

Story Grammar Instruction with Third and Fifth Grade Students with Learning Disabilities and Other Struggling Readers

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Reading comprehension is difficult for many students with disabilities, including those with specific learning disabilities. However these students can be explicitly taught strategies to improve their comprehension abilities. One such strategy is teaching students story grammar in order to provide them with a framework for understanding narrative text. In this article, we present the results of a multiple-baseline across groups study conducted with third and fifth grade students. All students improved from baseline to posttest and maintenance scores remained above baseline. Nonoverlap of All Points (NAP) data demonstrates very low overlap between baseline points and intervention points for all students. Results indicated that story grammar interventions might improve reading outcomes for students with disabilities in grades 3-5.

Keywords: Learning Disabilities, Reading Comprehension, Story Grammar

INTRODUCTION

Students identified with specific learning disabilities (LD) often experience difficulties in reading, particularly in reading comprehension (Gersten, Fuchs, Williams, & Baker, 2001; Solis et al., 2012). This leads to poor performance on high and low stakes tests, such as the National Assessment of Educational Progress (NAEP) and typical classroom assessments. To illustrate, NAEP results from the 2013 reading test show that 69% of all students with disabilities were at the *Below Basic* level in fourth grade (U.S. Department of Education, 2013). Twenty percent of students with disabilities were at the *Basic* level, while only 9% were *Proficient* and a mere 2% were *Advanced* (ebd.). Many students with learning disabilities typically do not monitor their own comprehension or use comprehension strategies while reading (Gersten et al., 2001). Further, students with learning disabilities may process information inefficiently, often not engaging in strategic reading or metacognition. In addition, students with LD also display difficulties with text structure and how text is organized (ebd.).

Although many students with LD struggle with reading (Solis et al., 2012), it is possible to explicitly teach them comprehension strategies in order to improve their ability to comprehend text (Edmonds et al., 2009; Gersten et al., 2001; Scamacca, Roberts, Vaughn, & Stuebing, 2013). Gersten and colleagues (2001) conducted a review and found that successful strategies for reading narrative text in-

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clude comprehension monitoring, story grammar, and peer-mediated instruction. In a synthesis, Edmonds et al. (2009) found that questioning, summarizing, graphic organizers, finding the main idea, and story maps can all improve reading comprehension. Explicitly teaching story grammar is another way to improve reading comprehension for students with learning disabilities (Edmonds et al., 2009; Gersten et al., 2001; Mahdari & Tensfeldt, 2013; Stetter & Hughes, 2010). Stetter and Hughes (2010) conducted a review of studies examining story grammar interventions and found this to be an effective technique for students with learning disabilities and other struggling readers. In addition, in a recent review of interventions for students with reading difficulties, Scammacca and colleagues (2013) found an overall effect size of 0.74 for reading comprehension interventions, indicating that comprehension can be improved for all struggling readers.

Story Grammar Research

Instruction in story grammar is an effective way to improve reading comprehension for students with LD (Boulineau, Fore, Hagan-Burke, & Burke, 2004; Idol, 1987; Idol & Croll, 1987; Stagliano & Boon, 2009). This literature review will examine research conducted with both elementary and secondary students, although the current study addresses the needs of students at an upper elementary level. To illustrate, Idol (1987) and Idol and Croll (1987) conducted early research that examined story mapping and its effectiveness in improving comprehension in struggling readers. Story mapping is simply filling out story elements on a graphic organizer and has been found to be effective across many studies (Mahdari & Tensfeldt, 2013; Stetter & Hughes, 2010). In these studies (Idol, 1987; Idol & Croll, 1987), students were given a story map that had blanks for setting (characters, time, place), problem, goal, action, and outcomes. Teachers taught the story map using a three-step process of modeling, guided practice, and independent practice. Teachers began by modeling filling out the story map on an overhead while students copied down the answers on their own story maps. During the guided practice phase, students filled out the story map with teacher support and during independent practice, students read the story and completed the story map on their own. Story maps were filled out while reading and then taken away before answering questions. In both studies, researchers report significant gains on researcher-made comprehension tests for general education students, as well as students with LD at the elementary school level. While the majority of students improved during the intervention phase, mixed results were reported during the maintenance phase and on transfer tasks (Idol, 1987; Idol & Croll, 1987). The mixed results during maintenance may be due to the fact that students did not have time to learn enough about story grammar. In addition, these studies conducted maintenance measures immediately after intervention, so there is no evidence of any long-term effects of the story grammar strategy. Although these early studies provide a foundation for subsequent work on instruction in story grammar, further work is needed to demonstrate the impact of this instruction.

