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The Effectiveness of the Soar to Success Reading Intervention in a Midwestern School District

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Abstract

Data was gathered to determine the effectiveness of Houghton Mifflin's Soar to Success (1998), a commercially published reading intervention, in a southeastern Wisconsin school district. Students participating in the Soar to Success program showed a significant increase between pre and post-MAP and Running Record scores within their group. The non-Soar participants increased scores significantly between pre and post-MAP and Running Record scores as well. Results suggested that the mean differences on the post-MAP and post-Running Record scores between Soar and non-Soar participants were insignificant. Students participating in the program did not perform significantly better than students that did not participate. Implications are discussed as well as further considerations for future research.

Soar to Success Reading Intervention Program with At-Risk Students

The importance of building literacy skills at an early age and continuing throughout the elementary school years has been well documented throughout the past decade. The importance of early literacy intervention for struggling students in primary grades is well known, but intervention should also be incorporated into upper level elementary curriculum as well. In the upper elementary grades, a reading intervention can play a major role in the success of a struggling reader (Cooper, McWilliams, Boschken, & Pistochini, 2006). Many young students experience much difficulty reading and need additional support to achieve a reading level at or above grade level benchmarks. The focus of this study is based on Houghton Mifflin's Soar to Success (1998), a commercially published research based intervention, and places its focus on upper level elementary students who have continued to fail to read at their grade level.

Early Literacy

Reading may be one of the most important skills educators can help students be successful at. The most common type of referral to special education regarding a student with academic problems is in the area of reading (Joseph, 2002). In addition to having a well developed and implemented reading curriculum available to all students, it is necessary to support students who are at-risk for possible special education placement. Casey and Howe (2002) have identified that guided repeated oral reading on a daily basis has a positive impact on a variety of reading skills including comprehension.

Response to Intervention (RtI) has become an idea that is now included within law. Through the reauthorization of the Individuals with Disabilities Education Act (IDEA) of 2004, RtI can be used as a method of LD identification, but more importantly

it promotes early intervention. Research has shown that students who do not learn to read by the end of the first grade usually remain poor readers (Gersten & Dimino, 2006). It is essential that students are identified at an early age as not responding to reading instruction within the classroom, so that decisions of whether to change curriculum, instruction, or to move a student from tier 1 (classroom instruction) to tier 2 (intensive small-group instruction) can be made. We now know that phonological processing measures and measures of naming the letters of the alphabet are reasonably valid predictors of future reading ability (Gersten & Dimino, 2006). With that information, teachers are able to look at progress monitoring data and make decisions how best to help each student (Fuchs & Fuchs, 2006).

Soar to Success Intervention

The goals of the Soar to Success reading intervention are to raise students' reading ability to grade level or above as quickly as possible by applying reading strategies through their curriculum using 'authentic' reading. The components or elements of this program that make it effective are, structured lessons that focus on comprehension and decoding strategies for reading, small group instruction, home involvement, and assessments to monitor student progress. The main features of the Soar to Success program include small group instruction of no more than seven students, specialized instruction for 40 minutes a day, for five days a week, which focuses on reciprocal teaching (The Education Commission of the States, 1999). Reciprocal teaching is an instructional activity in the form of a dialogue between students and teachers regarding parts of text they have read. This typically is a system of retelling and oral reading checks so teachers can regularly determine students' reading progress. Through

this system the use of four strategies are implemented: summarizing, question generating, clarifying, and predicting. The teacher and the students each take turns taking on the role of teacher in leading this dialogue (Palincsar, 1986).

Overall, each strategy is used to help the student to extract meaning from text as well as a means of monitoring their reading to ensure they comprehend what they are reading (Palincsar, 1986). Summarizing provides opportunity to identify and integrate the most important information from what is read. When students generate questions, they first identify significant information and are able to pose the information into a question; which will lead to students being taught and encouraged to generate questions at many levels. When students are asked to clarify a passage they have read, their attention is focused on reasons why the text is difficult to understand. These reasons may be new vocabulary, unclear reference words, or unfamiliar and difficult concepts. Students are taught to be aware of why certain reading is difficult to comprehend and take steps to help restore the meaning (e.g., reread, ask for help). And finally predicting is when students hypothesize what the author of the text will discuss next. This plays into the student's ability to pay attention to relevant background knowledge that they already have regarding the topic. This creates a purpose of reading to confirm or disprove their hypothesis. Also this helps the student link new knowledge with existing knowledge (Palincsar, 1986).

