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ABSTRACT

Educational decision makers (N=224) participated in a computer simulated decision making experience to ascertain the extent to which referral information on a child with a suspected handicapping condition biased classification decisions. Ss were randomly assigned to 16 conditions varying on the basis of the child's sex, socioeconomic status, physical attractiveness, and nature of referral problem. Ss had access to test data, all of which reported pupil performance in the normal range. Only the nature of the referral problem was influential in the simulated decisions. A referred child was more likely to be diagnosed as emotionally disturbed when the referral statement of the problem was listed as behavioral rather than academic. Ss ignored standardized test information indicating average performance and retained the stereotype created by the referral information. (Author/CL)

University of Minnesota

Research Report No. 19

DIAGNOSTIC CLASSIFICATION DECISIONS AS A FUNCTION OF REFERRAL INFORMATION

James E. Ysseldyke and Bob Algozzine

IRLD

Institute for Research on Learning Disabilities

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I. Adequacy of Norm-Referenced Data for Prediction of Success

II. Computer Simulation Research on the Assessment/Decision-making/Intervention Process

III. Comparative Research on Children Labeled LD and Children Failing Academically but not Labeled LD.

IV. Surveys on In-the-Field Assessment, Decision Making, and Intervention

V. Ethological Research on Placement Team Decision Making

VI. Bias Following Assessment

VII. Reliability and Validity of Formative Evaluation Procedures

VIII. Data-Utilization Systems in Instructional Programming

Additional information on these research areas may be obtained by writing to the Editor at the Institute.

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Abstract

Educational decision makers (N = 224) participated in a computer-simulated decision-making experience designed to ascertain the extent to which referral information biased classification decisions. Subjects were randomly assigned to 16 conditions which varied on the basis of the referred child's sex, socioeconomic status, physical attractiveness, and nature of referral problem. Subjects accessed test data, all of which reported pupil performance in the normal range. Only the nature of the referral problem was found to be influential in the simulated decisions. A referred child was more likely to be diagnosed as emotionally disturbed when the refefral statement of the problem was listed as behavioral rather than academic. Subjects ignored standardized test information indicative of average performance, and retained the stereotype created by the referral information. The results were discussed with regard to implications for assessment of children and future research.

Diagnostic Classification Decisions as a Function of Referral Information

Assessment of children for the purposes of providing special education services has become a common practice in American schools (Salvia & Ysseldyke, 1978; Ysseldyke, 1978); many issues have resulted from this omnipresent activity (Ysseldyke, 1979). For example, definitions of special education categories are often arbitrarily derived and/or irrelevant for providing differential educational services (Algozzine & Sutherland, 1977; Hallahan & Kauffman, 1977; Ysseldyke & Algozzine, in press). Similarly, attitudes and decisions about children have been shown to be influenced by a variety of child characteristics; that is, bias occurs in educational decision making (Ysseldyke, 1979). This research addresses one aspect of bias in assessment: the extent to which classification decisions are influenced by data provided at the time of referral.

In general, teachers' and other professionals' attitudes toward and expectations for children have been shown to be influenced by naturally-occurring and experimentally-induced characteristics (Brophy & Good, 1974). For example, it has been demonstrated that teachers hold different attitudes toward children as a function of their sex (Jackson & Lahaderne, 1967; Palardy, 1969), race (Rubovits & Maehr, 1973), socio-economic status (Bergen & Smith, 1966; Lenkowsky & Blackman, 1968; Neer, Foster, Jones, & Reynolds, 1973), physical appearance (Berscheid & Walster, 1974; Dion, 1972), body image (Staffieri,

1967), perceived intelligence (Matuszek & Oakland, 1979; Rubovits & Maehr, 1971), and behavior (Algozzine, Mercer, & Countermine, 1977; Giesbrecht & Routh, 1979; LaVoie & Adams, 1974).

That these same characteristics are influential in decisions relating to the classification of children has been suggested, but to a much lesser extent. For example, Ross and Salvia (1975) reported that teachers' decisions about the likelihood of a child being mentally retarded were influenced by the facial attractiveness of that child, and Giesbrecht and Routh (1979) found that "children with negative teacher comments [suggesting behavior problems] were judged more likely to need special educational help . . . . than children without such comments" (p. 184).

The purpose of this study was to ascertain the extent to which decisions to classify a child as mentally retarded (MR), learning disabled (LD), and/or emotionally disturbed (ED) would be influenced by referral information about that child. The overall hypothesis was that there would be no difference in the likelihood of a child being rated as MR, LD, or ED as a function of sex, presumed SES, type of referral problem, or appearance.

Method

Subjects

Participants in the computer simulation investigation were 224 school professionals from public and private schools in the greater Minneapolis/St. Paul metropolitan area. Professionals who participated in the study were volunteers; each had served on at least two placement teams. Subjects represented a broad spectrum of disciplines and

experience in providing direct and indirect service in educational settings. Professions represented included regular education teachers (N = 58), special education teachers (N = 79), school psychologists (N = 30), administrators (N = 31), and support personnel (e.g., social worker, nurse) (N = 26).

