

The Quality of IEP Objectives Associated with Placement on Integrated Versus Segregated School Sites

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Individualized education programs (IEPs) written for students with severe disabilities who attended either integrated or segregated educational sites were evaluated on the basis of the degree to which they included seven components identified as indicators of best practices. These seven indicators fall into three categories—age-appropriateness, functionality, and potential for generalization to a variety of environments. Teacher training and expertise were held constant. A difference was found between the groups on the overall quality of IEP objectives, with higher scores on those IEPs written for students who were integrated into regular school campuses. Opportunities available in integrated programs that may enhance IEP quality are discussed.

The rationale for the provision of integrated programs for students with severe disabilities, in which students attend age-appropriate regular public schools, has been clearly articulated (Bricker, 1978; Sailor & Haring, 1977; Wilcox & Sailor, 1980). Voeltz, Johnson, and McQuarter (1983) pointed out that the benefits to disabled and nondisabled students in support of integrated services fall in one of the following areas: (a) integrated experiences for nondisabled students allow for the development of attitudes and skills necessary for the acceptance of students with disabilities or other differences; (b) integration provides the opportunity for social interactions and friendships to develop between disabled and nondisabled students which contribute to their quality of life; and (c) integration allows students with severe disabilities to participate in a variety of natural, age-appropriate school and community environments for the acquisition of functional skills and the development of social competence.

Recently, a number of studies have provided empir-

This research was supported by U.S. Department of Education Contract 300-82-0365, the California Research Institute (Wayne Sailor, PhD, Principal Investigator). The content and opinions expressed herein do not necessarily reflect the position or policy of the U.S. Department of Education and no official endorsement should be inferred.

Thanks are extended to Janet Combs for assisting in the completion of reliability measures.

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ical support for the contention that the benefits outlined above are associated with integrated programs. Positive attitude change in nondisabled students as a function of a Special Friends program (Voeltz et al., 1980) has been documented by Voeltz (1980, 1982). The assertion that integrated programs provide opportunities for the social interaction of nondisabled and severely disabled students has likewise received empirical support from a number of investigators using a variety of research methodologies (Anderson & Goetz, 1983; Brinker, 1985; Devonney, Guralnick, & Rubin, 1974).

However, the third potential benefit area, program quality and functional skills acquisition, has received relatively little research attention to date. Sokol-Kessler, Conroy, Feinstein, Lemanowicz, and McGurrian (1983) and Keith and Ferdinand (1984) both compared groups of persons who were institutionalized with groups served in community settings and found increases in functioning levels and decreases in maladaptive behaviors among the community groups. Brinker and Thorpe (1984) included 245 students with severe disabilities, who attended a school in 1 of 13 school districts or one residential institution, in a study to determine the effect of integration on the acquisition of individualized education program (IEP) objectives. Integration was defined according to the observed rate of interaction between disabled and nondisabled students. The results showed that when the students' functional ability levels were controlled for, the rate of interaction with nondisabled students (integration) was a significant predictor of the degree of mastery of IEP objectives.

No studies have been completed, however, which relate integration to program quality. The present study began to investigate the relationship between the quality of educational programs and integrated services by examining IEP objectives. Although there is no documented evidence of a correspondence between the quality of IEP objectives and the quality of educational programs, the adequacy of IEP objectives is of concern because they serve as guides for teachers during program development and implementation (Billingsley, 1984). The importance of the function of IEP objectives as program guides is emphasized by the requirement in P.L. 94-142 that they serve as the basis for IEPs.