Boulineau and colleagues (2004) replicated the work of Idol with six elementary school students with LD. Students showed significant improvement when identifying story elements from a four-day baseline period to a six-day intervention period. Although all students increased the number of correct story elements that they were

able to identify during the intervention period, only three students maintained gains during a maintenance phase that immediately followed the intervention. Stagliano and Boon (2009) followed a similar procedure using expository text. Students were taught how to use a story map using a modeling, guided practice, independent practice model. In this study, three students improved from baseline to intervention, with two maintaining gains when measured two weeks later. These studies demonstrate the effectiveness of explicitly teaching a story grammar strategy to students with LD and other struggling readers. However, difficulties with skill maintenance may indicate a longer intervention period is needed for students to learn to effectively use story grammar.

Instruction in story grammar is not only effective for students at the elementary level, but it is also effective as an intervention for at improving reading comprehension for students with disabilities and struggling readers at the secondary level (Dimino, Gersten, Carnine, & Blake, 1990; Gardil and Jitendra, 1999; Gurney, Gersten, Dimino, & Carnine, 1990; Onachukwu, Boon, Fore III, & Bender, 2007). Gurney et al. (1990) modified the story grammar techniques used by Idol and Croll (1987) and utilized them with seven high school students with LD. Similar story elements were taught, but with more depth, following a modeling-guided practice-independent practice model. Although students who received the story grammar instruction showed improvements on the story grammar questions, this study did not include maintenance measures, so it is unclear if gains were maintained. Dimino and colleagues (1990) also implemented story grammar instruction with a group of high school students consisting of those with disabilities and others in two Basic English classes. Students in the story grammar group performed significantly better on both story grammar and basal literature questions (explicit questions pulled from the basal reader) than those in a basal instruction group. Their scores were strong at posttest, but they decreased slightly during a two-week maintenance probe.

Gardil and Jitendra (1999) extended this work to the study of six middle school students with learning disabilities. Students were taught during a 14 to 20 week intervention period and maintenance was conducted two weeks after completion of the study. All students showed improvements on story grammar questions from baseline to intervention, but there were mixed results on the basal questions. Students' scores decreased slightly at maintenance, but they were still an increase above baseline scores. Onachukwu, Boon, Fore III, and Bender (2007) conducted a 23-day study with three eighth grade students where students were taught to identify story elements and complete a story map. Results show that all three of the students increased during intervention and then decreased slightly at a two-week maintenance probe for both overall comprehension and identification of story elements. These studies both included an extended intervention period, as well as a maintenance measure two weeks after the conclusion of the intervention. In each of the reviewed studies at both the elementary and secondary level, instruction in story grammar improved the comprehension skills of students with learning disabilities and other struggling readers. Stetter and Hughes (2010) also found in a review that story grammar interventions improve comprehension outcomes across ages and grades and that modeling the strategy and using a story map both result in improved comprehension outcomes for students with learning disabilities and struggling readers.

Rationale for Study

Although research has demonstrated the effectiveness of a story grammar strategy, more research is needed. While previous studies of story grammar interventions have reported gains in reading comprehension outcomes (Boulineau et al., 2004; Idol, 1987; Idol & Croll, 1987; Stagliano & Boon, 2009), more information is needed about longer time periods of implementation and the potential for transfer of effects over time. Of the four studies conducted at an elementary school level, three included maintenance measures immediately after the conclusion of the study (Boulineau et al., 2004; Idol, 1987; Idol & Croll, 1987), and only one conducted maintenance two weeks after the intervention period (Stagliano & Boon, 2009). This study will examine maintenance two weeks after the conclusion of the study in order to determine if gains are maintained.

Much of the research in story grammar addressed the needs of students with learning disabilities, but several of these studies also included students with other disabilities and struggling readers (Dimino et al., 1990; Idol, 1987; Idol & Croll, 1987). Struggling readers were typically defined as students who had difficulty answering comprehension questions (Idol, 1987) or those who scored poorly on standardized reading comprehension measures (Dimino et al., 1990). NAEP scores indicate poor reading performance for all students with disabilities, not just those with learning disabilities. Therefore, this study did not limit inclusion to only students with learning disabilities, but instead allowed the inclusion of students with other disability categories or those who were found to be struggling readers according to standardized comprehension measures. The purpose of this study is to examine effects of a story grammar comprehension strategy for students identified with LD or as struggling readers in grades 3 and 5. In addition, the aim of the study is to replicate previous research conducted on story grammar interventions for longer durations of time and with maintenance measures to further investigate the potential efficacy of the story grammar intervention by answering the following research question(s): 1.) To what extent does a story grammar intervention with students in grades 3-5 with LD impact reading comprehension outcomes? 2.) To what extent are these gains maintained over time?