Procedure

Each of the participants was asked to read a case folder description of a child and then participate in a diagnostic computer simulation program developed specifically for this research. The program enabled the subject to select assessment devices from within seven commonly used domains (e.g., intelligence, achievement, etc.) until the subject indicated that he/she was ready to make a diagnostic decision about the child in the case description. The archival information which was assessed by the participants was designed to reflect average pupil performance in all behavior areas sampled. Subjects were randomly assigned to one of sixteen treatment conditions according to the nature of the referral information.

Referral Conditions. Sixteen different case descriptions were prepared by varying the referral information section of the case folders. The name was reported as William or Phyllis to vary the child's sex. Data on socioeconomic status were varied: in half the conditions participants were told the child's father was a bank vice-president and the mother a realtor; in the other eight cases subjects were told the child's father was a bank janitor and the mother a check-out clerk at a local supermarket. The reason for referral was listed as either an academic or behavior problem in school. In addition to these written descriptions,

photographs of previously judged[1] attractive or unattractive children were attached to the case description. Thus, under one condition subjects were given information for an attractive female from a low SES who demonstrated academic problems, while under another condition the referred child was an unattractive male from a low SES with academic problems, etc. The method of conveying the referral information was the same (written) for each "stereotype" except appearance. For example, to present the sex biasing information, a boy or girl name was inserted into the case folder in the appropriate item. Similarly, to present the type of problem either "academic" or "behavior" was inserted, as the type of problem under "Reason for Referral."

Dependent Variables. Subjects were asked to complete a series of questions after they had read the case description and their selected assessment information. Those of interest for this study requested responses indicating the extent to which the participant thought the child was mentally retarded, learning disabled, or emotionally disturbed. Subjects were asked to record their diagnostic decisions on rating scales in which 1 = very likely, and 5 = very unlikely.

Design and Data Analysis. For purposes of hypothesis testing, a four factor (2X2X2X2) multivariate analysis of variance design was used: sex, SES, type of problem, and appearance were the independent variables; diagnostic classification decisions were considered as dependent variables. Significant multivariate effects were subjected to univariate analyses of variance for each dependent variable separately and any further simple effects were analyzed using *t* tests as appropriate. Significant univariate main effects were interpreted from *F* ratios since all factors

contained only two levels of variation. The level of significance for all tests was set at 0.01 and an additional criterion of at least a 0.5 unit difference between means was imposed. It was anticipated that this latter criterion would serve as a means of differentiating statistical significance and importance in that it represented a 10 percent unit difference on the 5-point dependent scale.

Results

Subjects selected tests from seven domains. A total of 1422 devices was used in the process of decision making. The following percentages of specific kinds of devices were used: intellectual measures (21%), achievement tests (29%), perceptual-motor tests (13%), behavior ratings (13%), personality tests (11%), language tests (8%), and measures of adaptive behavior (5%).

Means and standard deviations for subjects' diagnostic classification decisions are presented in Table 1 for each independent condition.

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Insert Table 1 about here

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The multivariate analysis of variance for these data yielded one significant effect; the Wilks' Lambda for type of problem was 0.92 (F (3,205) = 5.82, $p < .01$) and suggested that the multivariate decision centroids differed for the child thought to have academic or behavioral problems. Univariate follow-up analyses yielded significant main effects for the type of problem ($F = 16.08$, $p < .01$) only for the diagnostic decision of emotional disturbance; no other main effects or interaction effects were significant. The case study child was more likely to be rated as disturbed when the presenting problem was said to be behaviors ($\bar{X} = 3.2$)

rather than academics ($\bar{X}$ = 3.8). Test statistics for these analyses are presented in Table 2.

Insert Table 2 about here

While subjects' differential diagnoses were affected only by the referral information when classifying a child as emotionally disturbed, differences were observed in their ratings of the extent to which the child was seen as ED, LD, or MR. A comparison of the overall means for each decision suggested that the subjects rated the child as likely to be learning disabled ($\bar{X}$ = 2.3) and very unlikely to be mentally retarded or unlikely to be emotionally disturbed ($\bar{X}$ = 4.7 and 3.5, respectively). The tendency was to find the case study child as LD; however, when the presenting problem was behavior, a diagnosis of ED was more likely than when the presenting problem was academic. This outcome was considered important for two reasons. First, it met both statistical criteria and, second, it suggested that the likelihood of diagnosis was influenced by criteria other than standardized test information (at least for one "handicap").