Billingsley (1984) examined the quality of 499 IEP

objectives written for 22 students with severe/profound multiple disabilities on the extent to which individual objectives included functional target behaviors and explicit specification of generalization criteria. The results showed that two-thirds of the 499 objectives included functional behavior, but only a few specified generalization as a performance criterion. Our study analyzed IEP quality in the two areas addressed by the Billingsley investigation, functionality and generalizability of individual objectives, with the addition of a third area, the age-appropriateness of the activity and materials. However, the focus of the present investigation was not IEP quality, per se, but to determine whether placement on an integrated site influences program quality. Specifically, the purpose of the our study was to examine whether IEP objectives written for students with severe disabilities include more indicators of best practices as a function of the placement of the students on integrated school sites. IEP objectives were rated on the basis of the degree to which they included seven components which fall within the three categories of age-appropriateness, functionality, and potential for generalization to a variety of environments.

Method

Participants

Teachers. Twelve teachers of students with severe and profound multiple disabilities participated in the study. Each was responsible for the programs of three participating students. The teachers were divided into two groups: Group 1 included six teachers whose students had been integrated into a regular elementary school, middle school, or high school. Group 2 included six teachers whose students attended special schools for disabled students only. The students chosen to participate in the study were randomly selected from the attendance roster of their classroom program.¹

With the focus of the present study being on the difference that program placement alone makes on the quality of IEP objectives, an attempt was made to control for teacher variables such as educational philosophy and skills in curriculum development and program implementation: therefore, participating teachers were required to meet three criteria that would increase the degree of homogeneity across these variables: (a) they had to have recently received a credential through programs for persons with severe disabilities at San Francisco State University, San Jose State University, California State University, Hayward, or California State University, Los Angeles; and (b) they had to be in their first or second year of teaching.

Credential programs in the area of severe disabilities

¹ One teacher in each group (segregated and integrated) was deleted post hoc from an original sample of 14 teachers as a result of feedback during the manuscript review process.

at the above-named universities have similar training programs which emphasize teaching functional and chronologically age-appropriate skills across a variety of real life environments. The students who graduate from these programs are prepared to assess functional life skill needs, generate IEP goals and objectives based on assessment data and IEP team input, design individualized instructional programs for each objective, and implement instruction and monitor student progress on a systematic basis. They are also familiar with innovative best practices in the field of severe disabilities today including integration programming, special friends and peer tutoring, and nonclassroom, community-intensive instruction.

Students. The ages for students enrolled in integrated programs ranged from 4 to 19 years (mean = 11 years); for students enrolled in segregated programs, ages ranged from 4 to 19 years (mean = 13 years). Table 1 presents a summary of student characteristics (student ages and the diagnostic label applied by the school district) designated by teacher and group (integrated or segregated).

Independent Variable

Our study was designed to determine whether IEP objectives written for students with severe disabilities include more indicators of best practices associated with placement of the students on an integrated school site.

Segregated sites. Eighteen students attended special schools for students with severe disabilities which were administered by four local or county public school districts in California. Contact with nondisabled students and community instruction occurred at varying degrees across programs.

Integrated sites. The other 18 students were receiving educational services in self-contained classrooms on a regular elementary school, middle school, or high school campus. The programs were administered by five local or county public school districts in California.

There were some differences among integrated programs in the extent to which teachers utilized formal and informal in-service training and special friends and peer tutoring programs to facilitate the successful integration of the students with disabilities.

Dependent Measure

An IEP instrument was developed to evaluate the quality of a child's IEP. It rates IEP objectives on the basis of the degree to which they include seven components which current literature suggests may be identified as "indicators of best practices" (Brown et al., 1979; Falvey, 1986; Sailor & Guess, 1983) (see Figure 1). These seven components fall within three categories: age-appropriateness (of the materials and the task), functionality (a basic skill, a critical activity, or an interaction activity), and potential for generalization to a variety of environments (taught across a variety of

