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PREVIEW

**EFFECTS OF STORY MAPPING
UPON ORAL READING FLUENCY
OF ADOLESCENTS WITH LEARNING DISABILITIES**

by

Tamara J. Arthaud

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

in Partial Fulfillment of Requirements

For the Degree of Doctor of Philosophy

**Interdepartmental Area of
Major: Psychological and Cultural Studies**

**Under the Supervision of
Professors Stanley F. Vasa and Rose M. Allinder**

Lincoln, Nebraska

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PREVIEW

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DISSERTATION TITLE

Effects of Story Mapping Upon Oral Reading Fluency of Adolescents with

Learning Disabilities

BY

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EFFECTS OF STORY MAPPING UPON ORAL READING FLUENCY OF ADOLESCENTS WITH LEARNING DISABILITIES

Tamara J. Arthaud, Ph.D.

University of Nebraska, 1998

Advisors: Stanley F. Vasa and Rose M. Allinder

In this small-n study, five adolescents identified with learning disabilities participated in a reading instructional program designed to compare the effectiveness of two types of oral reading probes: *literature-based* probes taken from the novel being read and *vocabulary-controlled* probes taken from a text with limited vocabulary content, and to analyze the effects of story mapping instruction upon the oral reading fluency of the readers. Three participants received story mapping instruction to assist in comprehension of a novel, while two participants served as controls for the study and received no training in story mapping.

Throughout the study, all participants read the novel and demonstrated comprehension of passages read silently through written responses to eight comprehension questions. Participants in the treatment group were taught a self-regulated story mapping strategy to use while reading silently. Upon completion of the reading passage and the story maps, the stories and maps were removed, and the participants independently completed eight written comprehension questions. Participants in the control group were given blank sheets of notepaper to use while reading, then had the notepaper and novel removed while they answered the written questions.

Participants in the treatment group were instructed in three phases: (a) Baseline, in which they were given blank story maps to use while reading the day's passage with no

instruction regarding the use of the maps; (b) Treatment, in which they were given direct instruction in the use of the self-regulated story mapping strategy; and (c) Maintenance, in which they again received no instruction or guidance in the use of the story maps. Control participants read the novel, but were given no instruction in story mapping.

Each session began with the participants completing two oral reading probes individually in a separate room with the researcher. The *literature-based* probe was taken from the novel being read. The *vocabulary-controlled* probe was taken from a text designed to be controlled in vocabulary content. Each participant completed 18 *literature-based* probes and 18 *vocabulary-controlled* probes throughout the study with the presentation of probe types counter-balanced by session for each participant, and by participant within groups.

All participants demonstrated improved performance on the written comprehension questions. Only participants in the experimental group were able to demonstrate improved mean oral reading fluency performance using *vocabulary-controlled* probes during treatment. Comparison of the two probe types indicated *vocabulary-controlled* probes may result in more consistent performance by the participants than the *literature-based* probes, as measured by standard error of estimate of slopes of oral reading fluency.

All participants demonstrated improvements in responding to written comprehension questions with no difference between treatment and control groups. It is suggested practice in the use of written comprehension questions may result in gains reading comprehension.

DEDICATION

In Memory of Stephen B. McCarney, Ed.D.

I dedicate this study, and my future research in the field of special education, to the memory of my former mentor, advisor, and friend, Dr. Stephen B. McCarney. I was fortunate to have been assigned to Dr. McCarney as an undergraduate at the University of Missouri. His guidance extended beyond the classroom, as he was always willing to discuss concerns I had regarding coursework, interventions used in practicum experiences, and my future as a special educator. During my student teaching semester, he voluntarily set up a special seminar for those of us completing certification in the field of behavior disorders, meeting with us several evenings throughout the semester to discuss our problems and celebrate our successes. His personal connection to his students kept us motivated and focused on our role within the field of special education.

It was due to his encouragement that I returned to the University of Missouri to pursue a graduate degree in behavior disorders. His belief in my ability to achieve at a graduate level prompted me to continue in my educational pursuits, and I reentered the teaching field with greater confidence and skill upon attaining a masters degree.