Purpose

The goal of the current study was to contribute to the research on literacy interventions by focusing on at-risk upper elementary students. Specifically, the purpose of this study was to determine the effectiveness of the Soar to Success reading

intervention for students in grades 3-4. Interventions are becoming an increasingly important role for school personnel. Finding the appropriate research based intervention for students with learning or behavior problems can be a challenge for educators. The primary goals of Soar to Success are to raise students' reading ability to grade level or above and to help them apply reading strategies across the curriculum (Education Commission of the States, 1999). With that purpose in mind, three specific research questions were developed:

a) Does participating in the Soar to Success reading intervention make a statistically meaningful difference between students' pre (MAP1) and post (MAP2) test scores on the NWEA Measures of Academic Progress (MAP)?

b) Does participating in the Soar to Success reading intervention make a statistically meaningful difference in students' Running Records pre and post-test scores?

c) Does participating in the Soar to Success reading intervention make a statistically meaningful difference between intervention and non-intervention groups, where the non-intervention group received the general education reading curriculum, and the intervention group received Soar to Success?

This research is exploratory in nature, although we hypothesized that participating in the Soar to Success reading intervention would significantly increase students’ reading ability to increase MAP and Running Record scores when compared to students who do not receive the intervention.

Method

Participants

The intervention group was comprised of students at-risk for not achieving grade level reading benchmarks. These students were identified by their general education teachers as students who scored below the 25th percentile on their fall MAP scores. The non-intervention group was comprised of similar students who were selected from two elementary schools within the district that received fall MAP test scores below the 25th percentile rank. MAP tests and Running Records were completed by 16 third grade students who were part of the Soar to Success Reading intervention and 16 third grade students who were part of a non-intervention group that did not participate in the Soar to Success reading intervention program. MAP tests were also completed by 7 seven fourth grade students who participated in Soar to Success and 7 fourth grade students who did not participate and were part of a non-intervention group. Of the 32 third grade students, 31% were female and 69% were male. Of the 14 fourth grade students, 29% were female and 71% were male.

Procedure

Participants in the intervention group were placed in groups of six to eight students. Groups met for special instruction for 30 minutes a day, 3 to 5 days a week, which is modified from the intended 40 minutes, 5 days per week. Classroom teachers facilitated the small group intervention. The instructional plan combined reciprocal teaching, graphic organizers, and authentic literature from the Soar to Success curriculum. Teachers provided ongoing assessment of comprehension through retelling of passages and oral reading checks. Prior to the intervention students were given the MAP

assessment and Running Records to determine their reading level. Students were tested again upon completion of the program to see if progress was made. In addition to the Soar to Success program, some students also received instruction in Read Naturally and read with volunteers. Some students in the non-intervention group may have received additional reading support through a program called Auto skills. This was not anticipated prior to beginning the study.

Instrumentation

The NWEA Measures of Academic Progress (MAP) is a state aligned computerized adaptive assessment program that provides educators with the information they need to improve teaching and learning. Educators can use the growth and achievement data from MAP to develop targeted instructional strategies. To determine internal consistency, NWEA calculated a test-retest reliability coefficient. Reliability coefficients documented from data gathered from an NWEA norms study in 2002 indicated .89 and .90, for 3rd and 4th grade students on the reading content area (NWEA, 2004). These results suggest high reliability for this measure.

Most of the documented validity evidence for NWEA tests comes in the form of concurrent validity. Data gathered on the validity evidence of NWEA MAP with other achievement tests from 1998-2003 indicate a range of correlation coefficients of .77-.89 on the reading content area of the test (NWEA, 2004). This suggests that MAP can be considered to have medium to strong concurrent validity with other achievement measures.