METHOD

Setting

This study was conducted at a Title 1 elementary school in a mid-Atlantic state that goes from pre-kindergarten to fifth grade. The percentages of racial/ethnic groups at this school are 54.9% White, 24.8% Black, 17.6% Hispanic, and 2.7% Other. In this school, 12.7% of students are considered English Language Learner (ELL), 48.4% receive free or reduced lunch, and 14.1% are students with disabilities. All sessions took place in a special education resource room near the participants' general education classrooms. This classroom was chosen because seven of the eight students worked in this resource room during other periods of the day, so they were comfortable in it. The sessions took place in the morning when there were minimal distractions in the classroom. Typically there were one to three adults and one other student in the classroom, so the room was quiet for the sessions.

Participants

A total of eight students in grades three ($n = 6$) and five ($n = 2$) participated in the study. All participants were either identified with disabilities (i.e., Specific Learning Disability, Other Health Impairment, Speech Language Impairment) or identified as struggling readers. All students were found to be struggling readers based on scores on the Qualitative Reading Inventory (Leslie & Caldwell, 2011), as well as teacher and administrator recommendations. Students with disabilities were found eligible based on federal criteria for disabilities. Students were also administered the Reading Comprehension Composite from the Woodcock-Johnson Diagnostic Reading Battery (Woodcock, Mather, & Schrank, 2004) to provide a standardized measure of reading level. These composite percentile scores are reported in the following paragraphs. See Table 1 for specific demographic characteristics. In order to qualify for this study, students needed to be reading at least one grade level below on the QRI, score below the 50th percentile on the WJ-DRB, and have a teacher recommendation. Parents were informed of the study and that their children would receive additional support in reading during the day and parents had the opportunity to opt out if they did not wish for their child to participate.

Table 1. Participant Characteristics

	Gender	Race	Age	Grade	Disability Category	DRB Score SS (Percentile)
Adriana	F	African-American	10	5th	Specific Learning Disability	80 (9)
Charlie	M	White	11	5th	None. Struggling reader.	86 (18)
Shondra	F	African-American	9	3rd	Other Health Impairment	87 (20)
Maria	F	Hispanic	8	3rd	Specific Learning Disability	91 (28)
Antoine	M	African-American	9	3rd	Speech Language Impairment	75 (5)
RaQuan	M	African-American	8	3rd	Other Health Impairment	88 (22)
Ann	F	White	8	3rd	Specific Learning Disability	97 (43)
Ricky	M	Hispanic	8	3rd	None. English Language Learner	94 (34)

Demographics for the third grade groups were 50% female and 50% male. Three of the students were African American, two of the students were Hispanic, and one was White. Five of the students were identified with a disability (Specific Learning Disability, Other Health Impairment, or Speech-Language Impairment) and one received English as a Second Language (ESOL) services (Table 1). The third grade students were all reading at a second grade instructional level according to the QRI and teacher reports. The third grade students were split into two groups of three students each (names reported with WJ-DRB percentile scores) in order to keep the groups small and they became groups 2 (Shondra, 20th percentile; Maria, 28th percentile; and Antoine, 5th percentile) and 3 (RaQuan, 22nd percentile; Ann, 43rd percentile; and Ricky, 34th percentile) in the study.

The fifth grade group included one African American female and one White male student. The female student was identified as a student with a specific learning disability (SLD), while the classroom teacher nominated the male, based on low reading performance during class assignments. The students in the fifth grade group both demonstrated adequate decoding and fluency, but significant deficits in reading comprehension according to the QRI (two grade levels below) and teacher reports. Both Adriana (9th percentile) and Charlie (18th percentile) were reading at a third grade instructional level due to poor comprehension scores.

Research Design

This study utilized a multiple-baseline across groups design. Group 1 had two fifth grade students, group 2 had three third grade students, and group 3 had three third grade students.

Materials

Story maps. Story maps were modeled after the ones used by Idol (1987) and Idol and Croll (1987). Students were asked to fill in blanks for character, setting (time, place), problem, solution, and main events. Figure 1 shows a story map template.