Table I
Student Characteristics by Site

Integrated sites				
Student diagnosis		Ages of students		
Classroom A	Moderate mental retardation	15	14	13
Classroom B	Autistic	8	8	8
Classroom C	Severe multiple disabilities	6	7	10
Classroom D	Severe multiple disabilities	13	15	12
Classroom E	Severe multiple disabilities	16	19	19
Classroom F	Moderate mental retardation	4	4	4
1 = 1 1 (range 4-19)				
Segregated sites				
Student diagnosis		Ages of students		
Classroom G	Severe multiple disabilities	18	15	19
Classroom H	Severe emotional disturbance	13	13	14
Classroom I	Moderate mental retardation	14	14	14
Classroom J	Severe multiple disabilities	13	14	15
Classroom K	Severe multiple disabilities	4	4	5
Classroom L	Moderate mental retardation	15	17	18
X = 13 (range 4-19)				

settings and materials). Summary measures of the degree of the presence of these indicators of best practices were then used as a basis for rating the caliber of educational programs developed under integrated and segregated educational models.

Instrument validity. Five persons—identified as experts in the field of special education through their publications in referred journals, their presentations at conventions for associations for persons with severe disabilities, and their position as university instructors in special education, credential programs in the area of severe disabilities—rated 71 objectives on 10 IEPs. They were asked to rate each objective in terms of the inclusion of indicators of best practices on a scale from 1 to 10, with 10 being the highest score. They based their ratings on their own notion of the indicators of best practices that should be included in an instructional objective for students with severe disabilities. Their scores were correlated with the scores obtained by a rater using the IEP instrument. The resulting Pearson r correlation coefficients were the following: $r = +.70$, $r = +.63$, $r = +.73$, $r = +.74$, $r = +.65$.

A Spearman's rank correlation coefficient was calculated to determine the agreement between the rankings of the 10 IEPs based on the IEP summary scores from the expert raters and the ranking based on summary scores from a rater using the IEP evaluation instrument. The five correlation coefficients were the following: $r = +.97$, $r_5 = +.93$, $r_5 = +.99$, $r_5 = +.94$, $r_5 = +.95$.

A Kendall's W , calculated to determine the overall agreement on rankings of the 10 IEPs among the five expert raters, was $W = +.96$.

Rating objectives. Figure 1 presents a sample data collection sheet. In the far left column is a list of the seven indicators of best practices within the three areas

of age-appropriateness, functionality, and potential for generalization to a variety of environments. A definition is given for each indicator. A set of guidelines and examples which clarify the definitions are included with each data sheet. A data sheet provides space to rate 12 objectives. One point is scored for each of the indicators included in an objective with a total of seven points possible per objective.

Summary scores. As can be seen from Figure 1, summary scores for several variables were recorded on the lower right hand corner of the data collection sheet. The second item in this listing of summary scores—the percentage points obtained across all objectives on a single IEP out of the total points possible—is the score that is used to determine the overall quality of the IEP objectives.

Procedures

Each of the 12 participating teachers submitted the current IEPs written for students numbered 2, 5, and 7 on their roster sheet. Each IEP was rated on the number of indicators of best practices included in each objective. The coders did not know if the IEPs originated from integrated or segregated classrooms with one exception: if an IEP objective involved a nonclassroom activity which included the presence of "peers" (e.g., recess, cafeteria, or passing in the halls), then the coder had to determine whether the program was integrated or segregated in order to score Indicator 5 (an interaction activity which provides the opportunity for the mutual participation of a nondisabled person and a student with severe disabilities). Such a determination was required for less than 20% of the IEPs rated.

Summary scores were calculated for each IEP, and then average scores were determined for each set of three IEPs per teacher.

