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ABSTRACT

This study examined whether Wechsler Intelligence Scale for Children (Revised) subtest patterns employing Kaufman's classification system differ between male and female elementary grade students receiving special education services. It also examined whether females in special education are more significantly impaired than males, and whether males exhibit more behavior problems. The children (115 males and 215 females) were in grades 2 through 8 in a large urban school district and were all certified for special education, mostly for learning disabilities. Results supported the hypothesis that girls placed in special education obtained significantly lower scores than boys on the Verbal Comprehension factor, thus suggesting that girls placed in special education are significantly more impaired academically. The second hypothesis, that boys in special education classes would show more behavioral difficulties than girls as reflected in lower scores on the Freedom from Distractibility factor, was not supported. The findings are discussed in light of research on attitudes and expectations toward male and female students. (Contains 18 references.) (DB)

Gender Differences in Cognitive Profiles Among Urban Children Placed in Special Education

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Running Head: Differences in Cognitive Profiles

ABSTRACT

Research in special education placement consistently indicates a preponderance of males in these classes. A number of investigators have suggested that girls in special education classes are more disabled than boys, and that boys in special education evidence more behavioral difficulties. The present study was designed to determine whether WISC-R subtest patterns employing Kaufman's classification system differ between males and females, to clarify whether females in special education are more significantly impaired than males, and whether males exhibit more behavior problems. We examined these questions in a group of 330 male and female certified special education children who we compared on Kaufman's three factors of the WISC-R. A significant Sex X Locale X Factor type interaction was found indicating significantly lower Verbal Comprehension scores than males. No significant differences on the other two factors emerged. The findings are discussed in light of the research on attitudes and expectations toward male and female students.

The accurate identification of children as being eligible to receive special education services is more than an academic exercise. Federal law and regulation (EHA, 1975; IDEA, 1991) as well as state laws and regulations detail the definitions of various educationally disabling classifications which render children eligible to receive special education services. Regardless of the educationally disabling condition we might wish to identify and discuss, an unquestioned foundation of both federal and state statutes is that the definitions are consistently applied. For example, there is no doubt that the intent of federal law was to establish a standard of practice that would eliminate, or at least reduce, disparities in the classification of children of different racial/ethnic groups as eligible for special education. Considerable material has been published on the issue of racial disparities in special education placements, some of which was motivated by federal lawsuits that successfully challenged the validity of psychological testing in the classification process of minority children (e.g., Larry P. v. Riles, 1979). There is another area where disparities exist and are well known, however, but which has received far less attention in the psychological literature: sex bias in special education placement.

The predominance of male children in special education literature is well documented (Ashurst & Meyers, 1973; Leinhardt, Seewald & Zigmond, 1982; Mercer, 1973). Current estimates of the proportion of male to female students suggests that there are three

males to every one female in special education classes (Clarizio & Phillips, 1986; Kratovil & Bailey, 1986; Richardson, Katz & Koller, 1986). The over-representation of males placed in special education has been found across all types of exceptionality; educable mentally retarded (Mercer, 1973; Prillaman, 1975; Richardson et al., 1986), learning disabled (Leinhardt et al., 1982; Reynolds, 1985) and emotionally handicapped (Ashurst & Meyers, 1973).

A number of studies have suggested that girls in special education classes are slower and more disabled than boys (Mercer, 1973; Owen, 1978). Leinhardt and her colleagues (1982) found that smaller levels of deviance were required to place or retain a male student in learning disability classes than a female student. Richardson and colleagues (1986) found that although "intellectual retardation" (as determined by standardized IQ scores) was equally prevalent among males and females, males were overrepresented in educable mentally retarded (EMR) classes. Females who had placed EMR classes were significantly more retarded than their male peers. Other researchers found that although non-educational factors such as gender did not appear to be a major consideration in special education placement, they did find evidence that sex differences related to reason for referral may have been a factor in the initial referrals. (Clarizio & Phillips, 1982). Boys were often referred for behavioral problems while girls were more often referred for academic difficulties.