Passages. Reading passages were selected from the popular website, www.readinga-z.com, which has leveled stories. Based on QRI and DRB scores, the third grade groups were given M and N level passages (corresponding to second grade) and the fifth grade groups were given P and Q passages (corresponding to third grade). These passages were selected because all students were reading at the chapter book level, but complete stories were needed for the intervention. If chapters of a longer book were used, individual chapters may not include new characters and settings and do not necessarily have a problem and a solution. Readinga-z has complete stories that are leveled and are short enough to be completed during one session, which allowed for a new story to be used in every session. A variety of narrative stories were used, including typical fiction stories, as well as some fairy tales and folktales. Stories were screened to ensure that they contained all of the necessary narrative components prior to selecting them for inclusion. An example of a story can be seen at <http://www.readinga-z.com/books/leveled-books/book/?id=1793>.

Figure 1. Story map template.

Story Elements

Character		
Time:	Setting	Place:
Problem		
Solution		
Events		
<ol style="list-style-type: none">1. 2. 3.		

Measures

Woodcock-Johnson Diagnostic Reading Battery (WJ-DRB) Reading Comprehension Composite (Woodcock, Mather, & Schrank, 2004). The Reading Comprehension composite consists of two subtests; passage comprehension and reading vocabulary that are individually administered. The Passage Comprehension subtest has 47 items increasing in difficulty. First students have to point to a picture that matches a word, but as difficulty increases they have to provide a missing word

in a sentence or passage (cloze procedure). The Reading Vocabulary subtest is broken into three sections; synonyms (26 items), antonyms (26 items), and analogies (21 items). In the synonym section, students read words aloud and had to provide a word that meant the same thing. In the antonym section, students read words aloud and had to provide a word that meant the opposite thing. In the analogy section, students read three words and had to provide a fourth word that fit the relationship. In each of these, items are arranged in increasing difficulty. Reliability as reported by the test developers is 0.88 for Passage Comprehension and 0.90 for Reading Vocabulary, with a reliability score of 0.92 for the Reading Comprehension composite.

Researcher-developed comprehension measure. This measure included 10 open-ended comprehension questions assessing knowledge of story elements (see Figure 2). The first two questions addressed the setting and asked students to identify *where* and *when* the story took place. The third and fourth questions addressed characters and asked students to identify *major* and *minor* characters. The next four questions examined problem and solution and asked students to *identify the problem*, to discuss how the character *tried to solve the problem*, to explain if *the problem was hard to solve*, and finally to state *whether it was solved*. The final two questions examined important events by asking students to *identify an important event* and to *explain why it was important*. Students completed measures independently. All ten items were given 1 point if they were correct and 0 points if they were incorrect. No partial credit was given. This measure was based on work from Idol (1987) and Idol and Croll (1987) and included the same eight initial questions about the characters, setting, problem, and solution. Questions 9 and 10 were changed to assess student's ability to look at important events in the story. A reliability analysis was conducted on the 10 questions using data from each session and Cronbach's alpha was found to be .84 for the measure.

Intervention

In the intervention phase, students received instruction from the first author on story grammar elements (character, setting, problem, solution, main events). They were taught how to identify and name these elements, as well as how to use understanding of narrative structure to approach and comprehend a variety of narrative texts. Each group met with the researcher twice a week for thirty-minute sessions. During these sessions, they practiced identifying each of the elements in the story using a new story for each session. The intervention began with a teacher-modeling phase, progressed to guided practice, and moved towards independent practice on identifying these elements. Students received four 30-minute modeling sessions, four 30-minute guided practice sessions, and two 30-minute independent practice sessions. Each session included two to three minutes of introduction to let students know the plan for that day's session and answer any initial questions, 15 to 20 minutes of story reading and discussion of the story grammar elements while filling out the story map (approximately five minutes on character and setting, ten minutes on problem and solution, and five minutes on important events), and five to ten minutes spent answering comprehension questions. During the sessions, students were given the story and story map to complete. After instruction, the stories and completed

story maps were taken away and the probes (10 question, paper and pencil, comprehension quizzes) were given to each student to complete independently. Students had as much time as they needed and typically took between five and ten minutes.

Figure 2. Sample comprehension questions.

Comprehension Questions

1. Where did this story take place?
2. When did this story take place?
3. Who were the main characters in the story?
4. Were there any other important characters in the story? Who?
5. What was the problem in the story?
6. How did _____ try to solve the problem?
7. Was it hard to solve the problem? Explain.
8. Was the problem solved? If it was solved, how was it solved?
9. What is one important event in the story?
10. Why was this event important?