To this day, the influence of Dr. McCarney is prevalent in my teaching and my interest in students with special needs. Although I will never feel I am his equal, I hope to be the kind of advisor, teacher, and mentor to my students that he was to me. He instilled in me a love of teaching those who are difficult to teach. I thank him for that and for the profound influence his life had upon mine. Although I miss him, and wish he were here, I believe he is watching from the world beyond, knows I am about to obtain my Ph.D. in Special Education, and he is smiling.

ACKNOWLEDGEMENTS

As I complete the final phase in my pursuit of a Doctor of Philosophy degree, and prepare to bring four years of study to a close, I realize with gratitude that there are many people who have made it possible. In fact, without their support, encouragement, and tolerance, it would have been much more difficult!

I would like to thank the members of my committee for the hours they invested in my studies. Rose Allinder has read every word I have written in this dissertation (as well as several drafts of this document), has guided me throughout the four years I have spent at the University of Nebraska, and has never wavered in her support and encouragement of my efforts. I found that if I followed her advice, her words of wisdom made my path to graduation a bed of roses, rather than the tangle of thorns I have heard it can be! Stanley Vasa encouraged me to set my goals for this program of study and kept me focused on those goals throughout the four years it has taken to reach this point. His sense of humor has made the four years pass quickly, and his probing inquiries regarding my research have kept me on my toes at all times! Joan Erickson was the first professor I had within the field of special education at the University of Nebraska, and I found her to be an inspiration as she made the classroom come alive. Together we were able to attain publication of a manuscript, a "first" I will never forget! Greg Schraw joined my committee within the past year, and has provided me with valuable advice and support. He, also, was an inspiration to behold as he made Correlational and Experimental Research an enjoyable experience, which was no small feat!

Throughout my life, my family has provided me with the help, support, and encouragement to pursue my goals and dreams. My parents have always believed in my

ability to achieve anything, and their positive influence can be seen in everything I do. My sister and brothers, as well as their families, are just as excited as I am about the achievement of my Ph.D., and we will celebrate this moment as a family, as we have celebrated all our accomplishments throughout our lives. My grandparents gave me the love and encouragement I needed as a child to develop confidence in my abilities, and I am blessed to be able to share this achievement with my Grandmother Westfall, who will be here to view me in my cap and gown with pride!

Finally, my husband and my children have been wonderful in their support of my efforts throughout the past four years. My daughters never complained about my absences from home or my preoccupation with my studies, and their cooperation in allowing me to study without interruption was a blessing. I know it was difficult at times to have a mother who was studying statistics, but they have been a source of joy to me, as well as keeping me grounded in what really matters in life: one's family.

Above all, my husband, Gary, has helped make the past four years not only tolerable, but a most gratifying experience. His support of me has been whole-hearted and unwavering. He, too, has never complained about the time I have had to invest in my studies. He has shared the joys of my positive experiences and boosted my morale during times of difficulty, making my entire doctoral program a pleasant experience. I love him dearly, and I thank him for helping me celebrate this moment in my life.

As I reflect upon my years as a doctoral student, I am amazed that it has flown by so quickly. I have been one of the fortunate ones who encountered very few obstacles along the way. I know this is due to the help and support of my family and friends, colleagues and professors, and I thank God for blessing my life so completely.

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PREVIEW

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PREVIEW

CHAPTER 1

Introduction

Research within the area of reading instruction tends to be focused on the early grades (preschool through elementary grades) with little emphasis on the development of reading skills among adolescents. Yet, those studies which do focus upon middle school through secondary level students with reading disabilities indicate the performance gap between the individual with a reading deficit and the average achieving student usually grows wider at the secondary level, rather than shrinking (Zigmond, 1993). There is some indication that secondary students with learning disabilities plateau at approximately a fifth to sixth grade reading level, and are unable to advance beyond that (Zigmond, 1993). Zigmond contends a lack of basic skill instruction and ineffective instructional techniques at the secondary level are responsible for the widening gap, not an innate inability to learn to read.

