DOCUMENT RESUME

ED 203 587 EC 132 870

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TITLE On the Determinants and Prediction of Handicapped Children's Differential Test Performance with Familiar and Unfamiliar Examiners.
INSTITUTION Minnesota Univ., Minneapolis. Inst. for Research on Learning Disabilities.
SPONS AGENCY Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.
REPORT NO IRLD-RR-42
PUB DATE Sep 80
CONTRACT 300-77-0491
NOTE 49p.; For related documents, see EC 132 869-875.

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Disabilities; Examiners; *Experimenter Characteristics; *Performance Factors; Prediction; Preschool Education; *Testing

ABSTRACT

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Research Report No. 42

ON THE DETERMINANTS AND PREDICTION OF HANDICAPPED CHILDREN'S DIFFERENTIAL TEST PERFORMANCE WITH FAMILIAR AND UNFAMILIAR EXAMINERS

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September, 1980

Abstract

A study employing a repeated measure crossover design found that preschool handicapped subjects performed significantly better with familiar than unfamiliar examiners on tasks requiring a high level of symbolic mediation. No such differential performance was obtained on items demanding a low level of symbolic mediation. Differential performance in familiar and unfamiliar conditions was predicted on the basis of the subjects' classroom behavior by entering teachers' ratings into a step-wise multiple regression. Findings are related to current efforts and needed research to identify procedural and situational variables in assessment, uncontrolled by present standard test administrations, that may preclude children's optimal performance.

On the Determinants and Prediction of Handicapped Children's Differential Test Performance with Familiar and Unfamiliar Examiners

Test instruments are frequently presumed by researchers and clinicians to be the single critical factor that determines test performance. An exaggerated example of this view is implied by Jensen's (1969) "input-output" analysis of the test situation. Tests however are only one element in a procedure; and, as Cronbach (1971) has pointed out, the validity of data obtained in educational and psychological assessment is dependent upon the procedure as a whole. Every aspect of the setting and each detail of the procedure may have an influence on performance and hence on what is measured.

Published tests have an explicit format that controls the assessment procedure to a substantial degree. The wording of the items, the rules for scoring, the instructions given the person tested, the amount of encouragement allowed and the like are specified. Yet, even these controls leave room for variation. Roth (1974) has supported this belief by demonstrating how examiner-examinee pairs adapt idiosyncratically to unanticipated events in assessment.

In addition to procedural factors, many situational variables, such as the familiarity of the examiner, test setting, and assessment tasks are also uncontrolled during testing. Moreover, a limited but growing body of empirical evidence indicates that systematic variation of typical situational variables predictably affects students' test performance (Sattler, 1974).

Among the situational characteristics investigated, effects of

examiner familiarity have been subjected to relatively frequent scrutiny. Often, the decision to focus on this variable has been based upon the developmental notion that children derive much of their comprehension about and feelings toward a setting from the significant adult in that situation. Hence, examiner familiarity has been regarded as a salient situational factor.

Rosenthal (1966) has suggested that the importance of prior contact is related to the task set for the child:

> When the response is a simple one, easily available to the subject, an increase in anxiety, such as we expect to occur in the presence of strangers, increases the performance level. When the response is a difficult one, not easily available to the subject, as in an intelligence test, an increase in anxiety makes these less available responses still less likely to occur. (p. 88)

That prior contact is negatively related to optimal performance on simple tasks appears to be supported by empirical evidence. Rosenkrantz and Van de Reit (1972) and Stevenson, Keen, and Knights (1963) employed tasks of marble dropping and underlining Ss in a text, respectively, and both groups found that familiarity of the examiner significantly depressed subjects' performance.

The importance of examiner familiarity to performance on more challenging tasks, however, is less clear than Rosenthal suggests. For example, Marine (1929) and Tyson (1968) found familiarity of the examiner did not significantly increase pupils' performance on intelligence tests, and Jacobsen, Berger, Bergman, Millham, and Greeson (1971) discovered that, while children with scores in the middle IQ range on a first administration showed important gains on retesting with familiar examiners, subjects in the high and low ranges failed to demonstrate

significant improvement. In contradistinction, prior contact with examiners appeared causally related to children's significantly improved functioning on intelligence tests in investigations by Kinnie and Sternloff (1971), Stoneman and Gibson (1978), and Olswang and Carpenter (1978). These seemingly contradictory results become comprehensible upon realization that Marine, Tyson, and Jacobsen et al. employed a different definition of familiarity than Kinnie and Sternloff, Stoneman and Gibson, and Olswang and Carpenter. In the first group of studies, familiarity was experimentally induced; the second group of investigators defined prior contact as long-term acquaintanceship.

Thus, research provides support for the idea that familiarity depresses performance on simple, repetitive tasks. In a more tentative manner, it advances the proposition that prior contact increases performance on comparatively complex tasks, providing that familiarity is defined as long-term acquaintanceship. The uncertainty of this second proposal is dictated in part by the fact that the aforementioned studies employed diverse methodologies. Moreover, none of these studies employed both simple and complex tasks within the same experimental design. Utilizing a long-term acquaintanceship definition of familiarity, the first purpose of this study was to determine whether the test performance of young handicapped children was affected by examiner familiarity. A supplementary objective was to explore the effects of three factors that may influence differential performance. Thus, this study also analyzed differential performance by sex, explored whether a long or short examiner-pupil acquaintanceship was necessary to produce the anticipated outcome, and investigated whether differential performance was related

to different levels of task complexity. Another objective was to investigate whether differential test performance can be identified and predicted. Specifically, efforts were made to determine how accurately educators predict which pupils are likely to exhibit differential test performance, to employ ratings of subjects' classroom behavior as a means of attempting this prognostication, and to ascertain whether examiners can identify pupils who performed suboptimally.

Given that the standard format governing the manner in which tests are administered fails to control for examiner familiarity (as well as other facets of the typical test situation), and that certain situational characteristics have been shown experimentally to influence test performance, it seems reasonable and important to explore (a) whether unfamiliarity of the examiner may systematically discourage the optimal functioning of select groups, such as young handicapped children, and (b) whether means may be developed to know prior to assessment which pupils are likely to perform less strongly with the unfamiliar examiner. Such an investigation has critical and obvious implications for educational programming, as well as for research that involves the assessment of this group of children.

