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The Relationship Between Fifth Grade Children'S Performance On The Goldman-Fristoe-Woodcock Test Of Auditory Discrimination And Ratings Of Attention Given By A Teacher Using The Devereux Elementary School Behavior Rating Scale

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This thesis, directed and approved by the candidate's committee, has been accepted by the Graduate Committee of The University of New Mexico in partial fulfillment of the requirements for the degree of

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THE RELATIONSHIP BETWEEN FIFTH GRADE CHILDREN'S PERFORMANCE ON THE GOLDMAN-FRISTOE-WOODCOCK TEST OF AUDITORY DISCRIMINATION AND RATINGS OF ATTENTION GIVEN BY A TEACHER USING THE DEVEREUX ELEMENTARY SCHOOL BEHAVIOR RATING SCALE

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BY
CARTER GORDON BROWER
B.S., Eastern New Mexico University, 1967

THESIS

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ABSTRACT OF THESIS

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The purpose of this study is to investigate the relationship of children's performance on the Noise Subtest of the Goldman-Fristoe-Woodcock (GFW) Test of Auditory Discrimination and ratings in Classroom Disturbance and inattentive-Withdrawn from the Devereux Elementary School Behavior Rating Scale DESB.

The sample consisted of a single fifth grade class in Albuquerque, New Mexico. The class contained 29 students, but nine of these were eliminated because of auditory discrimination problems as measured by the GFW Test of Auditory Discrimination. According to the school records, none of the subjects had any significant hearing loss.

Data were analyzed with the Spearman Rank Correlation coefficient (rho). No significant relationship was found between the Noise Subtest and either Classroom Disturbance or Inattentive-Withdrawn factors of the DESB. Rho was computed for all other factors on the DESB, and no significant relationships were found. Data analysis was not computed on the individual items comprising the behavior factors because of the large number of ties.

Further study is needed to investigate the relationship of the GFW Test of Auditory Discrimination to the DESB as a whole. This study found that a large percentage of the class had serious problems of auditory discrimination as measured by the GFW Test of Auditory Discrimination, and ratings by the teacher indicated that the problem of attention in the classroom was a serious one.

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CHAPTER I

INTRODUCTION

The purpose of this study is to investigate the relationship of children's performance on the Noise Subtest of the Goldman-Fristoe-Woodcock (GFW) Test of Auditory Discrimination and ratings of attention given to the children by a teacher using the Devereux Elementary School Behavior Rating Scale (DESB). One of the major problems in any classroom is the child who cannot, or will not, pay attention to a task long enough to achieve its completion. Becker (1971) stated that the role of the teacher is much like that of the actor in that the primary task of both is to attract and hold the attention of the audience. In the classroom, there are many stimuli competing for the attention of the child.

Brown & Hathaway (1968), in a study involving regular education teachers, found that these teachers would refer 39.14% of their students to an elementary school counselor if one were available. The teachers were asked to give the reason for the referral of each child, and these were then ranked. Attention seeking and show off behavior was ranked third; disinterest or inattentive behavior ranked fifth; and daydreaming ranked sixth. When the student is involved in attention seeking or show-off behavior, he is often distracting others from their tasks. This type of behavior cannot be ignored by the teacher (Brown, 1971).

For some children in the classroom, attending to a task is a problem since they cannot screen out the extraneous stimuli. This inability is present regardless of the type of attention being required (Hewett, 1968). This is a common, though not an exclusive characteristic of children with minimal brain dysfunction (Lerner, 1971).

Distractibility, for purposes of this study, is defined as:

> An inability of the (subject) to control his attention to stimuli significant to his adjustment, the inability of the (subject) to negatively adapt (ignore) to unessential stimuli, and an apparent hyperawareness of visual, auditory, and tactual stimuli within the perceptual field of the observer (Cruikshank, 1959, p. 7).

This definition is similar to that given by Hewett (1968) as preoccupation with irrelevant stimuli, daydreaming, withdrawal, and an inability to recall what has been presented. Crosby (1972) also defined distractibility as an inability to inhibit responses to extraneous stimuli.

Serious problems of attention are displayed by those children most seriously emotionally disturbed, ranging from those only mildly disturbed to the psychotic child. Regardless of the label, they all have one thing in common, and that is problems in the area of attention (Hewett, 1968).