One possible explanation for the observed differences in

gender distributions in special education classes lies in attitudes and expectations that teachers hold for male and female students. Gregory (1977) found that teachers, given identical information about a child's academic and behavioral problems, are more likely to refer boys than girls for special education placement. It has been demonstrated that boys are given a higher referral priority than girls, given identical problems (Schlosser & Algozzine, 1980). Mercer (1973) suggested that educators may have higher expectations for boys and thus set higher standards for boys than girls. Lower ability levels may be more easily tolerated in females than males (Kratovil & Bailey, 1986). Boys are also more frequently perceived as exhibiting behavioral disorders (Kelly, Bullock, & Dykes, 1977), and poor school behavior is commonly associated with special education placement in average IQ children (Rubin, Krus, & Balow, 1973). Boys therefore, may be more frequently referred and placed in special education because of disruptive social behavior.

Taken together, two factors seem to contribute to the overrepresentation of males in special education. One factor is that girls may not be referred to special education unless they are very significantly handicapped. This, therefore, generates the hypothesis that girls in special education will be more intellectually impaired or lower functioning than boys. The second factor suggests that boys may be more frequently identified as handicapped because of disruptive social behavior rather than because of academic need or intellectual impairment. This results in the hypothesis that boys in special education not be be less

academically or intellectually impaired than girls; however, boys should evidence more behavioral problems.

The present study was designed to further the small body of research on sex differences in special education placement and to clarify whether females in special education possess different intellectual profiles than males. We also studied whether males evidence more behavioral problems, as inferred from their pattern of scores on the WISC-R and from the reasons they were initially referred for a multi-disciplinary evaluation.

We studied a random sample of inner-city children (primarily learning disabled) who were placed in special education on Full Scale, Verbal and Performance IQ scores and on Kaufman's three factors of the Wechsler Intelligence Scale for Children - Revised (WISC-R), Verbal Comprehension, Perceptual Organization and Freedom from Distractibility, also referred to as Factor 3. The students were also compared on the reasons they were referred for evaluation, academic reasons or behavioral reasons. We selected an urban sample because of the greater likelihood that many children would be referred for behavioral reasons than in suburban or rural schol districts. Several hypotheses were tested in this study. First, we predicted that males would be rewferred more often for behavioral reasons. Second, we predicted that females would score lower than males on Full Scale IQ. Third, we predicted that females would have different cognitive profiles than males on Kaufman's conceptualization of WISC-R factors. We predicted that on the Verbal Comprehension factor, which relates most directly to school

performance (Kaufman, 1979; Snow, Cohen, & Holliman, 1985), males will have higher scores, but on the Freedom from Distractibility factor, which relates most directly to anxiety, behavioral difficulties, and attention-concentration deficits (Kaufman, 1979; Snow et al., 1985), males would have lower scores, i.e., we anticipated to observe a Sex X Kaufman factor type interaction.

Method

The school records of 330 children spanning grades 2-8 from a large urban school district, were reviewed. Of the 330 students, 115 were male. All of the children had been certified for special education services, primarily as learning disabled, and had been administered the WISC-R intelligence test as part of their initial evaluation. None of the pupils was clasified as mentally retarded. The 330 urban special education students were part of a larger sample of 758 students who were randomly sampled by the investigator (JG) as part of a study of evaluation practices in the urban district (Gottlieb, 1985).

Three factor scores from the Kaufman scoring system (Verbal Comprehension, Perceptual Organization, And Freedom from Distractibility) were derived from sub-scale scores for each subject. The Verbal Comprehension factor is comprised of Information, Similarities, Vocabulary and Comprehension; the Perceptual Organization factor is comprised of every Performance subtest except coding, and the Freedom from Distractibility is comprised of Arithmetic, Digit Span and Coding.

Results

In order to validate the present data with past findings we conducted a multivariate analysis of variance with Sex and Locale serving as independent variables and Kaufman's three factor scores as the dependent variables. We were primarily interested in this analysis in the main effects, both of which were statistically significant. Wilks' Lambda for Sex was .94 ($df=3,170$, $p<.02$), and Wilks' Lambda for Locale was .85 ($df=3, 170$, $p<.001$). The Sex X Locale interaction was not significant in this analysis. Inspection of the means and standard deviations which appear in Table 1 indicate that boys score higher than girls and that suburban students score higher than urban students. Both findings were as predicted and serve to validate the present data set with previous findings.