Reliability. Reliability checks were conducted by an

IEP ANALYSIS

Student _____ Teacher _____
 Birthdate _____

INDICATORS OF BEST PRACTICES		DEFINITION	OBJECTIVE			CURRICULUM AREA(S)						TOTAL #	%		
			1	2	3	4	5	6	7/8	9 /	10	11	12		
AGE-APPROPRIATE		It would be appropriate for a ND peer of the same chronological age to use the materials.													
1)	Materials age														
2) Task		It would be appropriate for a ND peer of the same chronological age to perform the task.													
FUNCTIONAL		The skill is based on needs identified in 1 of 5 areas: communication, social, behavior, motor, and pre-academic/academic.													
3)	Basic Skill														
4) Critical Activity		The task must be performed for the S if she can't do it for herself.													
5) Interaction Activity		The activity necessitates the mutual participation of a ND and a SD person.													
WILL GENERALIZE TO A VARIETY OF ENVIRONMENTS		The skill facilitates the S's ability to function in a variety of environments: specifically, a basic skill taught within and across critical activities, or a critical activity trained across settings and materials.													
6)	Taught across settings and materials														
7)	Taught in the natural setting	The skill is taught in a way that reflects the manner in which the skill will be used in the natural environment.			1										
TOTAL POINTS PER OBJECTIVE															
DIRECTIONS			SUMMARY											#	%
1) Next to the objective #, indicate the curriculum area(s) with the appropriate letter(s): Communication (C); Social (S); Behavior (B); Motor (M); Domestic (D); Vocational (V); Community (CM); Recreation/Leisure (L); Pre academic (Pre); Academic (A).			# of objectives % points obtained from total points possible average # of points per objective #% use age-appropriate materials #% use age-appropriate tasks #% are Basic Skills #% are Critical Activities #% are Interaction Activities #% will generalize to a variety of environments #% occur in the natural setting												
2) Score 1 point for each Indicator included in an objective: 7 points are possible for each objective.															

Figure 1. The rating sheet for the IEP analysis instrument.

independent rater using the IEP evaluation instrument for each of the three IEPs submitted by 5 of the 12 participating teachers (36%). The independent rater did not know which program type each IEP represented with the exception described above. Pearson *r* correlation coefficients were calculated to determine the agreement between the objective by objective ratings of the experimenter and those of the independent rater for each set of IEPs. The results for each of the five IEP sets are these: $r = +.82$, $r = +.99$, $r = +.90$, $r = +.84$, and $r = +.76$. Reliability coefficients were also calculated on each of the individual indicators of best practices across the five sets of three IEPs. The results were the following: Indicator 1, $+0.996$; Indicator 2, $+0.99$; Indicator 3, $+0.94$; Indicator 4, $+0.94$; Indicator 5, $+0.90$; Indicator 6, $+0.995$; and Indicator 7, $+1.0$.

Design. A one-way (between subjects) non-parametric design was used to test the hypothesis of no difference between the quality of IEP objectives for students with severe disabilities who were integrated into regular school campuses and those students who attended special schools exclusively for persons with disabilities.

Statistical Analysis

Data were analyzed using the two-sample Wilcoxon test (Marascuilo & McSweeney, 1977; Wood, 1974) for two independent samples (sometimes referred to as the Wilcoxon-Mann-Whitney *U* test). Non-parametric statistical procedures were used because of the small *n* size (six teachers in each group). With groups of this size, there is a violation of the assumption of conventional tests that there is normality of the sampling distribution (Siegel, 1956).

A series of analyses were completed. The first looked at the difference between groups on the overall quality of IEP objectives. The summary scores used for this analysis were based on the percentage points obtained across all objectives on a single IEP out of the total points possible. For each set of three IEPs per teacher, an average percentage was calculated. A set of seven two-sample Wilcoxon tests were then done to determine whether there were differences between the groups on any of the single indicators of best practices that might account for most of the overall quality differences.

Alpha level for the overall difference analysis was set

at .05, while all contrasts between the groups on individual indicators were set at .007 (a/n contrasts) to maintain the experiment-wise error rate at .05.

Results

The results of a series of one-tailed two-sample Wilcoxon tests are presented in Table 2. A significant difference was found between the groups on the overall quality of IEP objectives, with higher scores on those IEPs written for students at integrated sites ($l = 28, p < .05$). No significant difference was found in contrasts between the groups on individual indicators of best practices.