Hewett (1968) has placed attention at the base of his seven step developmental theory for the education of the emotionally disturbed child. He stated that one can assume with some certainty that if children do not pay attention they will not learn. "The ability to focus on relevant cues in the environment is fundamental to learning" (Hewett, 1968, p. 49). The Santa

Monica Engineered Classroom developed by Hewett, Artuso, and Taylor contains materials of very high interest to hold the child's attention, as well as booths to reduce the working area and eliminate unessential stimuli (Krauch, 1971).

Crosby (1972) stated that attention is a disability that has frequently been associated with the mentally retarded. The results of his study comparing retarded subjects with normal subjects indicated that there was not significant difference between the two groups. He also found that there was no significant difference in the performance of brain damaged subjects and non-brain damaged retarded subjects. Strauss and Lehtinen (1955) found no conclusive evidence to link distractibility with intelligence, and other studies (Girardeu and Ellis, 1964; Ellis, Hawkins, Prior, and Jones, 1963) obtained similar results. Studies by Belmont and Ellis (1968) suggested that the retardate is no more distractible than his chronological age peer, although there was evidence to indicate that the retardate did not do as well when the distraction was imbedded in the task (Ellis, 1970).

Behavior problem checklists and rating scales have been used extensively by Hewett (1968) and others (Spivack, 1967; Maes, 1966; Kantor, 1963) to determine the problems that a child is having in the classroom (Brown, 1971). Studies by Glidewell, Domke, and Kantor (1963); and by Rice (1967), have shown that a teacher's ability to identify a child's problems is very good when using a rating scale (Brown, 1971).

The Devereux Elementary School Behavior Rating Scale (DESB) was designed for use in either the regular or the special education classroom. The scale provides a profile consisting of 11 behavior factors, each consisting of several individual items on which the child is rated. The present study is concerned with the two behavior factors most closely related to attention, those of Classroom Disturbance and Inattentive-Withdrawn. Each of these factors consists of four individual factor items on which the child is rated. In addition, there are several other factor items in the scale that appear to be related to attention, although the behavior factor itself does not appear to be related. Items 15, giving irrelevant answers, item 26, making irrelevant remarks; and item 32, unable to follow directions given in class, are three of the individual items that may be related to attention.

The GFW Test of Auditory Discrimination was selected because it provides a background on its Noise Subtest that is similar in some respects to the background noise found in many classrooms. "At times, the background voices become almost intelligible and may be very distracting to the subject. . . . When taking this (Noise) Subtest, even normal subjects may pause before making a selection" (Buros, 1972, p. 1328).

The GFW Test of Auditory Discrimination appears to discriminate among several clinical groups, including the hard of hearing, educable mentally retarded, and learning problems. Data are available in the manual on nine of these clinical groups (Buros, 1972).

According to Ross and Ross (1972), accurate listening is a complex psychological process involving several factors including motivational, perceptual, and intellectual ones. The child must be able to attend to the stimulus input, and select the relevant cues from it. "Without this skill (listening) a child would be inefficient in many learning situations, and would be restricted in terms of his intellectual development; the quality of his interactions with the environment would be markedly reduced" (Ross & Ross, 1972, p. 137). The need for formal listening training, Ross (1972) stated, is underestimated. Many children could profit from such listening experiences, especially in the primary school years.

The need for early identification of children with problems in the area of attention is great. Krauch (1971, p. 12), in discussing one particular case study, stated that the child's poor behavior and concentration coupled with the resulting distractions, "reduced his struggle to read to an almost hopeless paradox: The more he tried, the more he failed. The more he failed, the less he tried." This child was nine years old, and had been a problem in the classroom for years. He was one of the many thousands of "inattentive, failure prone, hyperactive children." After having his problems identified, he was placed in the Engineered Classroom and two years later he was able to return to the regular classroom (Krauch, 1971).

While the use of teacher rating scales is considered highly accurate, rating scales usually require a considerable amount of a teacher's time if they are to be done carefully. Furthermore, it is necessary that a teacher be

thoroughly familiar with a child's classroom behavior (Brown, 1971; Spivack, 1967). The purpose of the present study is to determine if the relationship between the GFW Test of Auditory Discrimination and ratings by a teacher on the DESB is significant. If so, the GFW Test of Auditory Discrimination may be useful as a mass screening device for children with attention problems.