Method

Sample and Setting

Subjects were 34 preschool children whose speech and/or language functioning represented a moderate to profound handicap. After being assessed for two weeks by a multidisciplinary team, they were enrolled in the Special Education Preschool of the Minneapolis Public Schools,

a city-wide program for handicapped 4 and 5 year old pupils. They participated in the Pre-Kindergarten Language and Speech (PKLS) component of the Preschool Program where classes were taught by teams of a teacher and speech clinician. The subjects' mean CA was 4-9, with a range from 4-3 to 5-10. There were 21 boys and 13 girls, and they came from families that were of diverse levels of SES. American Indian and Blacks constituted 15% and 20% of the sample, respectively. With two exceptions, subjects performed within the normal range on individually administered intelligence tests. When the study was conducted, the mean length of time that the subjects had been in their present classrooms was 7.4 months.

Procedure

Examiners. Subjects were assessed twice within a period of two weeks--once by their classroom teachers and once by a stranger--employing a crossover design. The two familiar and four unfamiliar examiners were all female, certified in early childhood education, and had at least several years' experience working with preschool children in educational settings. Familiar and unfamiliar examiners were trained separately in the administration of the experimental tasks by a certified speech clinician who was unaware of the study's purpose.

Experimental tasks. Three experimental tasks, all of which assessed speech or language functioning, were employed. The first two were part of an administration of the Sounds-in-Words subtest of the Test of Articulation (Goldman & Fristoe, 1972), an instrument to which none of the subjects was exposed previously. This measure consists of 35 illustrations depicting objects and activities that are familiar to

young children. The child is required to name the pictures and to reply to questions about some of them, giving a total of 44 responses. In accordance with the test manual, and to facilitate a spontaneous response, the examiner presented all of the pictures and for each one inquired, "What is this?" The second task was a modification of the standard administration. Regardless of whether the subject responsed correctly, incorrectly, or failed to provide any answer on each spontaneous item, the examiner then instructed the subject to "Say _____," modeling the correct name for the depicted object. This second direction yielded an imitative response in addition to the initial spontaneous one. (See Appendix for the response sheet used with imitative and spontaneous tasks.)

The third task required subjects to describe two pictures taken from Tester's (1966) Teaching Pictures series. One showed a boy of preschool age being examined in a doctor's office while several other children awaited their turn; the second illustration was of a small girl looking as though she were crying and a young woman bending over the girl in a solicitous fashion. The order in which these pictures were presented was counterbalanced so that one-half of the sample responded to Picture #1 before #2 and the remaining subjects were presented with Picture #2 before #1. As they presented these action pictures, the examiners said, "Tell me about this picture." If the subject refused to respond, the examiner provided additional encouragement by stating, "Tell me what's happening." If the child remained silent, the task was discontinued. If, on the other hand, the subject provided information about the picture after the initial instruction, the examiner gave ade-

quate time for the child to complete the response and then said, "Can you tell me more?" After the subject was permitted an opportunity to do so, the task was terminated. This task is similar both to test items found on the Stanford-Binet Intelligence Scale and the Preschool Language Scale.

While examiners were required to administer the experimental tasks according to the aforementioned instructions, guidelines were purposefully withheld concerning aspects of the assessment situation infrequently controlled by the examiner manuals of published tests. Examiners were instructed to exercise their own judgment concerning such factors as the frequency and qualitative nature of feedback to be given and the use of open-ended questions in the test setting prior to the test proper.

The experimental tasks were chosen in part on the presumption that they varied in the extent to which they challenged the subjects. Task difficulty was defined primarily in terms of the amount of symbolic mediation, or "inner thought," required (cf. Lindsay & Norman, 1972). Using this criterion, the imitative task was considered the easiest; the description of the action pictures was judged the most difficult. In addition to its greater abstractness, the action picture task was thought most difficult because it seemed the least self-evident (i.e., least directive) and appeared to demand the highest level of examiner-subject interaction.

Scoring. Subjects' tape recorded performances were scored by a certified speech clinician who neither knew the questions under investigation nor any of the subjects. (This scorer was not the same speech clinician who trained the examiners in the administration of the experi-

mental tasks.) Only the subjects' production of initial, medial, and final position phonemes was analyzed on the spontaneous and imitative tasks. These were judged on the basis of being right or wrong; there was no attempt to determine the types of articulation errors committed. In addition to incorrect phoneme productions, a refusal to respond and failure to label accurately depicted objects also constituted wrong answers. Attempts were made to systematize the rater's effort, such as requiring the speech clinician to analyze a response no more than three times before deciding on its correctness. The subjects' scores on the spontaneous and imitative tasks were the total number of phonemes produced correctly. The subjects' responses to the action pictures were rated in terms of the total number of intelligible words employed to describe the illustrations.

Membership in long-term and short-term acquaintanceship groups. The amount of time that subjects had been in their present classrooms ranged from 1 month to 18 months. The criterion employed to decide on eligibility for membership in the long-term group was 4 months or more in the teacher's classroom. Twenty-seven subjects met this criterion. Seven pupils were assigned to the short-term acquaintanceship group.

Estimating the accuracy of educators' predictions of differential test perforamnce. Two clinicians (occupational therapists) serving both of the classrooms in which the subjects were students were asked to select independently pupils likely and pupils unlikely to exhibit differential performance in favor of the familiar examiner. The clinicians were presented with a list of the subjects' names preceded by the following information and directives:

Some children seem to function well in a testing situation when assessed by a strange or unfamiliar examiner. Other children do less well with an unfamiliar examiner than with a familiar examiner. Below is a list of children currently enrolled in PKLS classrooms. Please try to determine (1) which children will probably do less well with an unfamiliar examiner and (2) those children who will probably do as well with the unfamiliar as with the familiar examiner. If you feel you do not know a child well enough to make these determinations, do not respond for that child.