Discussion

Decisions to classify a child as ED were influenced by that child's behavior as reported in a referral statement. The finding that effects were not demonstrated for other categories of decisions (i.e., LD and MR) was not expected. The question of salience of characteristics and susceptibility to bias becomes important in this regard. For differential effects to be generated by expectancy-generating stimuli, those stimuli must be powerful and believable to the individual(s) to whom the bias

is being conveyed. It may be that the child's performance as portrayed in the assessment archive was too good to counter the effects of other characteristics; hence, no effect for diagnoses of mental retardation and learning disability was observed. Similarly, it may be that the participating subjects were more susceptible to problems related to behavior than to those associated with other child characteristics.

The behaviors of children have been shown to be differentially bothersome to school personnel (Algozzine, 1976, 1977; Algozzine & Curran, 1979; Mooney & Algozzine, 1978; Schlosser & Algozzine, 1979). It would appear that simple reference to a child's behavior problems may be a powerful source of bias in decision making. As previously indicated, Giesbrecht and Routh (1979) found that statements about behavior problems were influential in decisions regarding special placements. Whether the results obtained in "simulated decision making" can be generalized to more real-life settings remains to be shown. However, the suggestion that written indications of behavior problems at the time of referral may influence diagnostic outcomes would appear to have profound implications requiring further investigation.

Diagnostic decision makers should make data-based decisions. They should be able to shed stereotypes engendered by referral information, and make classification decisions on the basis of objective data regarding pupil performance. In this study, decision makers failed to reject stereotypes engendered by referral information regarding the type of problem the referred child was thought to exhibit; to some extent, then, decision makers were influenced by the child's characteristics in spite of average performance in the "assessment."

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Footnotes

Bob Algozzine is also Associate Professor of Special Education, University of Florida, Gainesville. Special appreciation is extended to Ed Arndt, Martha Bordwell, Patricia Chase, Jean Greener, Joyce Halverson, Richard Regan, and Mary Turnblom for assistance in data collection, and to Deborah Anderson for assistance in data analysis.

[1]Black and white still photographs with identical backgrounds were taken of 40 boys and 40 girls enrolled in regular fourth grade classrooms in a rural school district. Twenty-five professionals Q sorted the pictures into five piles, ranging from those they thought were least attractive to those they believed were most attractive. Q sorts were completed separately for boys and girls. The photographs included in this study were rated as attractive or unattractive by all 25 professionals.

Table 1

Means and Standard Deviations for Subjects' Diagnostic Classification Decisions According to Type of Referral Information Reviewed

Referral Information				Diagnostic Classification		
Sex	SES	Type Problem	Appearance	Mentally Retarded	Learning Disabled	Emotionally Disturbed
Male	High	Academic	Attractive	4.5 0.9	2.4 1.0	4.0 0.7
			Unattractive	4.6 1.1	2.8 1.3	3.8 1.2
		Behavior	Attractive	4.8 0.4	2.6 1.0	3.4 1.1
			Unattractive	4.2 1.1	2.6 1.1	2.9 1.5
	Low	Academic	Attractive	4.7 0.5	3.1 1.3	3.7 1.1
			Unattractive	4.4 0.9	2.9 0.8	4.0 1.0
		Behavior	Attractive	4.9 0.3	2.9 0.8	3.1 1.1
			Unattractive	4.8 0.4	2.3 1.1	3.1 1.1
Female	High	Academic	Attractive	4.3 0.4	2.6 1.0	3.4 0.9
			Unattractive	4.5 1.2	2.8 1.1	3.4 1.2
		Behavior	Attractive	5.0 0.0	3.4 0.9	3.4 1.1
			Unattractive	4.8 0.4	2.5 0.8	3.5 0.9
	Low	Academic	Attractive	4.5 1.0	2.5 1.1	4.1 0.6
			Unattractive	4.9 0.3	2.5 1.1	4.1 1.0
		Behavior	Attractive	4.7 0.6	2.5 1.1	3.2 1.4
			Unattractive	4.5 1.0	3.4 0.9	3.4 1.5

Note. 1 - very likely, 5 = very unlikely.

Upper number of each set is Mean and lower number is Standard Deviation.

Table 2

Results of MANOVA and subsequent ANOVA analyses

Source	Wilks' Lambda	Univariate Decision Outcomes		
		LD	MR	ED
SEX (A)	.99	0.240	0.996	0.142
SES (B)	.99	0.034	0.109	0.383
PROBLEM (C)	.92*	0.200	1.093	16.080*
APPEARANCE(D)	.99	0.055	2.349	0.026
A X B	.97	1.360	2.539	1.411
A X C	.98	3.506	0.092	1.484
A X D	.99	0.349	0.606	0.277
B X C	.99	0.051	0.007	1.302
B X D	.99	0.019	0.991	1.067
C X D	.98	0.728	2.448	0.182
A X B X C	.98	1.144	2.878	1.665
A X B X D	.96	6.084	0.450	0.655
A X C X D	.99	0.267	0.002	0.640
B X C X D	.99	2.471	0.004	0.003
A X B X C X D	.97	3.222	3.825	0.002

Note. Univariate outcomes are F statistics.

* $p < .01$

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