) nor the difference between those with moderate retardation and those with severe/profound retardation ($M = 1.400, p = .529$) was statistically significant.

For corollary 2b, income support, persons with mild retardation reported significantly less social security income per month ($M = \$38$) than persons with moderate retardation ($M = \$150$). The difference in monthly social security income between those with moderate retardation and those with severe/profound retardation ($M = \$154, p = .900$) was not statistically significant.

For corollary 2c, number of limiting factors, persons with mild retardation reported significantly fewer limitations to social and leisure functioning ($M = .057$) than those with moderate retardation ($M = 1.114$). Values for those with moderate retardation and those with severe/profound retardation were identical, thus requiring no pair-wise comparison.

For corollary 2d, number of support services, persons with mild retardation reported significantly fewer community support services ($M = .057$) than persons with moderate retardation ($M = 1.771$). The difference between those with moderate retardation and those with severe/profound retardation ($M = 2.743, p = .021$) was not statistically significant.

Discussion

Most previous research on the community integration of young adults has focused on

employment or employment-related outcomes as indicators of successful community adjustment (e.g., Brickey, Campbell, & Browning, 1985; Fardig, Algozzine, Schwartz, Hensel, & Westling, 1985; Hasazi, Gordon, & Roe, 1985; Wehman, Kregel, & Seyfarth, 1985). In contrast, the intent of this investigation was to include a wide array of variables not typically used in post-school adjustment studies, variables that these and other researchers (e.g., Bruininks, Thurlow, Lewis, & Larson, 1988; Larson & Lakin, 1989; McDonnell & Hardman, 1985) have found to be important correlates of community adjustment for persons with mental retardation. This study also attempted to assess the community adjustment of young adults with mental retardation on the basis of 11 outcome variables organized according to the broad areas identified in previous research (McGrew et al., 1989). Through multivariate statistical analysis, performance on the outcome measures was evaluated overall and according to each of the separate areas of functioning. While significant differences were observed across levels of mental retardation on all 11 measures collectively (see Table 1), the more interesting analyses emerged from follow-ups to the significant univariate ANOVAs reported in Table 3.

The lack of statistically significant differences across levels of retardation for variables contained in the "Social/Network Integration" dimension has some basis in the literature (Hill & Bruininks, 1981). In addition, neither Number of Friends nor Variety of Friends produced statistically significant univariate *F* values, a finding that supports the earlier work of Bruininks, Thurlow, Lewis, and Larson (1988), using a related data set in which number of close friends did not vary across type of disability. The tendency for persons with more severe degrees of mental retardation, who often are in supervised residential settings, to have friends with care-provider responsibilities may account for the failure to find differences. On the other hand, it may be that mere counts of friendships or contacts with others are not accurate indices of an individual's level of social integration (Abery, Thurlow, Bruininks, & Johnson, 1989).

Only one of three "Recreation/Leisure Integration" measures produced a statistically significant difference among groups. That is, all groups appeared to participate at the same approximate levels in social events outside of the home and in leisure activities within the home

environment (e.g., visiting with others or playing games). Persons with more severe degrees of mental retardation seemed to access more formally scheduled group activities (e.g., attending events or religious services). The lack of advantage in recreational opportunities and friendships for those persons with mild mental retardation tends to confirm the observation of limited friendships and access to community resources for many persons with mental retardation outside of the home (Abery, et al., 1989; Halpern, et al., 1986).

Contrasts for variables comprising the "Community/Economic Integration" dimension produced statistically significant differences favoring persons with mild retardation over persons with moderate retardation for the variables Earned Income and Daytime Activities, but not for the variable Living Arrangement. Statistically significant differences favoring persons with moderate retardation when compared with persons with severe/profound retardation were evident for the variables Earned Income and Living Arrangement, but not the variable Daytime Activities. The "Community/Economic Integration" dependent variable, Income Support, produced a statistically significant difference with individuals with severe/profound retardation having higher values on this variable than individuals with moderate retardation. But, the difference between those with moderate retardation and those with mild retardation was not statistically significant. These results indicate that the groups were differentiated on factors related to income, employment, and degree of independence in living arrangement.

Variables contained in the dimension "Need for Support Services" were also analyzed, yielding values that were inversely related to level of mental retardation. That is, scores for those with severe/profound retardation were significantly higher than scores for those with moderate retardation for both variables, Number of Limiting Factors and Number of Support Services. No statistically significant differences were observed between individuals with moderate retardation and those with mild retardation, for either dependent variable.