Specific hypotheses are as follows:

H_1 Performance on the Noise Subtest of the GFW Test of Auditory Discrimination will be significantly related to DESB behavior factor one, Classroom Disturbance.

H_2 Performance on the Noise Subtest of the GFW Test of Auditory Discrimination will be significantly related to DESB behavior factor eight, Inattentive-Withdrawn.

CHAPTER II

PROCEDURE

Sample

The sample consisted of 20 subjects of a single fifth grade class in Albuquerque, New Mexico. The class consisted of 29 students, but nine of these were eliminated due to scores below the 30th percentile on the Quiet Subtest, which indicated problems in the area of auditory discrimination (Goldman, Fristoe, Woodcock, 1970). The sample consisted of 12 males and eight females. Five of the subjects had Spanish surnames, and all others were Anglo. The hearing of all subjects in the class had been checked by the school nurse, and no significant hearing losses were reported.

Instruments

The DESB was designed to provide a profile of 11 dimensions of overt problem behavior. The 11 dimensions are shown in Appendix A. The DESB is designed for use by any classroom teacher who has observed the child for at least one month in the classroom environment (Spivack, et al., 1967).

The normative sample consisted of 1,546 children in both regular and special education classes. The ratings were done by 147 teachers of these classes. Short term (one week) test-retest reliability was significant at the .05 level or greater for most items, including factors one and eight

(Spivack, et al., 1967). According to Buros (1972) the problem of interrater reliability was not investigated. Great care was used in the selection of items, and "behaviors to be rated are clearly designated and instructions for ratings are carefully given" (Buros, 1972, pp. 136-137).

The DESB consists of a total of 47 separate items, on which the median test-retest correlation was .76. The type of correlation is not given in the manual. The standard error of measurement for each item was small, indicating that the scores obtained at any one point in time are close to the "true scores" for the child at that time (Spivack, et al., 1967, p. 33).

The GFW Test of Auditory Discrimination consists of a Quiet Subtest and a Noise Subtest which are both recorded on the same tape using the same voice. In the Quiet Subtest, only the stimulus word is presented and the subject must point to one of the four pictures on the plate in front of him. In the Noise Subtest, the stimulus word is presented over a background noise that is nine decibels less than the stimulus word (Goldman, et al., 1970).

The GFW Test of Auditory Discrimination was standardized on a sample of 745 subjects ranging in age from 3-84. Test-retest reliability was .87 on the Quiet Subtest and .81 on the Noise Subtest. The type of correlation is not given in the manual. Buros (1972) stated that the GFW is one of the tests in the field of special education that has reasonably good research and development.

Methods

The instructions for giving the ratings on the DESB were discussed with the teacher, and he was asked to complete the ratings within one week. The teacher was not told the specific purpose of the study.

The GFW Test of Auditory Discrimination was administered to all subjects during the same week that the ratings on the DESB were being completed. The testing and the rating forms were completed in six days. Administration of the GFW Test of Auditory Discrimination was with a Wollensak model 6020 with Jax #305 8 ohm Dynamic Stereo Headphones and a Newcomb 9 jack adapter. The recorder was calibrated at between 60 and 70 decibels as recommended in the manual.

Administration of the GFW Test of Auditory Discrimination was in a small room separate from the other classrooms, and there were no visual distractions other than the equipment necessary for the administration of the test. The preferred arrangement for placement of test materials, as diagramed in the manual, was followed.

All children knew the investigator, and the purpose of the test was briefly explained to each child. The complete training procedure was given to each child. Specific instructions were: "You are going to see some pictures here. I will say a word. Then I want you to put your finger on the picture of the word I have said." This was followed by the instructions for the Quiet Subtest which were:

> Now I am going to show you some more pictures. But this time you will hear what to do through these earphones. Later in the test you will hear a lot of noise and the words will be harder to understand.
>
> Listen carefully and be sure to look at all four pictures each time.

Further instructions are given to the child on the tape. This procedure was followed with each child.