Examiners' ratings of subjects' test demeanor and validity of test performance. Immediately following completion of every test session, familiar and unfamiliar examiners evaluated subjects' test behavior by responding to a four-item questionnaire. The questions were: (1) Was the child unlikeable or likeable in this situation?; (2) Was the child difficult or cooperative to test?; (3) Was the child uncomfortable or comfortable in this situation?; and (4) was the child's test performance valid? With the exception of the last question that required a yes or no answer, a four-point, Likert-type scale was employed to rate the items. (See Appendix for an example of this questionnaire.)

Predicting differential performance from classroom behavior. An expanded version of the Schenectady Kindergarten Rating Scale (Conrad & Tobiessen, 1967) was completed by the classroom teachers on each of the subjects following the conclusion of all testing. This instrument examines classroom behavior; its expanded form consists of 17 items that are rated along a three to seven point Likert-type scale. (See Appendix for scale and response sheet.)

Results

Task Complexity, Sex, and Duration of Acquaintanceship

Subjects' raw scores for each of the experimental tasks were sub-

jected to sex x familiar-unfamiliar trials and to amount-of-time-in-the classroom x familiar-unfamiliar trials, unweighted-means analysis of variance. Sex and time-in-the-classroom were treated as grouping factors and testing in familiar and unfamiliar conditions was regarded as a repeated measures factor (Winer, 1971). Applied to subjects' performance on the action picture, these analyses yielded significant main effects for the trial factor, $F(1,32) = 5.21$, $p < .029$. There were no other significant main effects nor were there any significant interaction effects.

However, as displayed in Table 1, subjects who had spent 4 to 18 months with their classroom teachers used more intelligible words to describe the action pictures than students who had been with their teachers between 1 and 3 months. For heuristic purposes, this raw score difference approached significance, $F(1,32) = 3.07$, $p < .089$. Likewise, on the spontaneous task boys appeared to perform more strongly with unfamiliar examiners while girls did somewhat better with familiar examiners, $F(1,32) = 3.47$, $p < .07$.

Insert Table 1 about here

Importantly, the subjects' greater mean performance with the familiar examiners on the action picture task was the result of stronger functioning with each, rather than with only one, of the familiar examiners. The subjects assessed by one familiar examiner manifested an average usage of 16.00 intelligible words. This differed from the same subjects' mean employment of 10.35 words with one or the other of

the two unfamiliar examiners paired with this familiar adult. Subjects tested by the second familiar examiner exercised 12.71 intelligible words to describe the action picture in comparison to their average of 7.29 words spoken when assessed by the third or fourth unfamiliar examiner. While subjects assessed by the first familiar examiner used more words than subjects tested by the second familiar examiner, the discrepancy between the number of words employed in familiar and unfamiliar conditions was essentially the same irrespective of the familiar examiner; with the first familiar examiner, subjects spoke an average of 5.65 more words than with unfamiliar examiners and they utilized a mean of 5.41 more words with the second familiar examiner than with paired unfamiliar examiners.

While as a group pupils performed significantly better with familiar examiners on the action picture task, seven of the 34 subjects showed no such differential functioning, or did better when tested by the unfamiliar examiner. Among those who did better in the familiar condition, 52% (14 of 27) employed between 10 and 41 more words to describe the illustration than in the unfamiliar condition. And while no subject failed to offer a description (regardless of how meager) in the familiar situation, five pupils gave no response to the unfamiliar examiners.

Clinicians' Predictions of Differential Performance

Of 34 subjects, 21 were identified by both clinicians as likely or unlikely to exhibit differential test performance. Judgments concerning the remaining 13 subjects were made by only one or neither of the clinicians. The missing ratings were due to the clinicians' professed lack of knowledge about the subjects, and these subjects were excluded

from further analyses. The clinicians were in accord in their classifications of 15/21 subjects, representing an interrater agreement of 71%. Among the 15 subjects whom the clinicians classified similarly, 12 subjects were selected as unlikely to exhibit differential performance. Three subjects were predicted by both clinicians to manifest differential functioning.

The mean change score (performance in the familiar condition minus performance in the unfamiliar condition) on the action picture task for the total sample (N = 34) was + 5.53 words. Subjects exercising 13 or more words in one condition than the other were .5 standard deviations from this mean. Of the 12 subjects for whom it was predicted they would function similarly with familiar and unfamiliar examiners, 7 subjects (58%) were at least .5 standard deviations from the mean, employing 13 to 26 more words with the familiar or unfamiliar examiners. Five of these subjects used more words with the familiar examiner and two subjects employed more words in the unfamiliar condition. Only one out of three subjects predicted by the clinicians to be "differential performers" exhibited such differential functioning at or beyond the .5 standard deviation demarcation.

Thus, the two clinicians displayed a percentage of interrater agreement that was greater than chance. However, descriptive analyses reveal that their accuracy in predicting those subjects who were likely and those who were unlikely to manifest stronger functioning with the familiar examiners was poor. They dramatically overestimated the number of subjects to perform in a non-differential manner. And among those subjects chosen to perform differentially, only one-third performed accordingly.

Examiners' Posttest Ratings of Test Demeanor

To permit quantification of examiners' ratings of subjects' conduct in the test situation, least adaptable behaviors (Not Likeable, Very Difficult, Very Uncomfortable) were assigned one point; most adaptable behaviors (Very Likeable, Very Cooperative, Very Comfortable) were allotted four points. Additionally, subjects' performances judged as invalid and valid were accorded one and two points, respectively.

Table 2 displays mean ratings for three (overlapping) groups in familiar and unfamiliar conditions. The first group is the total sample. The second group comprises the subjects whose output of words on the action picture task was at least .5 standard deviations above the mean change score. (These subjects used more words in the familiar condition.) The last group represents the subjects whose number of words employed least .5 standard deviations below the mean change score on the action picture. (This group exercised more words with an unfamiliar examiner.)

Insert Table 2 about here

T tests comparing the ratings assigned by familiar and unfamiliar examiners to the first two groups revealed no significant differences. Moreover, raw score differences between familiar and unfamiliar examiners' ratings of the third groups' test demeanor appear inconsequential. These findings suggest that, given the rating scale employed, both familiar and unfamiliar examiners were incapable of identifying differential performances. Of 15 subjects displaying dramatically different performances

across familiar and unfamiliar conditions on the action picture, not one subject's test performance was judged to be invalid.