The empirically derived dimensions of community adjustment identified in previous research served as an appropriate template for the community adjustment differences observed in this study across samples of individuals with varying degrees of mental retardation. Of the 14 paired

comparisons that were conducted, seven were found to be statistically significant. Of those seven, five resulted from comparisons between samples of persons with mild and moderate retardation. The primary differences among these groups were mostly related to aspects of physical integration in the community (e.g., housing), Economic Integration, and Need for Support Services. Statistically significant differences between samples of persons with moderate and severe/profound retardation were limited to two variables, Economic Independence and Living Arrangement. Examining these results indicates unreasonably low levels of economic productivity and community assimilation in employment and daytime activity, particularly for persons with moderate to severe degrees of mental retardation. Measures assessing friendships and leisure/recreation patterns produced few differences among groups. Similarly, friendship networks and recreation/leisure opportunities seemed somewhat limited for all groups, especially those with mild mental retardation.

There are several limitations that restrict the generalizability of these results and point to the need for further research. First, similar to other studies in the literature, samples used in this study were not randomly selected; therefore, generalizations to other samples of individuals with disabilities must be made with caution. Second, as suggested by the rather large standard deviations in Table 1, the assumptions of homogeneity of matrices and normality were not met. Although the model was not abandoned, the extent to which the departures from normality and homogeneity of matrices have affected the results cannot be known with certainty. Third, two variables (Daytime Activity and Living Arrangement) were ordinal in nature, thereby violating a major premise of parametric analysis--the requirement for interval level data. Because the two variables were limited to one dimension, "Economic/Community Integration," it is assumed that the variables in the other dimensions remained relatively unaffected by this violation, particularly given the power of this particular test (.96 \pm) and the rather stringent alphas used for interpretation of results. Fourth, data were not available on a control group of persons without disabilities. Finally, although 74% (η^2) of the variance may have been accounted for by level of mental retardation, 26% of the variance was unaccounted for, suggesting that factors other than level of mental retardation may have accounted for many of the differences observed in these results.

It is recommended that investigators continue to search for techniques and models that better explain community adjustment outcomes for individuals with varying degrees of mental retardation. Additional variables could include indices of satisfaction and better indices of social networks, such as those reported by Abery et al. (1989). It is further recommended that research on integration of persons with mental retardation employ a broader range of outcome measures than has been used in the past, and that multivariate procedures be employed with greater frequency to derive dimensions of adjustment that adequately address the multifaceted aspects of community living and quality of life. As Pedhazur (1982) stated, "Much of the social world is multivariate in nature, . . . studying it piecemeal does not hold promise of understanding it" (p. 686).

References

- Abery, B. H., Thurlow, M. L., Bruininks, R. H., & Johnson, D. R. (1989, December). *The social networks of youth with developmental disabilities*. Paper presented at the 16th annual meeting of the Association of Persons with Severe Handicaps, San Francisco.
- Barker, H. R., & Barker, B. M. (1984). *Multivariate analysis of variance (MANOVA): A practical guide to its use in scientific decision making*. University, AL: The University of Alabama Press.
- Bernstein, I. (1988). *Applied multivariate analysis*. New York: Springer-Verlag.
- Brickey, M. P., Campbell, K. M., & Browning, L. J. (1985). A five-year follow-up of sheltered workshop employees placed on competitive jobs. *Mental Retardation*, 23(2), 67-73.
- Bruininks, R. H., McGrew, K. S., Thurlow, M. L., & Lewis, D. R. (1988, August). *Dimensions of community adjustment among young adults with intellectual disabilities*. Paper presented at the 8th World Congress of the International Association for the Scientific Study of Mental Deficiency, Dublin, Ireland.
- Bruininks, R. H., Hill, B. K., Weatherman, R. F., & Woodcock, R. W. (1986a). *ICAP: Inventory for Client and Agency Planning*. Allen, TX: DLM Teaching Resources.
- Bruininks, R. H., Hill, B. K., Weatherman, R. F., & Woodcock, R. W. (1986b). *Examiner's manual: ICAP: Inventory for Client and Agency Planning*. Allen, TX: DLM Teaching Resources.
- Bruininks, R. H., Thurlow, M. L., Lewis, D. R., & Larson, N. W. (1988). Post-School outcomes for students in special education and other students one to eight years after high school. In R. H. Bruininks, D. R. Lewis, & M. L. Thurlow (Eds.), *Assessing outcomes, costs, and benefits of special education programs* (Report Number 88-1; pp. 9-110). Minneapolis: University of Minnesota, Department of Educational Psychology. University Affiliated Program on Developmental Disabilities.
- Butler, A. J., & Browning, P. (1974). Methodological issues in prediction of rehabilitation outcomes of the mentally retarded. In P. L. Browning (Ed.), *Mental retardation: Rehabilitation and counseling*. Springfield, IL: Thomas.