Discussion

The findings of this investigation provide some support for the claim that IEP objectives written for students who are integrated into regular school campuses include more indicators of best practices. Contrasts between the groups on individual indicators showed no significant differences; however, there was greater, although not statistically significant, use of age-appropriate materials and tasks, critical and interaction activities, instruction across settings and materials, and instruction in the natural setting in the IEP objectives written for the students on integrated sites (see Table 2).

The results of this study demonstrated a relationship between program *placement alone* and the quality of IEP objectives for students with severe disabilities—with teacher expertise held constant. What, then, are

the opportunities available in integrated programs that may enhance IEP quality or the restrictions imposed by segregated sites that may lower IEP quality? The present study does not allow for the identification of these variables, but it does encourage speculation. Brown et al. (1977) suggested that the segregated service delivery model has a number of disadvantages. Two of the disadvantages they described are related to teacher attitude and expectancies. They suggested that teachers whose programs are based on segregated sites tend to make comparisons between students "in relation to degrees of handicap rather than comparing skill levels of the students to the criteria of non-handicapped skill performance" (p. 198). If the educational program does not reflect the child's chronological age, then the IEP objectives will not be age-appropriate nor will they prepare the student to function as independently as possible in a number of age-appropriate natural environments.

A second disadvantage of segregated programs described by Brown et al. (1977) is that placement on a segregated site may influence teacher philosophy so that he or she would tend to "strive for the resolution of handicapping problems at the expense of developing community referenced skills" (p. 198). If the end point of instruction is seen as improvement in basic skill areas—as communication, behavior, motor, and pre-academic skills—then instruction on these basic skills may occur in isolated, artificial settings, rather than in a natural context and other critical activities may be considered of lower priority.

The obvious advantage of the integrated service de-

Table 2
Results of One-Tailed, Two-Sample Wilcoxon Tests for Overall Quality of IEP Objectives and Inclusion of Individual Indicators of Best Practices

Analysis	Group	Total rank	Critical value	Group mean	Range
Overall IEP quality	Integrated	28	28 ^a	t = 28	44.33-79.67
	Segregated	50			37.33-57.00
Individual indicators of best practices	Integrated	28	30	= 23	90.67-100
	Segregated	50			54.33-100
Age-appropriate materials	Integrated	30	42	= 23	79.67-100
Age-appropriate tasks	Segregated	48			39.33-100
Basic skill	Integrated	42	36	= 23	36.33-76.67
	Segregated	36			7.33-76.33
Critical activity	Integrated	36	30.5	= 23	23.33-89.33
	Segregated	42			27.67-100
Interaction activity	Integrated	30.5	32	= 23	0-49
	Segregated	47.5			0-37
Taught across settings and materials	Integrated	32	34	= 23	2.33-90
	Segregated	46			3-17
Taught in the natural setting	Integrated	34	44	= 23	28.67-100
	Segregated	44			25.67-69.67

Note: lower ranks indicate a greater degree of inclusion of the relevant components.

^a Significant at $\alpha = .05$.

livery model that may affect the quality of IEP objectives is the opportunity that it provides for interaction with nondisabled peers. IEPs written for students on integrated sites may include more tasks requiring the mutual participation of nondisabled and severely disabled students simply because the opportunities are so readily available.

The positive effect of an integrated service delivery model on the quality of IEP objectives is demonstrated with a group of teachers with similar training and expertise. Caution is taken, therefore, in extending the results to the general population of teachers in the field of severe disabilities. Caution must also be taken in assuming a direct relationship between IEP objectives and the actual implementation of those objectives in the classroom. A child's IEP can be a valuable source of data for program evaluation; however, the magnitude of this value is in direct proportion to the level of correlation between the description of a child's program on paper and the actual deliver, of that program in the child's school, home, and community. Thus, one outcome of this study was to highlight the need for further research on the correlation between the IEP and day-to-day educational programming.

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Received: March 26, 1985

Final Acceptance: February 12, 1986