Predicting Differential Performance from Classroom Behaviors

The 17 behavioral categories constituting the Schenectady Kindergarten Rating Scale were entered in a forward step-wise multiple regression to predict differences between performance in familiar and unfamiliar testing conditions. As displayed in Table 3, each of the first six variables entered contributed significantly to the explained variation in the dependent variable. Of this group, four variables were related both to subjects' capacity to use language in the classroom and to subjects' feelings about their speech and/or language handicap. These variables are: Clarity of Speech, Reactions to Problems in Self Expression, Acknowledging and Expressing Feelings, and Responding to Teachers' Speech. Cumulatively, these six variables explained 36% of the variance; all 17 variables accounted for 45% of the variance.

Insert Table 3 about here

Discussion

Before discussing implications of this study, it is important to note that the validity of its findings was strengthened by matching familiar and unfamiliar examiners for seemingly important professional and personal characteristics, thereby eliminating several potentially competitive explanations for the obtained differential performance. If, for example, unfamiliar examiners without prior experience with preschool children had been employed, it is reasonable to assume that performance

in the familiar and unfamiliar conditions would have been more dissimilar than reported above. This presumed, more dramatic outcome would have been offset, however, by the failure to control for examiners' professional experience and by the legitimacy of an ensuing, alternative hypothesis that prior professional experience, rather than examiner familiarity, was the salient situational variable contributing to differential performance.

In spite of controlling for important examiner characteristics as professional experience, results indicated that familiarity with the examiner significantly enhanced subjects' performance on tasks requiring a high level of symbolic mediation, whereas subjects performed similarly for familiar and unfamiliar adults on tasks demanding a relatively low level of symbolic manipulation. On the basis of this finding, one would expect young, speech and/or language impaired pupils to perform differentially on many intelligence tests (e.g., the McCarthy and WPPSI) and on several frequently utilized personality measures (e.g., the Children's Apperception Test) that require frequent exercise of sophisticated verbal reasoning. On the other hand, differential performance would not be predicted on formal assessment instruments demanding relatively low levels of symbolic mediation, such as tests of articulation, visual perception, immediate recall, and auditory discrimination. Before such predictions may be made accurately, however, other test characteristics also need to be identified and investigated for their possible interaction with the familiarity and unfamiliarity of the examiner. One such test characteristic may be the mode in which a child is required to respond (e.g., verbally or gesturally).

The necessity for this line of inquiry is signaled by the fact that numerous preschool children are currently assessed for possible handicapping conditions within an assessment paradigm that precludes examiner familiarity as a situational characteristic. Results from this study suggest that such a test procedure, employed when assessing children's higher cognitive functioning, may identify a spuriously large number of children for special education settings and/or overestimate the degree of their handicapping conditions. Findings corroborate the view that examiners be encouraged to establish familiarity with young, speech and langauge handicapped pupils prior to testing. It remains unclear, however, how much time an examiner needs to spend with a child to facilitate optimal performance. The present study discovered a non-significant disparity in the differential functioning of subjects who were in the classrooms of familiar examiners for less than and more than 3 months prior to testing.

Also discovered was a set of children's classroom behaviors that served to predict which subjects performed differently with familiar and unfamiliar examiners. Four of the six behaviors comprising this set characterized the differential performers as reticent in the classroom and uncomfortable with their speech and/or language handicap. This description is consonant with results from an investigation by Sigel, Secrist, and Foreman (1973). Sigel et al. showed that young children who were most socially expressive and outward going exhibited stronger formal test performances than those students who were quiet and reserved. (Since the former group of subjects was largely constituted of girls, Sigel et al. suggested a test by sex interaction, an effect that was

not corroborated by the present study.) While it remains necessary to cross-validate this study's identification of a set of classroom behaviors from which differential performance was predicted, the procedure nevertheless represents a possible means to predict which pupils require special attention from the examiner prior to assessment to promote optimal test performance. The importance of such a procedure was underscored both when clinicians who worked regularly with the subjects grossly underestimated in their predictions the number to perform differentially and when familiar and unfamiliar examiners appeared insensitive to differential performers as revealed by their responses to a posttest questionnaire. If a small proportion of students in a class is identified by such a strategy, it may be possible for the classroom teacher, rather than a clinician, to function as an examiner for this special group of pupils. Appropriate training in test administration would be a necessary prerequisite to such a strategy.

This predictive effort, with its exclusive focus on pupils, implies that child characteristics determine differential functioning in assessment. However, preliminary post-hoc analyses of the videotaped testing sessions revealed that examiners contributed to subjects' differential performance. While familiar examiners permitted subjects adequate opportunity to respond, unfamiliar examiners, by prematurely terminating the test session, frequently did not offer the same chance.

The present data are insufficient to explain the difference in behavior between familiar and unfamiliar examiners. It is reasonable to speculate, however, that the unfamiliar examiners' proneness to terminate the testing in an untimely manner was related to their ignorance of subjects' skill level and knowledge base. Confronted by subjects' discom-

fort (communicated verbally and nonverbally) in response to some test requirement, unfamiliar examiners had to decide whether to ignore this unease and encourage continued effort or to withdraw the test demand and assuage manifest anxiety. Presumably, this decision normally requires grounding in what the examiner understands about an examinee's capabilities. Because unfamiliar examiners in this study had scant information about subjects' ability levels, were presumably perceptive about and empathic towards children's feelings, and were no doubt aware of their need for subjects' cooperativeness, they may have experienced no alternative but to behave conservatively and employ subjects' discomfort as a primary cue in determining when to conclude testing.

