

Investigation of Student Performance in an Interrelated Service Delivery Approach

CAROLYN COOPER¹, BARBARA THOMPSON¹, AND GREG GAITHER²

The purpose of this study was to compare academic progress and behavioral ratings of students receiving special education services in interrelated (multicategorical) classrooms to those of students enrolled in the more traditional categorical service delivery system. Subjects were 92 mildly handicapped students (40 learning disabled, 34 mildly retarded, and 18 emotionally disturbed) who attended school in two rural special education cooperatives. Equally divided between the two special education programs, the subjects were matched on exceptionality and age. Measures of academic performance on selected subtests of the Woodcock-Johnson Psycho-Educational Battery and behavior ratings from the Behavior Rating Profile were obtained through pre- and post-testing conducted during October and May. Although most students made substantial gains, no significant differences were found between students served in categorical and interrelated classroom settings.

As special educators deal with the problem of delivering services to students living in rural areas, they are confronted with many difficulties. In trying to provide programs for handicapped students using the traditional categorical approach, service delivery planners must arrange for transportation of students over wide distances to reach their appropriate categorical classroom, recruit staff to teach in the classrooms, and obtain money to run these expensive programs [2, 3]. A solution to these difficulties that is becoming more widespread is a multicategorical or "interrelated" service delivery approach. Using this approach, children of differing handicapping conditions are grouped into classrooms based on their educational needs rather than on their categorical label. This practice enables a student to receive special education services in his/her own neighborhood, thus better meeting the least restrictive environment specification of PL 94-142. As a result of the more efficient use of staff and decreased transportation costs, the interrelated approach is probably less expensive for rural districts.

Although the interrelated service delivery approach appears to be a viable option for educating rural handicapped students, research on its effectiveness is essentially nonexistent. One aspect of effectiveness that is critical is student progress. Some have argued that multicategorical programs do not serve the best interests of the children [4]. However, there is no hard data to support this opinion. Research is needed to determine if students in interrelated programs do as well academically as students enrolled in categorical special education programs. With these needs in mind, this study was undertaken to compare the academic progress and behavioral rating of students receiving special education services in

interrelated programs with that of students in traditional categorical programs.

Subjects

Subjects for this study were 92 mildly handicapped students receiving special education services in a rural setting. The subjects were equally divided between the interrelated and categorical service delivery systems and were matched on exceptionality and age. A breakdown of students by handicapping condition was as follows: Learning Disabled (LD) 40, Emotionally Disturbed (ED) 18, and Educationally Mentally Handicapped (EMH) 34. The students ranged in age from 7 to 18 years of age.

Testing Instruments

Academic performance of the subjects was measured using selected subtests from the Woodcock-Johnson Psycho-Educational Battery. The students were evaluated in the areas of reading, math, and written language. A rating of the child's behavior was obtained by using the Behavior Rating Profile.

Procedure

Pre-test and post-test measures of achievement and behavior were obtained on each of the subjects. Pre-testing was carried out in October and post-testing was conducted in May. Graduate students from a nearby university were hired to administer the Woodcock-Johnson. The child's special education teacher completed the Behavior Rating Profile. In a few cases, Woodcock-

¹From the University of Kansas, Department of Special Education, 377 Haworth, Lawrence, Kansas 66044.

²From the East Central Kansas Cooperative in Education, P.O. Box 41, Baldwin City, Kansas 66044.

Table 1

A Comparison of Student Performance on the Woodcock-Johnson Psycho-Educational Battery and the Behavior Rating Profile

| Test | Pretest | | | | | | Posttest | | | | | |
|---|---------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|
| | PSA | | EMH | | LD | | PSA | | EMH | | LD | |
| | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. |
| Behavior Rating Profile | | | | | | | | | | | | |
| ECK | 46.60 | 19.25 | 67.24 | 13.39 | 63.57 | 18.51 | 39.10 | 15.79 | 67.12 | 13.33 | 66.57 | 15.53 |
| LEAV | 61.25 | 18.28 | 58.53 | 19.07 | 70.31 | 11.60 | 54.50 | 18.88 | 54.35 | 19.92 | 68.13 | 13.91 |
| Woodcock-Johnson Psycho-Educational Battery | | | | | | | | | | | | |
| Reading Subtests | | | | | | | | | | | | |
| ECK | 5.19 | 2.95 | 2.38 | 1.17 | 4.17 | 2.24 | 5.77 | 3.73 | 2.65 | 1.27 | 4.49 | 1.94 |
| LEAV | 4.30 | 1.54 | 2.75 | 1.44 | 3.45 | 1.64 | 4.83 | 1.62 | 2.57 | 1.46 | 4.41 | 2.63 |
| Math Subtests | | | | | | | | | | | | |
| ECK | 4.90 | 2.52 | 2.65 | 1.38 | 5.22 | 2.83 | 6.53 | 3.23 | 2.80 | 1.34 | 5.49 | 2.33 |
| LEAV | 4.81 | 1.59 | 2.95 | 1.73 | 3.33 | 1.50 | 5.10 | 1.54 | 3.11 | 1.96 | 4.09 | 1.49 |
| Written Language Subtests | | | | | | | | | | | | |
| ECK | 3.79 | 1.77 | 2.44 | 1.40 | 4.29 | 2.75 | 4.94 | 2.38 | 2.73 | 1.57 | 4.59 | 2.61 |
| LEAV | 3.49 | 1.25 | 2.84 | 1.89 | 3.27 | 1.19 | 4.51 | 1.32 | 3.11 | 2.18 | 4.17 | 1.62 |

Johnson scores from recent teacher testing were used to avoid subjecting the student to unnecessary testing.

