

**Critical Review:
Examining the Effectiveness of the Orton-Gillingham Reading Approach for Poor
Readers in Elementary School**

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This critical review examines the ability of the Orton Gillingham (OG) approach for teaching reading skills to poor readers in elementary school. A literature search was conducted and study designs included seven quasi-experimental studies and one systematic review. Findings indicate positive results for word reading, word attack/decoding, spelling and comprehension.

Introduction

Recent estimates of reading disabilities in the United States range from 5-12% (Monsen, 2004). It has long been recognized that when classroom instruction is not effective or is insufficient, a high percentage of school-age students do not acquire literacy skills (Carroll, 1963). Further, poor instruction in early elementary years has a more direct impact on reading than in the later years and therefore, poor readers need high quality reading intervention in the early year of school (Joshi et al., 2002)

Samuel Orton, considered a pioneer in the developing principles of reading remediation beginning in the 1920s, posited that an instructional approach for reading should “attempt to capitalize on their students’ auditory competence by teaching them the phonetic equivalence of the printed letters and the process of blending sequences of such equivalents so that they might be able to produce for themselves the spoken form of the word from its graphic counterparts” (as cited in Ritchey & Goeke, 2006). Anna Gillingham created a curriculum by which to teach Orton’s approach in 1960, named the Orton-Gillingham (OG)

instructional reading approach, which continues to be the backbone of the OG approach today.

Objectives

The purpose of this paper is to critically examine the existing literature regarding the effectiveness of the Orton-Gillingham instructional approach to teaching reading to poor readers in elementary school. The paper will seek to identify if the OG approach is effective and/or superior to other approaches in teaching reading to poor readers. Evidenced-based recommendations and future research directions will be discussed.

Methods

Search Strategy

Online database Proquest Education, Google Scholar, PubMed, and CINHAL were searched using the search terms (Orton-Gillingham) AND (reading) AND (instruction) AND (review). A systematic review was found and the studies looking at elementary school students were found.

Selection Criteria

The search was limited to studies that examined to OG approach’s

effectiveness to teaching reading in English-speaking elementary school students with reading problems only.

Data Collection

The results from the literature search generated one systematic review and from there seven quasi-experimental studies were found. All studies compared the OG approach with one or more other approaches to teaching reading.

Results

Of the seven studies included in this review, two found that the OG approach on treatment was more effective than the control in all measures, four found the OG approach was more effective than the control in at least one, but not all measures, and one study found no differences between interventions.

The two studies that found the OG based approach to be more effective on all measures than the control intervention approach are by Litcher & Roberge (1979) and by Joshi et al. (2002).

Litcher & Roberge (1979) used a quasi-experimental design to compare the effectiveness of OG instruction to a controlled reading instruction of first grade children at risk for reading problems. This study was conducted over a 3-year period in grade one classrooms, screening 600 children and identifying 20 students for each of the 3 years. The screening procedure was employed in order to find students who were only at risk for reading problems, eliminating effects from other variables. A student in the control group matched each of the 20 students in the experimental group each year. The experimental group was taught the OG reading and language instruction for three hours a day for the year and compared to

the control group who used the basal reading instruction for the year. At the end of the school year each student was assessed using the *Metropolitan Achievement Tests (MAT)* and the *Gates MacGinitie (GM) Reading Test*. The outcome measures examined increases in word knowledge, word analysis, comprehension, and total reading score on the MAT and in vocabulary and comprehension on the GM for both the experimental and control groups. Standard scores were used to calculate “t” for the first year of the study and the raw score was used for the last two years. Then “t” test analyses were completed to compare differences in the experimental and control groups on the MAT and GM tests for assessing achievement in reading. The analysis determined that the OG approach was significantly superior to the basal reading approach on all subtests. The strengths in this study include having a matched control group, and completing this study with 3 separate cohorts. Limitations include effects of the experimental teachers, only comparing the OG approach to one other method, and having an arbitrary screening procedure. The authors provided fitting statistical analysis through appropriate measurement techniques and description of procedures. Therefore, this study provides persuasive evidence that the OG approach is beneficial in teaching reading to students at risk for reading problems.

Joshi et al. (2002) used a quasi-experimental design to compare the Language Basics (OG) instruction to the Houghton Mifflin reading program in first grade general education classrooms. Two classrooms were taught with OG instruction and two classrooms at another school were taught with Houghton Mifflin. Thirty-two students made up the control group and 24

students made up the treatment group. All students had standard covariates (e.g., SES, age). Children with below average IQ, uncorrected vision or hearing problems, those who had repeated a grade, and students with cognitive impairments were excluded from the study.

All students were assessed at the beginning of the year for initial levels of phonological awareness, decoding, and reading comprehension using the Comprehension subtest from the Gates MacGinitie Reading Test (GMRT), the Word Attack subtest from the Woodcock Reading Mastery Test-Revised (WRMT-R), and the Test of Phonological Awareness (TOPA). The teachers in the treatment group received 42 hours of OG training and teachers in both treatment and control groups were observed teaching once a week. Instruction was given 50 minutes a day for all groups for the year. The students were assessed at the end of the year with the same tests previously used at the beginning, but the alternate test forms were used.