The Running Records assessment consists of benchmark books that are a reliable standard or prototype for a particular level in the gradient of difficulty. They are readable

texts (above 90%) accuracy for most of the children who demonstrate similar reading behaviors at a particular point in time (Fountas & Pinnell, 2006). These allow the teacher to assesses the five elements of reading that are described by the National Reading Panel which are phonological awareness, phonics, vocabulary, fluency, and comprehension. A major goal of the assessment system is to estimate students' reading levels in order to provide appropriate instruction. Matching books to a reader's abilities means that progress can be made along a gradient of text. With careful assessment of a student's current reading level, the teacher knows what skills to begin teaching. A running record is generally accepted as a standardized test.

Results

An analysis was first conducted on a demographic variable in order to identify if there were gender differences between the Soar and non-Soar groups that may impact the interpretation of our primary analysis results. A Pearson Chi Square test of independence was not significant for gender [X^2 (N=.46) =.411, $p > .05$)]. This finding supports the conclusion that the two groups can be considered equivalent in terms of gender. The primary research questions will be reviewed next.

Is there a statistically meaningful difference between intervention and non-intervention groups?

Several independent samples t–Tests were used to test for mean differences between pre and post-test MAP scores for students who participated in Soar to Success and students who did not participate in Soar, and mean differences between pre and post-Running Records scores for students who participated in Soar and students who did not participate in Soar (see Table 1). An independent samples t-Test revealed an insignificant

mean difference on the pre-MAP score variable between Soar and non-Soar participants (t = .025, p = .980). Pre-MAP scores for students participating in Soar (n = 23) were no larger than scores for students who did not participate in Soar (n = 23). A second independent samples t-Test also revealed an insignificant mean difference on the post-MAP score variable between Soar and non-Soar participants (t = .772, p = .444). Scores for Soar participants (n = 23) were no larger than scores for non-Soar participants (n = 23). A third independent samples t-Test revealed an insignificant mean difference on the pre-Running Records score variable between Soar and non-Soar participants (t = .197, p = .845). Pre-Running Record scores for Soar participants (n = 16) were no larger than scores for non-Soar participants (n =16). A fourth independent samples t-Test revealed an insignificant mean difference on the post-Running Records score variable between Soar and non-Soar participants (t = -.060, p = .952). Post-Running Record scores for Soar participants (n = 16) were no larger than scores for non-Soar participants (n = 16).

Does participating in Soar to Success make a statistically meaningful difference in pre and post-test scores in the intervention group?

A paired sample t-Test was used to identify potential mean differences for pre-MAP and post-MAP test scores for students who participated in the Soar to Success program (see Table 2). The paired samples t-Test analysis indicated that for the 23 participants, the mean score on the post-MAP test (M= 192.62) was significantly greater (t= -7.685, p= .000) than the mean score pre-MAP test (M=179.87). These results also indicated that a significant correlation exists between these two variables (r= .766, p= .000) suggesting that those who scored high on one test tended to score high on the other.

A second paired sample t-Test was used to identify potential mean differences for pre-MAP and post-MAP test scores for students who did not participate in the Soar to Success intervention (see Table 2). The paired samples t-Test analysis indicated that for the 23 participants, the mean score on the post-MAP test (M= 189.84) was significantly greater (t= -5.093, p= .000) than the mean score pre-MAP test (M= 179.78). These results also indicated that a significant correlation exists between these two variables (r= .706, p= .000) suggesting that those who scored high on one test tended to score high on the other.

A paired samples t-Test was used to identify potential mean differences for pre-Running Record and post-Running Record scores for students who participated in the Soar to Success intervention (see Table 2). The paired samples t-Test analysis indicated that for the 16 participants, the mean score on the post-Running Record test (M= 14.73) was significantly greater (t= -4.673, p= .044) than the mean score pre-Running Record test (M= 12.56). These results also indicated that a significant correlation exists between these two variables (r= .509, p= .044) suggesting that those who scored high on one test tended to score high on the other.