Is it important to teach adolescents to read? If one has not learned to read effectively by the time one enters high school, is it too late to develop reading achievement? Do adolescents plateau in academic skills, making basic skills instruction an inappropriate instructional activity at the secondary level? These questions provided the impetus for this study. Reading is a critical skill for young adults as they attempt to complete graduation requirements (Espin & Deno, 1993; Zigmond, 1993). A study by Putnam (1992) investigated the testing practices of mainstream secondary class teachers. Results indicated almost half of a student's grade (45.9%) was based on test scores. Yet, analysis of testing practices revealed alternative testing procedures, such as reading a test

orally to a student with mild handicaps, occurred only once or twice during a school year. This study indicates students are required to take numerous tests throughout each quarter (e.g., an average of 11 per quarter), but few provisions are made to accommodate individual reading needs during testing.

In spite of the reading demands placed upon secondary students, Zigmond (1992) reports little direct instruction in reading is conducted in secondary special education classes. Yet, research involving various instructional reading techniques (e.g., story grammar instruction and CBM reading procedures) indicates progress in comprehension can be accomplished at the secondary level (Espin & Deno, 1993; Gurney, Gersten, Dimino, & Carnine, 1990; Idol, 1987a; Singer & Donlan, 1982). Further study into specific use of such instructional techniques is needed to develop effective reading instruction at the secondary level.

In this study, a research-supported reading instructional program will be provided to four seventh grade students with reading disabilities. A strategy-based reading instructional technique, emphasizing development of story grammar knowledge, will be implemented. Student reading progress will be evaluated through the use of comprehension questions based upon story maps in which students generate a summary of the story read according to story grammar components (Idol & Croll, 1987), as well as on-going curriculum-based measures (CBM), specifically oral reading fluency (ORF).

Context of the Problem

Secondary students with learning disabilities must meet many standards and expectations if they are to be successful. Pressure to achieve within content-area classes

often takes priority over the development of individual basic academic skills. As a result, many middle school and secondary special education programs provide a tutorial approach, instructing the student in the content-area subject matter at the expense of continued emphasis upon academic skill development. Yet, it is possible that adolescents who receive appropriate, intensive instruction in the advancement of academic skills would be able to demonstrate achievement gains, as Zigmond (1993) contends.

Students with disabilities have difficulty demonstrating progress through standardized assessment procedures, as their gains in achievement may be made less rapidly than their peer group; therefore resulting in lower standardized scores which appear to indicate a lack of progress. If one is to demonstrate growth in academic performance, it is essential to use assessment measures which are sensitive to the small, but significant, changes in skill which may be exhibited by students with learning disabilities. The use of standardized assessment techniques has been criticized for such purposes, as only large gains in performance are likely to be observed (Jenkins & Pany, 1978). As an alternative, curriculum-based measurement (CBM) has been demonstrated to provide reliable and valid assessment techniques which are sensitive to individual growth in academic performance (Deno, 1985). Within this body of research, ORF has proven to be a valid measure of progress in reading comprehension (Deno, Mirkin, & Chiang, 1982; Espin & Deno, 1993; Fuchs, Fuchs, & Maxwell, 1988). Although little research has been conducted regarding the use of ORF with secondary students, results of two studies indicate it can be used as a valid measure of reading growth for adolescents and adults with reading difficulties (Bean & Lane, 1990; Espin & Deno, 1993).

Furthermore, Bean and Lane (1990) found alternative form reliability of ORF probes to be high ($r = .68 - .94$)

Continued analysis of the effects of curriculum materials used for oral reading probes is needed to further develop effective use of ORF as a measure of reading comprehension. Within the research analyzing the use of ORF, new indications have surfaced regarding the effects of the type of reading probes upon the measured oral reading fluency. Fuchs and Deno (1994) examined the effectiveness of reading probes taken from passages similar to the curriculum, but not directly taken from the curriculum, and found them to be equal or superior to the use of materials actually used in the academic program. Hintze, Shapiro, and Lutz (1994) analyzed the effectiveness of literature-based passages compared to basal-reader passages, and found the vocabulary-controlled traditional basal passages to be more sensitive to individual growth in fluency. This may account for difficulties with data collection in which studies using probes taken from novels or short stories with no vocabulary control result in decreasing ORF performances (Arthaud & Allinder, 1997; Arthaud & Rankin, 1996; Hintze et al., 1994).