Data Analysis

Data from the performance on the GFW Test on Auditory Discrimination and rankings on the DESB were analyzed by means of the Spearman Rank Correlation Coefficient (rho). Since the number of ties on both the GFW Test of Auditory Discrimination and the DESB behavior factors was large, the formula which corrected for ties was used (Siegel, 1956).

CHAPTER III

RESULTS

The purpose of this study was to investigate the relationship of children's performance on the Noise Subtest of the GFW Test of Auditory Discrimination and ratings given to the children by a teacher using the Devereux Elementary School Behavior Rating Scale.

Calculations to determine the relationship of the GFW Test of Auditory Discrimination and behavior factor 1, Classroom Disturbance yielded a rho (r_s) of .149 (Appendix A). This indicated no significant relationship between the two measures. Therefore, H_1:

> There is a significant relationship between performance on the Noise Subtest of the GFW Test of Auditory Discrimination and DESB behavior factor 1, Classroom Disturbance.

is rejected.

Calculations to determine the relationship of the GFW Test of Auditory Discrimination and behavior factor 8, Inattentive-Withdrawn yielded a rho (r_s) of .210 (Appendix A). This indicated no significant relationship between the two measures. Therefore, H_2:

> There is a significant relationship between performance on the Noise Subtest of the GFW Test of Auditory Discrimination and DESB factor 8, Inattentive-Withdrawn.

is rejected. Rho's for each behavior factor are shown in Appendix A.

Rho was not computed for any of the individual factor items that appeared to be related to attention. Factor item 15, irrelevant answers; factor item 26, irrelevant remarks; and factor item 32, inability to follow directions given in class, were not analyzed because of the number of ties. Factor item 15, for example, had nine ties for a rating of three, five ties for a rating of four, and three ties each for ratings of one and two.

At ages 10, 11, and 12, normal functioning is essentially perfect functioning, and more than one error on the Quiet Subtest is enough to place a child below the 30th percentile. Nine children, almost 1/3 of the total class, were excluded because of scores below this level. Of this number, seven were males, and two were females. The two females eliminated from the sample because of poor performance on the Quiet Subtest performed average to superior on the Noise Subtest. None of the males performed better on the Noise Subtest than on the Quiet Subtest. Five of the subjects received scores below the 15th percentile on the Quiet Subtest and below the 35th percentile on the Noise Subtest.

Four children received ratings placing them more than one standard deviation above the mean, and four received ratings placing them two standard deviations above the mean on behavior factor 1, Classroom Disturbance. One subject was one standard deviation above the mean, and three received ratings more than two standard deviations above the mean on behavior factor 8, In-

attentive-Withdrawn. Raw scores from the GFW Test of Auditory Discrimination and DESB are shown in Appendix B.

CHAPTER IV

DISCUSSION

The purpose of this study was to investigate the relationship of the GFW Test of Auditory Discrimination and certain factors relating to attention which are contained in the DESB. The specific hypotheses:

H_1 There is a significant relationship between performance on the Noise Subtest of the GFW Test of Auditory Discrimination and DESB behavior factor 1, Classroom Disturbance.

and

H_2 There is a significant relationship between performance on the Noise Subtest of the GFW Test of Auditory Discrimination and DESB behavior factor 8, Inattentive-Withdrawn.

were both rejected. Neither hypothesis yielded a significant rho. Rho was also computed for all the other behavior factors contained in the DESB, and no significant relationship was found. Because of the large number of ties obtained on the individual factor items, it was not feasible to compute rho for the individual items that appeared to be related to attention.

The type of attention required by the GFW Test of Auditory Discrimination is short term auditory attention. The subject hears a word and immediately points to a picture. The Noise Subtest lasts a total of 7-1/2 minutes, so the factor of fatigue would appear to be eliminated. While the

Noise Subtest appears to be similar to the background noise in the classroom, it differs in what may be one important aspect. The noise level on the Noise Subtest of the GFW Test of Auditory Discrimination is at a relatively constant level of intensity, and it is not the intermittent type of noise frequently found in the classroom.

Ross and Ross (1972) stated that children who watch a great deal of television are better listeners than those who watch little. Many children may be able to effectively screen out the type of background noise found in the Noise Subtest. This may explain why some of the children were able to perform better on the Noise Subtest than on the Quiet Subtest, particularly the two females excluded from the sample because of their poor performance on the Quiet Subtest.