- Craig, E. M., & McCarver, R. B. (1984). Community placement and adjustment of deinstitutionalized clients: Issues and findings. In N. R. Ellis & N. W. Bray (Eds.), *International review of research in mental retardation* (Vol. 12, pp. 95-122). Orlando, FL: Academic Press.
- Dunn, O. J. (1961). Multiple comparisons among means. *Journal of the American Statistical Association*, 52-64.
- Emerson, E. B. (1985). Evaluating the impact of deinstitutionalization on the lives of mentally retarded people. *American Journal of Mental Deficiency*, 90, 277-288.
- Fardig, D. B., Algrizine, R. F., Schwartz, Hensel, J. W., & Westling, D. L. (1985). Post-secondary vocational adjustment of rural, mildly handicapped students. *Exceptional Children*, 52(2), 115-121.
- Goldstein, H. (1964). Social and occupational adjustment. In H. A. Stevens & R. Heber (Eds.), *Mental retardation*. Chicago: University of Chicago Press.
- Halpern, A. S., Close, D. W., Nelson, D. J. (1986). *On my own: The impact of semi-independent living programs for adults with mental retardation*. Baltimore: Paul H. Brookes.
- Harris, R. J. (1985). *A primer of multivariate statistics* (2nd ed.). Orlando, FL: Academic Press.
- Hasazi, S. B., Gordon, L. R., & Roe, C. A. (1985). Factors associated with the employment status of handicapped youth exiting high school from 1979 to 1983. *Exceptional Children*, 51(6), 455-469.
- Heal, L. W., Sigelman, C. K., & Switzky, H. N. (1978). Research on community residential alternatives for mentally retarded. In N. R. Ellis (Ed.), *International review of research in mental retardation* (Vol. 9, pp. 209-249). New York: Academic Press.
- Hill, B. K., & Bruininks, R. H. (1981). *Family, leisure, and social activities of mentally retarded people in residential facilities*. Minneapolis: University of Minnesota, Department of Educational Psychology.
- Kerlinger, F. L. (1986). *Foundations of behavioral research* (3rd ed.). New York: Holt, Rinehart and Winston.

- Landesman, S. (1986). Quality of life and personal life satisfaction: Definition and measurement issues. *Mental Retardation*, 24, 141-143.
- Larson, S. A., & Lakin, K. C. (1989). Deinstitutionalization of persons with mental retardation: Behavioral outcomes. *The Journal of the Association for Persons with Severe Handicaps*, 14(4), 324-332.
- McDonnell, J., & Hardman, M. (1985). Planning the transition of severely handicapped youth from school to adult services: A framework for high school programs. *Education and Training of the Mentally Retarded*, 20(4), 275-284.
- McGrew, K. S., Bruininks, R. H., Thurlow, M. L., & Lewis, D. R. (1989). *Evaluating a model of community adjustment on young adults with retardation*. Manuscript submitted for publication.
- Pedhazur, E. J. (1982). *Multiple regression in behavioral research* (2nd ed.). New York: Holt, Rinehart and Winston.
- Pillai, K. C. (1955). Some new test criteria in multivariate analysis. *Annals of Mathematical Statistics*, 26, 117-121.
- SPSS/PC+, Inc. (1986). *SPSS/PC+ statistical software* (Version 3.0). Chicago: Author.
- Stephens, M. A. (1974). EDF goodness of fit and some comparisons. *Journal of the American Statistical Association*, 69(347), 730-737.
- Stevens, J. (1986). *Applied multivariate statistics for the social sciences*. Hillsdale, NJ: Lawrence Erlbaum.
- Stevens, J. P. (1980). Power of the multivariate analysis of variance tests. *Psychological Bulletin*, 88(3), 728-737.
- Thurlow, M. L., Bruininks, R. H., & Lange, C. M. (1989). *Assessing post-school outcomes for students with moderate to severe mental retardation* (Project Report No. 89-1). Minneapolis: University of Minnesota, Institute on Community Integration.