In contradistinction, familiar examiners, by definition, had an accurate notion of what subjects were capable and incapable of performing. When faced by subjects who were reticent and uncomfortable, yet known to be capable, familiar examiners appeared comparatively unresponsive to their silence and insensitive to their display of discomfort, suppositively as a means of communicating an expectation that subjects function in accordance with their potential. Furthermore, because their relationship to the subjects rested upon a relatively long prior acquaintanceship, it is suggested the familiar examiners were less concerned than unfamiliar examiners about subjects' discontinued cooperation during assessment. Further research is needed to subject the findings related to examiner behavior (and speculations about their motivations) to experimental tests.

Finally, by demonstrating that speech and language impaired preschool children perform differentially for familiar and unfamiliar

examiners, this study identified a source of error variance in the manner in which standardized tests are commonly administered. The present findings, however, do not permit an unequivocal claim that typical testing procedures are systematically biased against the optimal performance of certain handicapped pupils, nor do results represent a basis on which to make more valid interpretations of young, handicapped students' test functioning. As made clear by O'Connor and Weiss (1974) in a discussion of an analogous issue, if both handicapped and nonhandicapped children demonstrate corresponding differential performance in familiar and unfamiliar conditions, then the consistent deployment of familiar examiners will only result in the shifting of distributions of scores. And because standardized instruments are relative measures, "this shift will be meaningless insofar as 'new' or 'more valid' interpretations of abilities or achievement status are concerned" (O'Connor & Weiss, 1974, p. 351). Thus, there is the additional need for further research to test situational variables such as examiner familiarity employing both handicapped and nonhandicapped populations.

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Footnotes

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The research reported herein was supported in part by Contract No. 300-77-0491 between the Bureau of Education for the Handicapped and the University of Minnesota Institute for Research on Learning Disabilities. Support also was provided by a West Metro Preschool Incentive Grant from the Minnesota State Department of Education and by the Department of Special Education of the Minneapolis Public Schools.

The authors wish to thank Raymond Lorion, Donald MacEachern, Donald Pastor, Neil Salkind, and Virginia Shipman for their assistance during the formative stage of this project, and to express gratitude to Mary Ellen Gallick, Linda Kiewel, Lyn Rabinovitch, and Nancy Shafer for their cooperation while undertaking the research at the Minneapolis Special Education Preschool Program.

Table 1

Children's Performance as a Function of Task, Sex, and Ti

Task/Condition	Total Sample[b]	Sex[c] Boys	Girls	
Imitative				
Familiar	42.68 (15.48)	42.00 (12.49)	43.77 (1[illegible]91)	4
Unfamiliar	42.47 (17.52)	43.19 (15.62)	41.31 (20.85)	4
Spontaneous				
Familiar	33.38 (13.41)	34.38 (12.46)	31.77 (15.19)	3
Unfamiliar	34.56 (13.52)	37.10 (12.90)	30.46 (13.98)	3
Action Picture				
Familiar	14.35 (12.87)	14.86 (13.88)	13.54 (11.53)	1
Unfamiliar	8.82 (9.82)	9.24 (10.50)	8.15 (8.[illegible])	

[a]Entries are means and standard deviations of scores.

[b]Total sample N = 34.

[c]Boys N = 21; Girls N = 13.

[d]Short (1-3 months) N = 7; Long (4-18 months) N = 27.

Table 2

Examiners' Mean Ratings of Subjects' Demeanor During Assessment

Item/Condition	Total Sample[a]	+.5 SD Group[b]	-.5 SD Group[c]
Likeable/Unlikeable			
Familiar	3.88	3.90	3.67
Unfamiliar	3.82	4.00	3.33
Cooperative/Uncooperative			
Familiar	3.85	3.80	4.00
Unfamiliar	3.88	4.00	3.33
Comfortable/Uncomfortable			
Familiar	3.41	3.70	3.33
Unfamiliar	3.35	3.50	3.00
Valid/Invalid			
Familiar	2.00	2.00	2.00
Unfamiliar	1.97	2.00	2.00

[a]Total sample N = 34.

[b]Group includes those subjects whose scores were at least +.5 SD from the mean change score; N = 10.

[c]Group includes those subjects whose scores were at least -.5 SD from the mean change score; N = 3.

Table 3

Variables Significantly Contributing to Explained Variation[a]

Variable	Amount of Variance Explained (Cumulative)	Significance Level
Clarity of Speech	.12	.045
Reactions to Problems in Self-Expression	.17	.050
Acknowledging and Expressing Feelings	.25	.032
Type of Motor Activity	.29	.036
Use of Scissors	.33	.034
Responding to Teachers' Speech	.36	.043

[a]The variables are a subset of the categories comprising the Schenectady Kindergarten Rating Scales.

APPENDIX

Response Sheet for Spontaneous and

Imitative Tasks

Child Number: _____

+ = Correct phoneme production.
- = Incorrect phoneme production.
NR = No verbal response.
IR = Incorrect response.
INT = Interference.
NO = No opportunity - examiner error.

Stimulus	Spontaneous	Imitative
house	h___ s___	h___ s___
telephone	t___ f___	t___ f___
cup	k___ p___	k___ p___
gun	g___ n___	g___ n___
knife	n___ f___	n___ f___
window	w___ d___	w___ d___
wagon	w___ g___	w___ g___
wheel	wh___	wh___
chicken	k___	k___
zipper	z___ p___	z___ p___
scissors	s___ z___ z___	s___ z___ z___
duck	d___ k___	d___ k___
yellow	j___ l___	j___ l___
vacuum	v___	v___
matches	m___ tʃ___	m___ tʃ___
lamp	l___	l___
shovel	ʃ___ v___	ʃ___ v___
car	r___	r___
rabbit	r___ b___	r___ b___
fishing	f___ ʃ___	f___ ʃ___
chu[illegible]	tʃ___ tʃ___	tʃ___ tʃ___
feather	ð___	ð___

Stimulus	Spontaneous	Imitative
pencils	p___ s___	p___ s___
this/that	ð___	ð___
carrot	r___ t___	r___ t___
orange	ʤ___	ʤ___
bathtub	θ___ t___ b___	θ___ t___ b___
bath	b___ θ___	b___ θ___
thumb	θ___	θ___
finger	ŋ___	ŋ___
ring	ŋ___	ŋ___
jumping	ʤ___	ʤ___
pajamas	ʤ___	ʤ___
(air)plane	pl___	pl___
blue	bl___	bl___
brush	br___	br___
drum	dr___	dr___
flag	fl___ g___	fl___ g___
Santa Claus	n___ cl___	n___ cl___
Christmas tree	kr___ m___ tr___	kr___ m___ tr___
squirrel	skw___ l___	skw___ l___
sleeping	sl___	sl___
bed	d___	d___
stove	st___ v___	st___ v___
TOTAL	Correct ___ Incorrect ___	Correct ___ Incorrect ___

Response Sheet for Action Picture Task

Transcribe child's response to following questions:

"Tell me about this picture."