Analysis was completed using a repeated measures multivariate analysis of variance. The study showed that the gains of the treatment group were significantly higher than the control group. However, the control group also showed significant improvements in comprehension measures, but not phonological awareness or decoding measures. Strengths in this paper include having a control group and measuring pre and post intervention with the same tests, but different, equivalent test forms. Some limitations of this study are that it only utilized grade one students, had a low number of subjects, and since the study was done in a natural setting, matching variables between groups was difficult. The authors provided fitting statistical analysis through appropriate measurement techniques and description of procedures. Therefore this study provides persuasive

evidence that the OG approach is beneficial in teaching reading to average grade one students.

Four studies, by Stoner (1991), Foorman et al. (1997), Oakland et al. (1998), and Hook et al. (2001) found that the OG approach to teaching reading was more effective in at least one, but not all measures when compared to the control intervention approaches.

Stoner (1991) used a quasi-experimental design to compare the effectiveness of Project Read (OG) to the previous year's cohort of students who were taught with the traditional basal reading instruction for students in grades one to three. All students in grades one, two, and three from a school district who were believed to be at risk for reading problems as judged by the school teacher, formed the population from which the groups were formed. The teachers, who had received training from a Project Read teacher, taught the students in their regular classrooms.

A "recurrent institutional cycle design" was utilized to allow for comparison of the OG group to the previous year's cohorts who were taught with basal reading instruction. The students were assessed using subtests from the *Stanford Achievement Test*. The outcome measures were examining increases in word study, word reading, comprehension, and total reading score for both OG and traditional basal reading groups.

Data was analyzed for the full study and also for a portion of the study controlling for teacher variables. Multivariate analysis of variance, Tukey HSD, analysis of variance, and effect sizes were utilized to examine the differences between the groups. The study showed significant differences on all subtests for the grade one class, but not for grades two or three. The

strengths in this study include having a control group, using three grades of students, and measuring possible effects of the teacher variable. The limitations include that there was only enough at risk students in one grade level to support MANOVA findings, in the first year of implementation no significant differences were found, and that the treatment group of second grade students were significantly older than the control group. The authors provided fitting statistical analysis through appropriate measurement techniques and description of procedures. This study provides persuasive evidence that the OG approach to teaching reading shows benefits for grade one students at risk for reading problems.

Foorman et al. (1997) used a quasi-experimental design to compare the effectiveness of Alphabetic Phonics (OG) to a sight word program and an analytic phonics program with grade two and three students who had a reading disability. Participants were chosen from 13 of 19 schools in a school district. *The Basic Reading Cluster subtest of the Woodcock-Johnson Psycho-educational Battery-Revised (WJ-R)* was given to the students and those who scored less than or equal to the 25th percentile were included in the study. Students with learning disabilities were excluded from the study and those with a reading disability only were included. Interventions occurred in the resource room daily for a two-hour block in 14 classrooms with approximately 8 students in each class (114 students total) for the school year and taught by special education teachers. Students were assessed at baseline with the WJ-R decoding subtest and the end of the year with the WJ-R and the WISC-R. Assessments occurred four times throughout the school year and consisted of

measuring phonemic awareness, word reading, and orthographic processing. An individual growth curve methodology was used to measure progress for the in-year assessments.

The phonological processing measures showed that, when controlling for age, students in the OG intervention outperformed both of the other interventions significantly. However, when controlling for factors such as socioeconomic status, gender, ethnicity, and verbal IQ, the OG group and the analytic phonics groups no longer differed but the OG group still significantly outperformed the sight word group. For the orthographic and word reading measures older students outperformed younger students. The OG group scored significantly higher than the analytic phonics group, but not the sight word group in orthographic processing. The OG group scored significantly higher than both other groups in word reading. However, when controlling covariates the three groups showed no differences for orthographic processing or word reading.

Finally, the three groups were controlled for initial level of phonological processing and orthographic processing and found there to be no significant effects of treatment for word reading. The strengths in this study include having three intervention groups, completing analysis with and without controlling for covariates, including students in the study who only had a reading problem, and only analyzing the students who stayed in the study throughout the year. Limitations include significantly higher IQ levels of the students in the synthetic (OG) group, half of the students in the synthetic (OG) group being from affluent areas, and the inability to randomize the intervention groups. The authors provided fitting statistical analysis through appropriate measurement

techniques and description of procedures. This study provides evidence that the OG approach proved to be beneficial for improving phonological processing, but not significantly more so than the analytic phonics group.

Oakland et al. (1998) used a quasi-experimental design to compare effectiveness of the Alphabetic Phonics (OG) instruction to a control group. Students in both groups received instruction in a resource classroom via a teacher or video-directed instruction for one hour a day, five days a week, for two years. The study found that students receiving the OG instruction, via teacher or video-directed, significantly outperformed the control group in measures of comprehension, spelling, word reading, and decoding mono and polysyllabic words. A strength of this study was using both teacher and video-directed instruction for both the experimental and control groups.

