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Teaching the Disruptive Child to Read: An Evaluation of the SPIRE Reading Program

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- *This study evaluated the effectiveness of the SPIRE reading program in a clinical population. Pre and post measures using the Woodcock-Johnson Tests of Achievement (3rd Edition) indicated a significant improvement in participants' basic reading skills.*

Introduction

Children with Disruptive Behavior Disorders (DBD) pose problems for themselves, as well as others. Furthermore, disruptive behaviors pose several problems in the academic setting. DBD youth pose unique problems in the academic setting that are detrimental in many ways. For example, these students may break classroom rules and otherwise disturb classmates (Rowe & Rowe, 1992). The most obvious result of this behavior is a loss in instructional time for all students in the classroom.

It is currently unknown whether academic underachievement in youth with a DBD is a result of the disruptive behavior itself, family discord, low socio-economic status, neuropsychological deficits or a combination of any of these variables (Grizenko, Papineau, & Sayegh, 1993). Specifically, a causal link between antisocial behaviors and academic underachievement can be viewed in at least two very different ways. For example, a child may be underachieving in school and act out in deviant ways (e.g. throwing items, yelling, and refusing to try assignments) as a means of releasing frustration. In this case, the stress and frustration associated with underachievement lead to the emergence of disruptive and antisocial behaviors. On the other hand, a child who previously engages in disruptive behavior before underachievement exists decreases his instructional and on-task time. Therefore, the child who refuses to work gets removed from class or engages in other off-task activities, thus reducing his time to learn and leading to underachievement in the classroom (Mash & Barkley, 1998).

As with academic underachievement in DBD youth, the origins of learning disabilities and learning problems continue to be controversial (Mash & Barkley, 1996). However, recent neuroimaging data used in the National Institute of Child Health and Human Development (2000) research on reading indicate that children with a reading disability lack phonemic awareness and other phonological processing skills that inhibit their ability to decode single words accurately and fluently. A review by Stein, Johnson, and Gutlohn (1999), discusses the two characteristics of effective reading programs. First, explicit phonics instruction is crucial for a beginning reader, as research has shown that children who learn from an implicit approach are not as successful as those who learn from an explicit approach (Stein, Johnson, & Gutlohn, 1999). The second characteristic of effective reading instruction is that the phonics lesson and the text used for practice should correlate with each other. These authors report that there is a significant discrepancy between what the research has identified as effective and what is being used in schools today, with many basal reading programs lacking these essential components. One program that does focus specifically on phonetic decoding is the Specialized Program Individualizing Reading Excellence (SPIRE) program.

The Specialized Program Individualizing Reading Excellence (SPIRE) program is a commercially published reading program that emphasizes the teaching of phonetic decoding. Clark-Edmands, the author of the SPIRE reading program, posits that there are ten "essential components to a reading and language arts curriculum that must be used to maximize the opportunity to learn to read," (2000, p.25). These ten essential components range from emphasizing the importance of daily phonemic training to the use of phonetically decodable text. When comparing the *S.P.I.R.E.* reading program to the suggestions made by the research of the NICHHD for beginning reading programs, an identical match

between the two becomes apparent (Clark-Edmands, 2000). While the *S.P.I.R.E.* reading program is comprehensive, considering that it has only been in existence since 1996, there is no existing research on this program.

The purpose of this study was to evaluate the SPIRE reading program with children diagnosed with a DBD. It should also be noted that the following study is the first of its kind to evaluate the SPIRE program that has been extensively used throughout the United States since 1996. It was hypothesized that the participants' standard scores on the Basic Reading Skills Cluster of the Woodcock-Johnson Tests of Achievement, 3rd Edition, as well as the Letter-Word Identification and Word Attack subtests, would significantly increase from pre to post-test administrations.

Methods

Participants

The participants in this study consisted of nineteen students/residents from an inpatient treatment center for youth located in the Midwest. The participants ranged in age from 7 to 14 years old (mean age of participants was 11.0 years), and were in one of three blended classrooms at a regional inpatient treatment center. Over half of the participants in this study were African-American and all but two of the participants were male. In addition, most participants were diagnosed with either ODD or CD, and fifteen of the nineteen participants had a diagnosis of Attention Deficit/Hyperactivity Disorder as well.

Measures

Woodcock-Johnson III Tests of Achievement

Two reading subtests were used from the standard and extended battery of the Woodcock-Johnson Tests of Achievement, 3rd Edition (WJ-III) in order to obtain a Basic Reading Skills cluster score for participants. The Basic Reading Skills cluster is composed of "Test 1: Letter-Word Identification" and "Test 13: Word Attack". In conjunction, these two tests measure an individual's current abilities of sight vocabulary, phonics, and structural analysis (Mather & Woodcock, 2001). Reliability and validity of the WJ-II has been established in previous research (McGrew & Woodcock, 2001).

SPIRE reading program

One teacher at the regional inpatient treatment facility was designated to teach the SPIRE curriculum to all participants in the current study. The teacher went through six days of training on the SPIRE reading program provided by the author of the reading program. Students were instructed with the SPIRE reading curriculum for one hour per day for the duration of the current study (twelve months). Instruction was delivered in small groups of three to four children per group. Groups were loosely based on reading level, so that instruction for any given group was based on the same curriculum and daily lesson plan. The *S.P.I.R.E.* reading program was administered according to the program author's instructions with the minimum amount of time devoted to each daily lesson being one hour (five days per week).