"Tell me what's happening?"

"Can you tell me more?"

Posttest Examiner Questionnaire

Child Number:_____

Examiner:_____

Circle the letter that best describes the child.

1. Was the child unlikeable/likeable in this situation?

A	B	C	D
Not Likeable	Only Mildly Likeable	Likeable	Very Likeable

2. Was the child difficult/cooperative to test?

A	B	C	D
Very Difficult	Difficult	Cooperative	Very Cooperative

3. Was the child uncomfortable/comfortable in this situation?

A	B	C	D
Very Uncomfortable	Uncomfortable	Comfortable	Very Comfortable

4. Was the child's test performance valid?

No Yes

Expanded Schenectady Kindergarten Rating Scales

WAITING AND SHARING (1 WS)

1. This child exhibits little ability to postpone gratification of any impulse and will cry if asked to wait for anything. He grabs desired toys and other objects from other children and demonstrates no ability to share or take turns.

2. This child exhibits considerable difficulty in postponing gratification of impulses but does not usually cry if asked to wait, instead he will tend to disregard the prohibition. He grabs desired toys and other objects from other children and demonstrates no ability to share or take turns.

3. This child exhibits difficulty in postponing gratification of impulses but demonstrates some ability to wait for very short periods of time before disregarding the prohibition. Although he usually grabs desired toys or other objects from other children he will occasionally ask for these objects instead. Although he cannot share toys, nor wait to take turns on the swings, tricycles or teeter-totter, with considerable external help he can wait for turns on equipment which requires only short waiting times such as the slide.

4. This child exhibits some difficulty in postponing gratification of impulses but is able to wait for short periods for some things. Although he grabs desired objects he will also ask for things he wants instead. He is able with considerable external help to share toys and to take turns on the swings, tricycles, teeter-totter; much less external help is needed for taking turns on equipment which requires only short waiting times such as the sliding board.

5. This child exhibits some difficulty in postponing gratification of impulses but is usually able to wait for short periods of time when asked to do so by an adult. Although he occasionally grabs toys and desired objects he usually asks for them. He is able with some external help to share toys with other children and to take turns on the swings, tricycles, teeter-totter. Little external help is needed to take turns on equipment which requires only short waiting times such as the sliding board.

6. This child has some difficulty in postponing gratification of impulses but is usually able to wait for short periods of times when asked to do so by an adult. He seldom grabs toys from other children but instead asks for them. He is able with little external help to share toys with other children or to take turns on the swings, tricycles, or teeter-totter.

7. This child is usually able to wait for things when asked to do so. He spontaneously takes turns on the swings, tricycles, and teeter-totter and spontaneously shares toys with other children.

LEVEL OF ORGANIZATION OF PLAY ACTIVITIES (2 LOP)

1. This child's use of the play materials is characterized by a primarily exploratory or experimental approach and he will frequently use the materials in an inappropriate, personal, or random fashion with little or no organization.

2. This child's use of the play materials is characterized by repetitive simple activities such as pounding on a drum, simple play with a car or truck or simple water or sand play which is done with a minimum of organization.

3. This child's use of the play materials is characterized by using the blocks to build simple structures such as 3 or 4 block towers, simple fences or bridges. His use of puzzles involves trial and error activity on relatively simple puzzles and he makes simple objects such as snakes and worms from clay. His doll play is simple and realistic.

4. This child's use of the play materials is characterized by using the blocks to build simple houses with features such as roofs and chimneys. His play with puzzles involves the use of the concepts of shape and/or color in completing the puzzle and he uses other materials in making things from clay. His doll play is somewhat dramatic and at times involves taking the role of family members and the integration of a sequence of simple events such as preparing a meal, moving, etc.

5. This child's use of the play material is characterized by using blocks to build rather complex structures which are organized as to function and are integrated with other materials such as cars and trucks. He approaches puzzles by using the concepts of color, shape, and/or content of the picture and his clay representations are more detailed and complex. His doll play involves taking roles in addition to his family such as postman, milkman, etc., and the sequence of events played out involve large portions of a day and entail planning and continuity.

CLARITY OF SPEECH (3 CS)

1. This child's speech is so unclear that he has difficulty making himself understood even after repetitions.

2. This child's speech is poor enough to often require repetitions in order to be understood.

3. This child's speech contains enough inaccuracies to sometimes require repetitions in order to be understood.

4. This child's speech contains many inaccuracies but can be understood without his having to repeat.

5. This child's speech is usually correct but lacks adult-like clarity and fluency.

6. This child's speech is very much like an articulate adult - his verbal communication is consistently clear and fluent.

USE OF MATERIALS (4 UM)

1. This child uses crayons, paints, and clay in crude, aimless fashion - scribbles with crayons, scrubs with paint brush, or bangs with clay.

2. This child engages in careful experimental manipulation of these materials but shows no interest in using them to represent anything.

3. This child engages in careful manipulation of these materials and tells what he is making although there is a total lack of resemblence between his product and what he says he has made (in the teachers' judgment).

4. This child is able to achieve some resemblence between what he produces and what he says he is making.

5. This child is able to achieve easily discernible representations of what he says he is drawing, painting, or molding.

RESTRAINT OF MOTOR ACTIVITY (5 RMA)

This scale is designed to rate the intensity of motor activity without any consideration for the type of activity. The dimension under consideration is the amount of time the child is in motion and the relative speed of the movements involved. In making judgments about the time a child can engage in subdued activity, one can use as reference points such activities as listening to stories, watching various activities, subdued activity or the lack or it at nap time or rest period or other activities which involve watching, listening or performance of a quiet, subdued nature.