The probability that reading growth among adolescents with reading disabilities is questionable necessitates the use of sensitive assessment procedures, as well as a reading intervention which has been demonstrated to be effective in developing advanced reading comprehension skill. Research into the use of one such instructional technique, story grammar instruction (i.e., outlining a story according to story grammar elements such as setting, character, and plot), indicates students with learning disabilities are less able to analyze a story according to story elements than their normally achieving peers

(Montague, Maddux, & Dereshiwsky, 1990). However, students with learning disabilities who receive strategy training in the use of story grammar elements are able to demonstrate gains in reading comprehension (Griffey, Zigmond, & Leinhardt, 1988; Gurney et al., 1990; Idol, 1987a; Idol, 1987b; Idol & Croll, 1987; Short & Ryan, 1984). Therefore, if progress is to be observed with adolescents with reading disabilities, using strategy training involving the analysis of story grammar elements has a high likelihood of success.

Purpose of the Study

The purpose of this study was to examine the effectiveness of two types of reading probes as a measure of ORF and as indicators of improved reading comprehension obtained through the use of story grammar instruction by adolescents with learning disabilities in reading. A comparison was made regarding the sensitivity of the two types of probe materials, as ORF scores were plotted for each probe type in each session with all participants. Two questions were addressed through the use of this dependent measure:

- (1) Are there differences between ORF performances of students with learning disabilities when using *literature-based* probe materials, as compared to *vocabulary-controlled* probe materials?
- (2) What are the effects of story grammar instruction upon the reading comprehension of adolescents with learning disabilities as measured by ORF?

Verification of progress in reading comprehension was provided by the analysis of student performance in response to eight questions developed from Ruddell's classification system involving questions in the following seven categories: a) detail, b) sequence, c) cause and effect, d) main idea, e) predicting outcomes, f) valuing, and g) problem-solving (Ruddell, 1978). The number of correct responses to the eight

questions developed for each reading passage constituted a third dependent measure indicating improved reading comprehension.

During each instructional session, assessment using ORF was conducted to determine whether the progress observed using the eight comprehension questions was reflected in the graphing of ORF performance. Probes taken from a novel read by the student and a *vocabulary-controlled* text on the same readability level were used for the ORF measures. These probes were compared throughout the study to determine whether there was a difference in the observed performance based upon the type of material used for the reading probes. Progress noted in the reading comprehension of adolescents with learning disabilities through the use of story grammar instruction and ORF probes was examined in an attempt to provide evidence that such strategy-based instruction is effective as an instructional strategy for adolescents with reading disabilities, as measured by standardized CBM procedures.

Hypotheses

It was hypothesized that story grammar would have a positive effect upon the reading comprehension of the students with learning disabilities. This effect was expected to be demonstrated through (a) improved ORF performance and (b) improved performance in responding to eight comprehension questions, both of which would be shown by increasing trend lines during Intervention Phase.

A second hypothesis regarding the effects of probe materials was based upon the previous findings of Hintze et al. (1994). Due to confounds of vocabulary and content, probes from *literature-based* text were expected to result in slopes which differed from

slopes of performance using *vocabulary-controlled* probes. It was predicted that the *vocabulary-controlled* text would allow greater sensitivity to ORF measurement, resulting in markedly higher slopes demonstrating an increasing trend.

Limitations of the Study

The primary limitation to this study resulted from the use of a small-n research design. When few participants are involved, the unique characteristics of participants may greatly affect results, making it difficult to attribute causality of effects to the manipulated variables or to generalize results to other people (Allen, 1995). Although determination of causality may be questionable when few participants are involved, Kazdin (1982) argued that careful application of behavior analytic techniques results in a well-controlled study which can provide evidence of causality. Furthermore, the use of a small-n design in which conditions are closely controlled can be an effective method of providing initial support for more advanced theoretical development. Although this study did not provide a definitive answer to the research questions, results from this study could lend support and guidance to additional large-n studies regarding the same research questions.