- Thurlow, M. L., Bruininks, R. H., Wolman, C., & Steffens, K. (1989). *Post-school occupational and social status of persons with moderate, severe, and profound mental retardation* (Project Report No. 89-3). Minneapolis: University of Minnesota, Institute on Community Integration.
- U.S. Department of Education. (1987). *Ninth annual report to Congress on the implementation of The Education of the Handicapped Act*. Washington, DC: U.S. Department of Education.
- Wehman, P., Kregel, J., & Seyfarth, J. (1985). Transition from school to work for individuals with severe handicaps: A follow-up study. *Journal of the Association of the Severely Handicapped*, 10(3), 132-136.

Table 1

Description of Community Adjustment Variables

Social Network Integration

Number of Friends	number of friends.
Variety of Friends	special friend, peer friend, residence staff friend, teacher/boss friend, other friend, romantic friend, regular contact with same age non-handicapped friend, visited a friend, attended a party or dance

Recreation/Leisure Integration

Recreation/Leisure-Social	dined out, visited a friend, attended: party or dance, sporting event, movie, concert, play
Recreation/Leisure-Community	involvement in club or organization, visited others in community, attended: sporting event, religious service
Recreation/Leisure-Home	dined out, games (card, board, toys), musical activities, hobbies, went to a park or for a walk, paper activities, cleaning/maintenance, visited with relatives

Community/Economic Integration

Income Support	amount of social security and disability income per month
Earned Income	amount of income earned per month
Daytime Activity*	1 = no formal program outside home, 2 = day care, 3 = day/work activity center, 4 = sheltered workshop, 5 = school or volunteer, 6 = supervised/supported employment, 7 = competitive employment
Living Arrangement*	1 = institution, hospital, or nursing home, 2 = group residence, 3 = family or relatives, 4 = apartment training, 5 = independently or with friends

Need for Support Services

Number of Limiting Factors	number of factors limiting social and leisure activities as reported on the <u>ICAP</u> Social and Leisure Activities Scale
Number of Support Services	number of community support services as reported on the <u>ICAP</u> Support Services Scale

Note. * denotes continuum or rating scale format; all others are assumed to be based on an additive scale

Table 2

Mean and Standard Deviation Values According to Level of Classification

Dimension	Level of Classification					
	Mild		Moderate		Severe/Profound	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Social/Network Integration						
Number of Friends	3.600	4.360	2.686	2.888	1.857	3.136
Variety of Friends	2.800	1.256	2.629	1.610	1.971	1.823
Recreation/Leisure Integration						
Recreation/Leisure--Social	2.029	1.071	2.000	1.260	1.971	1.272
Recreation/Leisure--Community	.800	.632	.914	.818	1.400	1.035
Recreation/Leisure--Home	5.400	1.168	6.086	1.483	6.029	1.424
Community/Economic Integration						
Income Support	38.018	96.994	150.314	129.851	154.361	149.929
Earned Income	539.179	458.197	179.762	193.272	39.046	62.011
Daytime Activities	6.114	2.040	4.343	2.209	3.314	.867
Living Arrangement	3.457	1.067	2.800	.584	2.314	.471
Need for Support Services						
Number of Limiting Factors	.057	.236	1.114	.758	1.114	.718
Number of Support Services	.057	.236	1.771	1.239	2.743	2.077

Table 3

Univariate Values for Dependent Variable Scores

Variable	Mean Square Among	Mean Square Error	F	p	η^2
Social/Network Integration					
Number of Friends	26.600	12.394	2.146	.122	
Variety of Friends	6.695	2.498	2.681	.073	
Recreation/Leisure Integration					
Recreation/Leisure- Social	.029	1.450	.020	.980	
Recreation/Leisure--Community	3.552	.713	4.981	.009*	.10
Recreation/Leisure--Home	5.067	1.864	2.718	.071	
Community/Economic Integration					
Income Support	152614.932	16249.249	9.392	.000*	.16
Earned Income	2328174.150	83714.590	27.811	.000*	.35
Daytime Activities	70.210	3.264	21.508	.000*	.30
Living Arrangement	11.514	.567	20.309	.000*	.28
Need for Support Services					
Number of Limiting Fact	13.038	.382	34.125	.000*	.40
Number of Support Services	64.724	1.968	32.887	.000*	.39

Note. * denotes significant at the $\alpha_{adj} = .09$ level.