1. This child is in almost continual motion and his movements are characterized by occurring at a very high rate of speed. It is difficult to engage him in any form of subdued or quiet activity for more than 4 or 5 minutes at a time.

2. This child is extremely active and his movements are characteristically quite rapid. He is able to engage in subdued or quiet activity for 4 or 5 minutes and with some external help can engage in such an activity for about 10 or 12 minutes.

3. This child is quite active, however, he is able to engage in subdued or quiet activity for 10 to 12 minutes and with some external help can engage in such an activity for about 25 or 30 minutes.

4. This child although active is able to engage in subdued or quiet activity for about 15 or 20 minutes and with some external help can engage in such an activity for about 25 or 30 minutes.

(continued on next page)

Restraint of Motor Activity (5 RMA) - continued

5. This child, although active at other times, is able to engage in subdued or quiet activity for about 25 to 30 minutes and with some external help can engage in such activities for about 40 to 45 minutes.

6. This child, although active other times, is able to engage in subdued or quiet activity for about 40 to 45 minutes and with some external help can engage in such activities for about an hour.

7. This child, although relatively active at other times, is able to engage in subdued or quiet activity for about an hour and with some external help can engage in such activities for about an hour and a half or two hours.

COOPERATION WITH ADULTS (6 CoA)

1. This child is exceedingly uncooperative and appears to resist in some manner almost any request made of him by adults. Resistance may be in the form of ignoring requests, overt refusal to comply, complying verbally but not following through in action, etc.

2. This child is cooperative at times but is often resistant to suggestions made by adults. He needs considerable supervision and many reminders before he complies with requests.

3. This child usually complies with a request after several reminders.

4. This child is usually eager to comply with suggestions from adults but sometimes has to be reminded.

5. This child is exceedingly cooperative and almost always complies the first time a request is made.

VERBAL SKILLS (7 VS)

This scale is concerned with the maturity of the child's language and not with the clarity of his speech or the frequency of speech. A child may talk very little yet possess mature language skills just as a child may talk a lot but use short sentences and an immature vocabulary. Special attention may have to be paid to the child who rarely speaks in order to determine how mature his language skills actually are.

1. This child typically uses short sentences, short phrases, or single words to communicate with others. His vocabulary is limited to the names for concrete objects, a few verbs, and perhaps some pronouns such as "I" and "me" ("Me see doggy"/"wannit").

2. This child tends to use short sentences and phrases and is limited in his vocabulary but consistently uses "I" appropriately instead of "me". ("I want a cookie").

3. This child seldom uses notably long sentences yet incorporates most parts of speech in his conversations. ("I want the big red ball").

4. This child sometimes uses long sentences and phrases when he speaks and has a fairly large vocabulary. ("You be the little girl, and I'll be the mama, and you be crying").

5. When he speaks, this child consistently uses long sentences and phrases and possesses an unusually large and mature vocabulary. ("This puzzle is too confusing for me so I want one that isn't so complicated").

FEARFULNESS (8 Fr)

1. This child is extremely anxious, easily frightened and apprehensive about new experiences and may express this concern by withdrawal and becoming very quiet or by whimpering, crying, whining and expressing his fears. It is difficult to reassure this child.

2. This child is anxious and apprehensive about new experiences and needs considerable reassurance and support which appears to be effective for only short periods of time.

3. This child is somewhat anxious and apprehensive about new experiences but can be reassured by an adult and responds readily to this kind of support.

4. This child is usually calm and relatively free from anxiety. He meets new experiences with enthusiasm and when he does become apprehensive he is easily reassured.

5. This child is exceptionally calm and free from anxiety. He is eager to tackle new experiences and shows no fear or apprehension. Reassurance is rarely needed.

FREQUENCY OF ANGER TOWARD ADULTS (9 FAA)

This scale is designed to measure the frequency of outbursts of anger directed toward adults in school. This anger can be expressed in many ways such as hitting, swearing, complaining, sulking, etc. Regardless of how anger is expressed, this scale is concerned with how often the child seems angry at adults.

1. Four or five times a day or oftener.
2. An average of 2 or 3 times a day.
3. An average of once a day.
4. About twice a week.
5. About once a week.
6. About once a month.
7. Very rarely or not at all.

USE OF SCISSORS (10 US)

1. This child has trouble holding scissors and cannot make a clean cut. The paper is usually crumpled or torn between the blades of the scissors.
2. This child can hold scissors fairly well and usually manages to make a clean cut but cuts aimlessly. He lacks the insight or skill to follow a line.
3. This child cuts easily, has the idea of keeping on the line but has limited success in doing so.
4. This child cuts easily and can follow the line quite closely if the pattern is simple.
5. This child cuts easily and can follow the line closely even when the pattern is intricate.

TYPE OF MOTOR ACTIVITY (11 TMA)

This scale is designed to rate the type of motor activity without consideration for the intensity of the activity. The dimension under consideration is the amount of time devoted to large muscle motor activity as opposed to the time devoted to fine muscle activity. Large muscle motor activity is defined as the use of the large musculature of the legs, arms, and back in such activities as walking, running, squatting, bending, climbing, etc. Fine muscle motor activity is defined as the use of the fine musculature of the fingers in activities such as fitting puzzles together, cutting with scissors, and playing with small objects.

1. This child characteristically engages in predominantly large muscle motor activity with little or no fine muscle motor activity.

2. This child characteristically engages in predominantly large muscle motor activity and will occasionally use fine muscle activity for short periods of time.

3. This child characteristically engages in both large and fine muscle motor activity but engages more in large muscle motor activity than in fine muscle motor activity.

4. This child characteristically engages in both large and fine muscle motor activity and appears to spend equal amounts of time in each of these activities.

5. This child characteristically engages in both large and fine muscle motor activity but engages more in fine muscle motor activity than in large muscle motor activity.

6. This child characteristically engages predominantly in fine muscle motor activity and will occasionally use large muscle motor activity for short periods of time.