A paired sample t-Test was used to identify potential mean differences for pre-Running Record and post-Running Record scores for students who did not participate in the Soar program (see Table 2). The paired samples t-Test analysis indicates that for the 16 participants, the mean score on the post-Running Record (M= 14.77) was marginally significant (t= -6.121, p= .056) compared to the mean score pre-Running Record (M= 12.44). These results also indicated that a medium correlation exists between these two

variables (r= .486, p= .056) suggesting that those who scored high on one test tended to score high on the other.

Based on these analyses, there was not a significant difference between pre and post-MAP and Running Record scores between the intervention and the non-intervention groups. Regardless of participation in Soar to Success, students significantly increased their post-test MAP and Running Record scores.

Discussion

Based on these results, student growth on the MAP Assessment and Running Records was similar for these two groups. Students who participated in the Soar to Success reading intervention did not perform significantly better than the non-intervention group on their post-MAP test. The researchers speculated that students receiving the Soar to Success intervention would experience increases in their post-test results because of the small group instruction, guided reading strategies that included: summarizing, generating questions, clarifying, and predicting. In addition to these strategies, ongoing progress assessment provided teachers the ability to regularly determine students' reading progress.

Given these findings, educators may want to consider that school psychologists, teachers, and other educators involved in increasing students' reading comprehension be given more training or trained on a variety of literacy interventions. IDEA 2004 requires that schools need to provide research-based interventions prior to referral and after placement in special education (Holdnanch & Weiss, 2006). This means that schools are held to higher standards, as well as being held more accountable for providing the best instruction possible, whether it is within the classroom or in a small group, for children.

One limitation of this study is the small sample size. This study only utilized one school district. Getting information from other districts would have been helpful to increase the knowledge of how well this program works for many more students. Another limitation is that some students in the non-intervention group may have received additional reading support through a program called Auto skills. Beginning this study, the researchers were under the impression that the students chosen for the non-intervention group were not going to be receiving any other interventions in addition to the general education reading curriculum. School districts cannot withhold academic support from a student in need, so this may have had an effect on the results. In hindsight, greater control over this variable would have been beneficial. A third limitation of this study is that due to time constraints of the school district, the Soar to Success intervention was not stringently followed on a daily basis. Some students did not receive the intervention the intended 40 minutes, 5 days of the week. Future researchers should also consider studying to what extent literacy interventions are actually being done in the schools, what tools are used to assess it, and how it is put into practice.

In summary, these findings suggest that although there was not a significant difference between post-MAP and Running Record scores, students did increase their reading scores after completion of the Soar to Success intervention. Due to IDEA 2004 and an increase in awareness of Response to Intervention among school districts more research in the area of literacy interventions should be completed. The current body of research regarding evidence based interventions is very small, so more research in this area is necessary for successful future practice.

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Table 1

Mean Differences on Pre-Test and Post-Test Scores between Groups

	Intervention Group	Non-Intervention Group		
Measure	*M*	*M*	*t*	*p*
Pre-MAP	179.87	179.78	.025	.980
	(*n* = 23)	(*n* = 23)		
Post-MAP	192.62	189.84	.772	.444
	(*n* = 23)	(*n* = 23)		
Pre-Running Record	12.56	12.44	.197	.845
	(*n* = 16)	(*n* = 16)		
Post-Running Record	14.73	14.77	-.060	.952
	(*n* = 16)	(*n* = 16)		

Note. There were no statistically significant differences between pre-test scores or post-test scores between the intervention and non-intervention groups.

Table 2

Mean Differences between Pre-Test and Post-Test MAP and Running Record Scores within Groups

Group	*n*	*M*	*M*	*t*	*p*
		Pre-MAP	Post-MAP		
Intervention	23	179.87	192.62	-7.685	.000**
Non-Intervention	23	179.78	189.84	-5.093	.000**
		Pre-Running Record	Post-Running Record		
Intervention	16	12.56	14.73	-4.673	.044*
Non-Intervention	16	12.44	14.77	-6.121	.056

Note. *$p < .05$ = statistical significance.

**$p < .01$ = statistical significance.