Five of the subjects received scores which were below the 15th percentile on the Quiet Subtest and below the 35th percentile on the Noise Subtest. This would indicate serious problems in the area of auditory discrimination (Goldman, et al., 1970). Even these subjects' scores, however, do not appear to have any significant relationship to ratings given them on the DESB. Apparently, the type of auditory attention required by the GFW Test of Auditory Discrimination is not a major factor in the type of attention required in the classroom environment.

The results measured by DESB appear to support the findings by Brown, 1971; Hewett, 1968; and Krauch, 1968, concerning the problem of attention training. Four of the subjects received ratings placing them more than one

standard deviation above the mean, and four received ratings placing them more than two standard deviations above the mean on factor one, Classroom Disturbance. Six of the subjects receiving ratings more than one standard deviation above the mean on this factor were males, two were females. This would appear to support the findings of Brown and Hathaway (1968) that males tend to receive higher ratings than females in behavior problem areas. It would also appear to support the findings that more males than females are identified as behavior problems (Brown, 1971).

The results of the present study indicate that many children in the regular classroom could benefit from some form of listening and attention training. According to Spivack (et al., 1967) high scores on the factors of Classroom Disturbance and Inattentive-Withdrawn correlate negatively with academic success. If this is true, a large number of the children in the present study are not achieving as well as they could be in academic areas because of problems in the area of attention. Ross and Ross (1972) found that listening training produced significant results with educable mentally retarded children. Methods for listening training, as well as Hewett's (1968) methods for attention training, should be more fully explored for use in the regular classroom.

The early identification of children with problems in the area of attention should be given more serious consideration, since without this skill effective learning cannot take place (Ross and Ross, 1972). With early identification and correction of a child's attention problems, many of the early

learning frustrations described by Krauch (1971) could be avoided. It is recommended that further research be conducted to find reliable means of identifying these children.

Further investigation of the relationship of auditory discrimination and the total score of the DESB is needed. The present study indicates that the Noise Subtest of the GFW Test of Auditory Discrimination does not identify those children rated by the teacher as having attention problems. This study found, however, that a large percentage of the children had serious auditory discrimination problems as measured by the Quiet Subtest of the GFW Test of Auditory Discrimination, and that a significant portion of the class was considered by the teacher to have serious attention problems as measured by the DESB. Investigations into the efficacy of listening and attention training in the regular classroom need to be conducted.

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APPENDIXES

APPENDIX A

Behavior factors contained in the Devereux Behavior Rating Scale and rho (r_s) obtained:

BEHAVIOR FACTOR	rho	t
Classroom Disturbance (1)	.149	.640
Impatience (2)	-.018	-.076
Disrespect-Defiance (3)	.314	1.403
External Blame (4)	.062	.264
Achievement Anxiety (5)	.031	.132
External Reliance (6)	.033	.132
Comprehension (7)	-.132	-.565
Inattentive-Withdrawn (8)	.210	.912
Irrelevant-Responsiveness (9)	-.054	-.230
Creative Initiative (10)	-.264	-1.162
Need Closeness to Teacher (11)	-.162	-.697

APPENDIX B

Performance on the GFW Test of Auditory Discrimination (ranks), and Ranks Given Student on Behavior Factors 1 and 8

Subject	Rank on GFW	Raw Score	Rank on Behavior Factor 1	Raw Score	Rank on Behavior Factor 2	Raw Score
1	1	98	7	8	7	6
2	2	96	8	1	4	5
3	3	81	2	5	7	6
4	5.5	77	16.5	19	16	13
5	5.5	77	4.5	6	2	4
6	5.5	77	2	5	16	13
7	5.5	77	16.5	19	7	6
8	8	70	13.5	14	10	7
9	9.5	53	10	11	13	11
10	9.5	53	18.5	20	11.5	10
11	12	49	20	22	19	18
12	12	49	18.5	20	20	19
13	12	49	10	11	14	12
14	14	38	4.5	6	2	4
15	15	34	6	7	2	4
16	16	53	15	15	11.5	10
17	17	20	10	11	16	13
18	18	19	2	5	7	6
19	19	12	12	12	7	6
20	20	11	13.5	14	18	15