Hook et al. (2001) used a quasi-experimental design to compare the effectiveness of the Fast ForWord (FFW), computer based program to the OG instruction to students 7-12 years old who attend a summer program. Sending out flyers to recruit children with a reading problem exclusively for a summer program created the Fast ForWord group. The group was made of eleven children who scored below the 16th percentile on word attack and/or word identification subtests of the Woodcock Reading Mastery Test-Revised and only had problems reading without other covariates present. This group was matched with students from a summer school for children who had reading problems and these eleven students formed the control group and were taught using the OG instruction.

The FFW group used 5 of 7 computer games five days a week for two hours per day until they reached a set criterion of 90% on 5 out of 7 games. It took the students between 22 and 44 days to reach this criterion. The OG group was taught one-to-one, one hour a day, five days a week, for five months.

Four assessments were completed: before and after the intervention, once at the end of the academic year, and lastly a year later. The authors were looking for gains in phonemic awareness, word attack, and word identification. The assessment tests used were the *Lindamood Auditory Conceptualization Test (LAC)*, used to measure phonemic awareness, the *Test of Language Development (TOLD)*, used to measure expressive and receptive language, the *Woodcock Reading Mastery Test-Revised*, used to measure reading, the *Test of Written Spelling-3 (TWS-3)*, used to measure spelling, the *Rapid Automatic Naming and Rapid Alternating Stimulus* test, used to measure rapid naming, and the *Woodcock Johnson Test of Cognitive Abilities*, used to measure working memory. A repeated measure ANOVA was used to analyze the data. The FFW group was assessed with the full battery of tests while the OG group was only analyzed with part of the battery.

The authors found that both groups made significant gains in phonemic awareness, only the OG group made significant gains in word attack, and neither groups made significant gains in word identification. The strengths in this study include investigating the two groups both after the study and then a year after the study was completed to determine the long-term effects of the interventions and having a control group. The limitations include having a small sample of students. The authors provided fitting statistical analysis through appropriate measurement techniques and

description of procedures. This study provides persuasive evidence that the OG approach proved to be beneficial for improving phonemic awareness and word attack.

One study by Westrich-Bond (1993) found no statistical significant differences on any measures between the OG approach to teaching reading and the control intervention approach.

Westrich-Bond (1993) used a quasi-experimental design to compare the effectiveness of the OG instruction for teaching reading to the basal reading instruction to students, ages 6-12 with learning disabilities that were in a special classroom. Four groups 1) resource room with OG 2) resource room with basal reading 3) self-contained room and OG and 4) self-contained room and basal reading received reading instruction for four sessions a week. The subtests Word Identification and Word Attack from the *Woodcock Reading Mastery Test* were administered pre and post. Significant changes in scores were found for both groups, but one was not significantly better than the other. This article was not published and methods of analysis are not available for the systematic review. However, it was noted that word identification improved more in the resource room condition and the word attack improved more in the self-contained room condition. A strength of this study is the two conditions to teaching the approaches.

Conclusion

Overall, the critical appraisal of relevant research material suggests that the OG approach to teaching reading results in improvement in word reading,

word attack/decoding, spelling and comprehension in various populations and settings. For those beginning to read and those in elementary school, positive results were seen in general education classrooms and clinical settings. However, all reading measures were not shown to improve with the OG approach, not all positive effects were in favour of the OG approach, or solely the OG approach, and some studies did not find statistically significant improvement for either instructional approach. For example, the study by Westrich-Bond (1993) determined that neither instructional approach showed significant differences; whereas a study by Litcher & Roberge (1979) found that the OG approach for teaching reading had significantly positive effects for all measures.

The National Reading Panel (2000) reported that vocabulary and fluency were two of the five essential tools for reading but each was only used as measures in one study. This is important to note since the OG approach to teaching reading does not explicitly teach vocabulary or fluency skills in their instruction. It is possible that the OG approach will have to build these tools into their instruction in order to be teaching all the essential components to reading.

In summary, the articles examined in this critical review found conclusions in favour of the OG approach but also articles that failed to find evidence favouring the OG approach. The OG approach to teaching reading has been used in classrooms for decades without any conclusive evidence determining that it has positive outcomes. Therefore, determining who would best be served by the OG approach, what responses to expect from individuals based on their

instructional needs, who is capable of instructing and research examining the overall effectiveness of the OG approach is warranted.

Clinical Implication

The current evidence examining the OG approach to teaching reading is inadequate. There is variability in the findings across the studies examined in this critical review, making it unclear if this approach is beneficial and/or significantly more beneficial than other approaches to teaching reading. The differences in the results between studies may be due to differing populations, ages, intervention set-up, assessment measures, and screening procedures. The fact that it takes training to implement the OG instructional approach to teaching reading may make it prove difficult to see consistent results due to teacher variability.

In application to the field of Speech-Language Pathology (SLP) research may be done to examine effectiveness of the SLP utilizing the OG approach in individual or group therapy sessions. Research is still needed to determine who would be best served with the OG instructional approach, at what time/age and in which setting in order to improve reading skills.

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