Procedure

Participants completed Tests 1 and 13 (Letter-Word Identification and Word Attack) of the WJ-III on two separate occasions (pre and post-test) with approximately a 12-month interval between administrations. Written consent from the legal guardians of the participants was obtained prior to the administration of the pre-testing evaluation.

Results

A paired samples t-test was used to determine the effectiveness of the SPIRE reading program with a sample of children with DBD by analyzing the standard scores from pre and post-test administrations of two subtests (Letter-Word Identification and Word Attack) on the WJ-III that were combined to create the Basic Reading Skills Cluster (See Table 1). The paired samples t-test analysis resulted in significant effects between pre and post-test administrations for the Basic Reading Skills Cluster, Letter-Word Identification subtest, and Word Attack subtest. Pre and post-test standard scores on the Basic Reading Skills Cluster were significantly improved $t(19) = -6.67$, $p < .01$, $d = .42$), with participants performing over eight standard score points higher on the post-test than on the pre-test administration of the *WJ-III* subtests. Similar results were found on pre and post-test standard scores of the Letter-Word Identification subtest $t(19) = -3.41$, $p < .01$, $d = .23$) and Word Attack subtest $t(19) = -7.37$, $p < .01$, $d = .73$). The effect sizes for the pre-post gains on the three subtests range from moderate on the Letter-Word Identification subtest to very large on the Word Attack subtest, with a large effect size on the Basic Reading Skills Cluster.

Discussion

The results of this study supported all of the hypotheses. Specifically, after one year of instruction with the SPIRE reading program, students made significant gains in their reading skills as evidenced

by the mean difference of over eight standard score points on the Basic Reading Skills Cluster of the WJ-III. These scores suggest that the SPIRE reading program significantly improved youths' word identification skills. Finally, participants' phonemic awareness, decoding, and structural analysis skills significantly improved, as evidenced by gains made on the Word Attack subtest.

Table1
Means, Standard Deviations and Ranges for Pre/Post Reading Achievement

Subtest	Mean	SD	Range
BRSC(PRE)	78.58	20.18	47-110
BRSC(POST)	86.95	19.62	58-126
LWI(PRE)	74.79	22.49	41-116
LWI(POST)	80.11	24.23	42-129
WA(PRE)	84.37	17.04	55-112
WA(POST)	95.32	13.03	70-118

NOTE:
BRSC(PRE) = Basic Reading Skills Cluster (Pre-test)
BRSC(POST) = Basic Reading Skills Cluster (Post-test)
LWI(PRE) = Letter Word Identification subset (Pre-test)
LWI(POST) = Letter Word Identification subset (Post-test)
WA(PRE) = Word Attack subset (Pre-test)
WA(POST) = Word Attack subset (Post-test)

Although there is much disagreement in the field of reading over the effectiveness of phonics and whole word, decoding and comprehension, or direct, holistic, or integrative approaches, it can be concluded from this study that the use of the SPIRE program which incorporates multi-sensory teaching approaches and utilizes systematic, sequential phonological awareness and phonics is successful for students with DBD. Even with the debate raging, experts in the field of reading agree that phonemic awareness and phonics are integral to learning to read (Hammill, 2004). The SPIRE program contains many the components supported by the National Reading Panel, (2000), such as a focus on phonological awareness instruction, phonics instruction, and early intervention. These components have been shown to have a positive impact on students' reading ability.

It should be noted that the conclusions based on the current study are limited by several factors. First, the authors were unable to form a control group for this study because the SPIRE reading program was previously set to be implemented school-wide for the reading curriculum. Therefore, treatment center administration did not allow any child to be excluded from the SPIRE reading program in order to be a member of a control group. While this limitation is significant, it should also be noted that the use of the WJ-III as a pre-post measure of intervention efficacy has benefits in this situation. Specifically, by using a norm-referenced measure, we are able to understand how program participants increased their ranking with regard to reading skill relative to a large normative sample. While this does not necessarily equate to a "control group" for this study, it does provide comparative information. Second, the time spent in the treatment center and its effectiveness may have had an impact on students' academic performance that was not accounted for by the design of this study.

Despite these limitations, the benefits of the current study are significant. Considering that the SPIRE reading program is a relatively new program, this study offers the first evaluation of the effectiveness of the SPIRE program. This study attempts to begin the research on this promising reading program and to encourage other researchers to further investigate its effectiveness with other youth. While there is both a monetary and time cost associated with research-based programs such as SPIRE, the benefit of these programs appears to be significant. Considering that professionals in education expect that standard scores will remain constant for non-disabled children, because they take chronological age into account, it is significant to note that the standard scores of the children with disabilities in the current study increased significantly from pre to post-test measures, suggesting that they made more than average yearly gains during this study. In addition, this study adds to the relatively small research base that currently exists on the effectiveness of reading programs with children diagnosed with a DBD. Because many children diagnosed with a DBD also display academic underachievement in the area of reading, future research should continue to investigate the effectiveness of reading programs, such as SPIRE, with children with a DBD.

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