We were also interested in determining whether the pattern, or profile, of abilities differ between the sexes and between urban and suburban students. A Multivariate profile analysis of variance was conducted to examine differences between male and female students in the urban and suburban school districts on three Kaufman factor scores. Two significant findings emerged from the analysis. First, there was a significant effect for the Constant in the equation, indicating significant differences among the three Kaufman factors across all students. The overall mean for the Verbal Comprehension factor (8.17) was significantly lower than for the Perceptual Organization factor (9.29), and the overall mean for the latter was significantly higher than the mean for the Freedom from Distractibility factor (8.27). Second, and more importantly

from the present perspective, a significant Sex X Locale X Kaufman factor score interaction emerged from the analysis (Wilks' Lambda = .91, df= 6,342, p = .01). Figure 1 illustrates the nature of the interaction. In the urban district there were no differences on Factor 3 scores between boys and girls, but boys were higher than girls on both Verbal Comprehension and Perceptual Organization factors. In the suburban district boys were higher than girls on Verbal Comprehension and Perceptual Organization, but girls were higher on Factor 3. Additional data on this point appear in Table 1.

Discussion

The results of this study support the first major hypothesis, which predicted that girls who were placed in special education classes would obtain significantly lower scores on the Verbal Comprehension factor, compared to boys. This factor relates most specifically to school performance (Kaufman,1979; Snow et al., 1985), suggesting that girls who are placed in special education are significantly more impaired academically than boys. As such, the present study supports both Owen's (1078) and Leinhardt and her colleagues' (1982) findings that girls in special education classes are lower functioning than boys in similar classes. The inferior ability of girls, however, was not evident across the entire spectrum of sub-tests, but was confined to the verbal domain. The lack of significant overall differences in profiles between boys and girls on the Perceptual Organization factor and on the Freedom from Distractibility factor was evident by the absence of a

significant Sex main effect for profile differences. This does not imply that the overall IQ scores of boys and girls in special education do not differ. They do as we indicated above.

The second major hypothesis, predicting that boys in special education classes would evidence more behavioral difficulties than girls, as reflected in lower scores on the Freedom form Distractibility factor, was not supported. Previous research studies (Brophy, Good, 1970; Kelly et al., 1977) have suggested that boys receive more management and negative contacts with teachers than girls do, and therefore may be referred for special education on the basis of behavioral difficulties. These findings were not supported in the present study when Freedom from Distractibility was inferred to reflect behavioral difficulties.

One obvious possible explanation for the failure of the data to support the hypothesis is that Freedom from Distractibility factor was not sufficiently sensitive to pick up classroom behavioral difficulties, and therefore may not have been an adequate measure of behavioral problems. This explanation is supported by an examination of the reasons offered by general education classroom teachers for referring pupils to special education in the urban and suburban districts from which the present data were collected. In the urban district, 55% of the sample was referred exclusively for academic problems, whereas the corresponding data in the suburban district was 83%. Similarly, 10% of the pupils in the urban district were referred exclusively for behavioral reasons, while only 3% of the suburban pupils were

referred for poor behavior. Additional research with special education populations may be required to determine whether, in fact, Freedom from Distractibility is a predictor of school behavior problems for this group of students.

The profile main effect for Locale, yielding a Wilks' Lambda of .97 and a corresponding probability level < .06, coupled with the significant main effect for Locale reported earlier illustrates the need to consider the importance describing and reporting socio-economic backgrounds and school environments when offering conclusions based on research with special education samples. Findings based upon research conducted in suburban areas, and presumably rural areas as well, may not generalize to urban school systems. Although this point may be intuitively obvious, it is often overlooked in discussions of research implications, especially as they pertain to special education. Inspection of the data in Table 1 indicates that there is close to a full standard deviation difference in full-scale IQ between urban and suburban students placed in special education programs.