7. This child characteristically engages in predominantly fine muscle motor activity with little or no large muscle motor activity.

ACTIVITY VS. PASSIVITY OF SPEECH (12 APS)

This scale involves the amount and nature of the child's speech but not the clarity or conceptual quality of it. For example, whether a child asks or answers questions should be rated without regard for the accuracy or relevance of his responses.

1. This child talks very seldom or not at all.

2. This child is typically quite passive in his verbal behavior, will occasionally talk to classmates, but rarely volunteers information or asks questions in a group and will give only very brief answers to questions.

3. This child seldom asks questions or volunteers information or comments in a group but will answer questions and sometimes participates in casual conversation with adults or classmates.

4. This child occasionally asks questions or volunteers information or comments in a group and often engages in casual conversations with adults or classmates.

5. This child often asks questions, seems to have no reservations about expressing himself in a group situation, and is engaged in conversation with someone much of the time he is in class.

FREQUENCY OF ANGER TOWARD CHILDREN (13 FAC)

This scale is designed to measure the frequency of outbursts of anger toward other children in school. This anger can be expressed in many ways such as hitting, swearing, complaining, sulking, etc. Regardless of how anger is expressed, the scale is concerned with how often the child seems angry at other children.

1. Four or five times a day or oftener.

2. An average of 2 or 3 times a day

3. An average of once a day

4. About twice a week

5. About once a week

6. About once a month

7. Very rarely or not at all

ACKNOWLEDGING AND EXPRESSING FEELINGS (14 AEF)

1. This child rarely acknowledges his teacher's verbalizations of his feelings, such as anger, fear, and sadness. He will either refuse to respond to such statements and questions or he will explicitly deny their truthfulness. This child hardly ever spontaneously expresses his feelings to this teacher.

2. This child occasionally acknowledges his teacher's inquiries about or reflections of his feelings (maybe with a nod of his head), but such acknowledgements are difficult for this child. He hardly ever spontaneously communicates his feelings to the teacher.

3. This child responds more times than not to his teacher's questions or statements about his feelings, and will occasionally on his own communicate his feelings to the teacher.

4. This child responds often to his teacher's questions or statements about his feelings, and will more times than not on his own communicate his feelings to the teacher.

5. This child often acknowledges his teacher's questions or statements about his feelings, and will often on his own communicate his feelings to the teacher.

AUTONOMY AND SELF-REGARD (15 ASR)

1. This child seems to hold himself in very low regard. He always underestimates his capabilities, fears failure, and he does not tolerate any frustration. He is withdrawn from and acts passively or silly around other children. He may rarely engage materials or participate in activities with or without teacher support and guidance.

2. This child's general regard for himself is rather low. He frequently underestimates his capabilities, fears failure, most often has difficulty tolerating frustration, and is quiet or silly around other children, although he is interested in them. He will use materials and participate in activities with teacher support but typically will not tackle tasks on his own.

3. This child's regard for himself vacillates between low and high. He sometimes underestimates his capabilities and occasionally shows both fear of failure and difficulty in handling frustration. He frequently plays parallel to other children, and sometimes enters into cooperative play. He will engage materials and participate in activities with teacher support and without teacher support for short periods of time.

4. This child generally has high regard for himself. He displays confidence in his abilities and shows adequate perseverance in the face of difficulty. He enjoys the company of his peers and frequently plays cooperatively with them. He may have occasional problems with peers in conflict situations. He prefers to do things by himself with the teacher nearby.

5. This child has high regard for himself. He has a strong sense of self-confidence, and he is spontaneous and joyful in his classroom activities. He functions productively with or without his teacher present. He enjoys the other children. They look to him as one who has good ideas, is thoughtful and fair, and can be a leader.

RESPONDING (VERBALLY OR NON-VERBALLY) TO THE TEACHER"S SPEECH (16 RTS)

1. This child responds only on occasion to his teacher's verbal messages. His reactions are too infrequent to determine whether his unresponsiveness is due to the complexity, abstractness, or the lack of repetitiveness of the message.

2. This child responds more often than "only on occasion" to his teacher's messages but he remains unresponsive 50% of the time. He is more apt to respond to a comparatively short, grammatically simple communication, particularly when contextual, visual clues are present.

3. This child generally responds to his teacher's verbal messages. However he displays some difficulty with communications that are relatively long, complex, or abstract in nature.

4. This child responds most of the time to his teacher's verbal messages.

5. This child almost always responds to his teacher's verbal messages.

REACTIONS TO PROBLEMS IN SELF EXPRESSION (17 PSE)

1. This child is deeply affected by the difficulty he experiences expressing himself adequately to peers and teachers. He will demonstrate his upset by becoming very angry at the listener or by becoming quiet and sullen and by avoiding further social contact.

2. This child is affected, although not deeply affected, by the difficulty he experiences expressing himself adequately to peers and teachers. He will show his upset by becoming impatient with or perhaps mildly angry at the uncertain listener.

3. This child appears not at all affected by the difficulty he experiences expressing himself adequately to peers and teachers. While he may occasionally display some impatience toward the listener, more often he will attempt patiently to make himself understood.

Expanded Schenectady Kindergarten Rating Scales

Response Sheet

A-15

Child's Name:

Class:

Directions: Rate all the children below on each of the 17 scales. Circle the level for each scale which best characterizes his behavior. Please provide a rating for each scale.

Scale	Level						
1. WS	1	2	3	4	5	6	7
2. LOP	1	2	3	4	5		
3. CS	1	2	3	4	5	6	
4. IDI	1	2	3	4	5		
5. RMA	1	2	3	4	5	6	7
6. COA	1	2	3	4	5		
7. VS	1	2	3	4	5		
8. Fr	1	2	3	4	5		
9. FAA	1	2	3	4	5	6	7
10. US	1	2	3	4	5		
11. TMA	1	2	3	4	5	6	7
12. APS	1	2	3	4	5		
13. FAC	1	2	3	4	5	6	7
14. AEF	1	2	3	4	5		
15. ASR	1	2	3	4	5		
16. RTS	1	2	3	4	5		
17. PSE	1	2	3				

PUBLICATIONS

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