Results

Means and standard deviations for the Behavior Rating Profile and the Woodcock-Johnson are presented in Table 1. Table 2 shows the results of a repeated measures analysis of variance.

Behavior Rating Profile—As is indicated in Table 2, a significant effect for testings is noted. This shows that the students substantially changed between the pre- and post-testings. However, by inspecting the mean scores, it can be seen that the change was down rather than up. The only pupils that improved their behavior rating were the LD students in the interrelated special education program. The low F ratio of 0.64 for the group effect demonstrates that there were no significant differences in behavior ratings between the two cooperatives.

Woodcock-Johnson Psycho-Educational Battery—An inspection of the mean scores for each of the three subtest areas (Table 1), indicates that there were some slight differences in student academic performance. Emotionally disturbed and learning disabled students in the interrelated program had slightly higher scores than did students in the categorical program. The EMH students in the categorical service delivery approach had slightly higher mean scores than did those in the interrelated cooperative in math and written language but not in reading. However, as the data in Table 2 show, there was a significant effect for testings, but not for groups. The students all made a significant amount of progress, but

Table 2

Repeated Measures Analysis of Variance
F Ratios for Student Data

| Variable | Comparison | F Ratio | Probability | |
|---|--------------------------|-------------|-------------|---------|
| Behavior Rating Profile [1] | Group | 0.64 | 0.4275 | |
| | Testings | 7.53 | 0.0074* | |
| | Interaction | 1.73 | 0.1921 | |
| Woodcock-Johnson Psycho-Educational Battery [5] | Reading Subtest | Group | 0.73 | 0.3946 |
| | | Testings | 19.77 | 0.0000* |
| | | Interaction | 0.07 | 0.7896 |
| | Math Subtest | Group | 2.24 | 0.1383 |
| | | Testings | 26.58 | 0.0000* |
| | | Interaction | 1.78 | 0.1861 |
| | Written Language Subtest | Group | 0.25 | 0.6158 |
| | | Testings | 41.12 | 0.0000* |
| | | Interaction | 0.52 | 0.4719 |

*Significant at the .01 level

there was no significant difference between cooperatives.

Discussion

The purpose of this study was to compare academic progress and behavioral ratings of students in an interrelated special education program with that of students enrolled in a categorical program. Results indicated that overall student performance did not differ significantly between the two special education programs. Both groups of students made significant academic progress. Overall, behavior ratings of both groups declined. It could be speculated that the scheduling of post-testing in May accounted for the drop in student behavior ratings. Educators have noted that students frequently become restless during the spring months and teachers often have less tolerance for misbehavior as the school year goes on.

Generalizability of the data from this study is somewhat limited due to the relatively small number of subjects [92] and the fact that the study was limited to two special education cooperatives. In addition, identification procedures within the two cooperatives differed slightly. This difference resulted in 12% of the total student population receiving special education services in the interrelated program in contrast to 6% being served in the categorical program. The higher percentage of students enrolled in special education in the interrelated program would seem to indicate that more mildly handicapped children were being served in this cooperative. This study, however, is noteworthy for several reasons.

First, because students on the whole performed equally well in both special education programs, this study gives credibility to the interrelated service delivery approach as a viable model for serving special education students in rural areas. Second, this study provides standardized data of yearly academic progress for a group of mildly handicapped students which is generally lacking for youngsters enrolled in special education programs. Finally, the data collected in this study show that a group of special students can make a significant amount of academic progress within a six month period of time.

References

1. Brown, L.L. and Hammill, D.D. Behavior Rating Profile: An Ecological Approach to Behavioral Assessment. Austin, TX: Pro-Ed, 1978.
2. Helge, D.I. The state of the art of rural special education. *Exceptional Children*, 1984, 50, 294-305.
3. Helge, D.I. Problems in implementing comprehensive special education programming in rural areas. *Exceptional Children*, 1981, 47, 514-520.
4. Phipps, P.M. The merging categories: Appropriate education or administration convenience? *Journal of Learning Disabilities*, 1982, 15, 153-154.
5. Woodcock, R.W. and Johnson, M.B. Woodcock-Johnson Psycho-Educational Battery. Hingham, MA: Teaching Resources Corporation, 1977.