In conclusion, although the predominance of males in special education classes has been explained on biological grounds such as slower intellectual and physical development and greater vulnerability to biological stress in male children (see Eme, 1979 for a comprehensive review of the literature), the present study suggests an additional explanation. The finding that girls in special education classes are more intellectually impaired than boys in those classes may at least partially account for the

overrepresentation of males in these classes. Lesser levels of academic or intellectual impairment may be required to place boys in special education classes, suggesting that educators may have a higher expectation for boys, and thus set higher standards for boys than for girls. Lower functioning in girls may be more easily *tolerated by regular classroom teachers.

REFERENCES

Ashurst, D.I., & Meyers, C.E. (1973). Social system and clinical model in school identification of the educable mentally retarded. In G. Tarjan, R.K. Eyman, & C.E. Meyers (Eds.), Sociobehavioral studies in mental retardation (Monograph, pp. 150-163). Washington DC: American Association on Mental Deficiency.

Brophy, J.E., & Good, T.L. (1970) Teacher's communications of differential expectations for children's classroom performance: Some behavioral data. Journal of Educational Psychology, 61, 365-374.

Clarizio, H.F., & Phillips, S.E. (1986). Sex bias in the diagnosis of learning disabled students. Psychology in the Schools, 23, 44-53.

Eme, R.F. (1979). Sex differences in child psychopathology: A review. Psychology Bulletin, 86, 574-595.

Gregory, M.K. (1977). Sex bias in school referrals. Journal of School Psychology, 15, 5-8.

Kaufman, A.S. (1979). Intelligent testing in the WISC-R. New York: John Wiley & Sons.

Kelly, T.J., Bullock, L.M., Dykes, M.K. (1977). Behavioral disorders: Teacher's perceptions. Exceptional Children, 44 316-318-318.

Kennon, A.F., & Sandoval, J. (1978). Teacher attitudes toward the educable mentally retarded. Education and Training of the Mentally Retarded, 13, 139-145.

Kratovil, J., & Bailey, S.M. (1986). Sex equity and disabled students. Theory Into Practice, 25, 250-256.

Leinhardt, G., Seewald, A., & Zigmond, N. (1982) Sex and race differences in learning disabilities classrooms. Journal of Educational Psychology, 74, 835-843.

Mercer, J. (1973) Labeling in mentally retarded. Berkeley, CA: University of California Press.

Owen, F. (1978). Dyslexia - genetic aspects. In A. Benton & D. Pearl (Eds.), Dyslexia: An appraisal of current knowledge. New York: Oxford University Press, 266-284.

Prillamin, D. (1975). An analysis of placement factors in classes for the educable mentally retarded. Exceptional Children, 42, 107-108.

Reynolds, C. (1985). Critical measurement issues in learning disabilities. The Journal of Special Education, 18, 451-475.

Richardson, S.A., Katz, M., Koller, H. (1986). Sex differences in number of children administratively classified as mildly

mentally retarded: An epidemiological review. American Journal of Mental Deficiency, 91, 250-256.

Rubin, R.A., Krus, P., Balow, B. (1973) Factors in special class placement. Exceptional Children, 40, 525-532.

Schlosser, L., & Algozzine, B. (1979). The disturbing child: He or She? The Alberta Journal of Educational Research, 25, 30-36.

Snow, J.H., Cohen, M., & Holliman, W.B., (1985). Learning disability subgroups using cluster analysis of the WISC-R.

Table 1.

Means and Standard Deviations

for Kaufman's Three Factors by Sex and Locale

(in Scaled Scores)

	Males		Females	
		Urban		
	M	SD	M	SD
Verbal Comprehension	7.79	2.69	7.30	2.28
Perceptual Organization	9.18	2.34	8.48	2.22
Freedom From Distractibility	7.61	2.30	7.61	2.24
		Suburban		
	M	SD	M	SD
Verbal Comprehension	9.71	2.54	8.42	2.42
Perceptual Organization	10.12	2.41	9.61	2.27
Freedom From Distractibility	9.35	2.13	9.38	4.72