This study was conducted with five students enrolled in the seventh grade from a rural midwestern school district. Performance of these junior high students could not be considered representative of all adolescents with learning disabilities, nor could it be considered representative of all junior high students with learning disabilities. However, results from this study indicated these students were able to demonstrate improved reading comprehension through responses to written comprehension questions and ORF performance, indicating the need for further research into the effective use of such

measures with adolescents with learning disabilities.

The students in this study received instruction from a researcher who was not their regular teacher. This may have resulted in effects due to a change in teachers, or simply the novelty of being a part of a special program. However, the collection of repeated measurements provided a measure of control for such effects as the novelty of a new program should have decreased, allowing ORF performances to be considered valid measures of reading growth.

The study was designed to be conducted over a period of nine to 12 weeks with two probes to be collected each week. It was hypothesized this would be long enough for the students to develop skill in the use of story mapping and for the ORF graphs to display growth. However, students progress at differing rates. It is possible this time frame was not long enough for certain individuals to develop mastery of the strategy or to demonstrate significant ORF gains. The study involved 18 ORF probes per student conducted over a nine to 12 week time period. Based on other intervention research using ORF measures (Fuchs, 1989), it was believed biweekly probes conducted over at least a nine-week period would provide adequate time for progress to be observed.

Finally, the qualitative analysis of responses to open-ended comprehension questions could be somewhat subjective. Also, researcher interest in obtaining results could pose a threat to the unbiased scoring of such performances. Therefore, the use of an outside rater trained in the method of evaluation of the comprehension questions and ORF probes provided control for the reliability of all dependent measures.

Definition of Terms

The following terms were selected for definition to aid in understanding and clarity.

Curriculum-based measurement (CBM): CBM was to be defined as standardized, repeated measurements of a specific skill using materials drawn from the students' curriculum, or materials of comparable difficulty which are similar to the curricular materials used in daily instruction (Deno, 1985; Deno, 1987; Fuchs & Deno, 1992).

Learning disabilities: Learning disabilities were defined as handicapping conditions identified according to the Missouri State Plan for Part B of the Individuals with Disabilities Education Act: 1995-97 (1994).

Literature-based reading probes: Literature-based probes consisted of 250-word passages unfamiliar to the reader taken from the novel being used in the intervention.

Oral reading fluency (ORF): ORF was defined as the number of words read correctly in a one-minute time period using reading probes of approximately 250 words (Deno, 1985; Deno et al., 1982).

Probes: Probes consisted of reading passages of approximately 250 words in length on consistent readability levels, as measured by the Flesch Readability Formula (Flesch, 1948; Spiegel & Campbell, 1985).

Story grammar: Story grammar involved the use of common schematic elements to guide the encoding and retrieval of story information (Short & Ryan, 1984). The terms story grammar and story mapping were used interchangeably throughout the study.

Story maps: Story maps were defined as the grids or forms used for analysis of

story elements of each chapter of the novel used in the study according to the following components: setting (characters, time, place), problem, goal, action, and outcome (Idol & Croll, 1987). The terms story grammar and story mapping were used interchangeably throughout the study.

Vocabulary-controlled probes: Vocabulary-controlled probes were drawn from reading passages unfamiliar to the reader taken from text materials which limit the source of vocabulary within the passages. Readability of the vocabulary-controlled passages was required to measure within one grade level of the novel selected for use in the study, as indicated by the use of the Flesch Readability Formula (Flesch, 1948; Spiegel & Campbell, 1985).

Significance of the Study

This study attempted to answer key questions regarding instruction for adolescents with learning disabilities. As reading is a critical skill for adulthood, success in development of reading competence during secondary school is crucial (Zigmond, 1993). On-going research into effective reading instructional techniques and assessment methodology appropriate for use with adolescents is necessary, as little research has been conducted specifically with adolescents with learning disabilities. The purpose of this study was to implement a strategy-based reading intervention evaluated by a CBM technique, validated for use with elementary students, to substantiate its potential use for adolescents with learning disabilities. Analysis of the effects of probe materials upon the ORF performances of adolescents with learning disabilities may result in more effective use of this validated measure of reading gains. Success in demonstrating reading gains