The ten intervention sessions began with four modeling sessions. During these sessions, the researcher read the story aloud to the group of students and filled out the story map as she read. The researcher paused throughout the story and modeled a think aloud process to identify story elements (Dimino et al., 1990). While reading each page, as story elements arose in story, such as new characters being introduced or the setting being discussed, the researcher stopped and discussed the element. This included defining the story element, identifying the story element, and writing it down on the story map. Students followed along and filled out their own story map with the same information and phrasing as the researcher. Students were taught to look for information about character and setting at the beginning of the story, as well as recording new characters as they appeared in the story. Setting was defined as time (past, present, future) and place and the students were shown how to determine the setting early in the story. Problem and solution were taught together. Problem was defined as the “big” problem in the story. It was explained that the problem did not occur over one page, but instead was a larger issue that needed to be solved and typically was introduced over several pages. The problem and solution also were required to tie together and the solution needed to solve the problem. After the story was complete, the final step was to identify several important events, defined as major things that happened in the story.

The guided practice phase consisted of the students taking turns reading the story out loud and discussing the story elements with support from the researcher. Students took turns reading and as they read, they stopped and discussed story elements as they came across them, writing them down as they had learned during the modeling phase. Students worked together to prompt each other and point out when story elements arose that should be written down. Students worked in small groups with researcher support over four sessions.

Students then completed two sessions of independent practice. During these sessions, they read the story to themselves and completed the story map. However, the researcher walked around and supported the students when filling out the story map by answering questions and prompting responses. In addition, students were stopped every two to three pages to orally compare story maps and share answers.

Posttest and maintenance. After the ten intervention sessions, the researcher came in two days after the final session to give a posttest. For the posttest, students were given the story and story map to complete independently. After they turned these in, they were given the comprehension measure. Maintenance was conducted two weeks after the conclusion of the intervention for all groups and followed the same procedure as the posttest. Group 2 also received the maintenance measure four weeks after intervention, but due to snow days and the end-of-year benchmark tests, the other groups were not able to complete this measure.

Data Collection

On the first day of the baseline phase, the researcher started by reading through each of the 10 questions with students and explaining them, as well as answering any questions that the students had. Students were then given a short, narrative story to read independently at their instructional level. After they com-

pleted the story, they were given the comprehension probe and asked to answer the questions independently.

During all three phases of the intervention (modeling, guided practice, and independent practice) students read the story with varying degrees of guidance and support and filled out a story map while reading. The stories and story maps were then removed and students completed the reading measure independently. For post-test and maintenance, students read the story independently while filling out the story map, these were once again removed, and students completed the measure independently.

Data Analysis

On the researcher created measures, students received 1 point for a correct answer and 0 points for an incorrect answer. Rubrics were created for each story to determine correct and incorrect answers. Once these measures were scored, the raw scores were used to calculate percentages on the researcher created comprehension measures. These results were graphed in order to visually inspect growth between phases, according to trend, level, and immediacy of effect. Students have individual graphs demonstrating their growth, as well as graphs that show group means. In addition to visual analysis, graphs were assessed using a nonparametric measure called Nonoverlap of All Pairs (NAP; Parker & Vannest, 2009). Scruggs and Mastropieri (2013) describe nonparametric tests as a way to compare outcomes in single subject studies. These measures are more robust than comparisons of means or medians across phases (Parker, Vannest, & Davis, 2011) and are a more standardized measure than visual analysis (Scruggs & Mastropieri, 2013). Although there are several nonparametric methods available, NAP was chosen due to its high levels of agreement with visual analysis (Parker & Vannest, 2009). In this method, the overlap is examined for every set of pairs between the phases. This was calculated in two ways; first by comparing every baseline point with every intervention point and then by comparing every baseline point with every following point (intervention, posttest, and maintenance).

Treatment fidelity. A graduate student not associated with the study observed ten percent of the intervention sessions and scored them based on adherence to whether instruction was implemented as intended. She used a checklist to look for the presence or absence of ten different lesson components, including introducing the lesson and describing the purpose, discussing all of the story elements, concluding the lesson, using explicit language, and providing feedback. This was to ensure each lesson addressed all of the story grammar components and included some elements of explicit instruction. After observing 10% of the intervention sessions from each group, treatment fidelity was found to be 100%.

Interscorer agreement. A graduate student blind to the conditions of the study performed interscorer agreement checks on twenty percent of the stories as recommended by the What Works Clearinghouse (WWC) standards for Single Case Design (Kratochwill et al., 2010). This graduate student independently read the stories, created an answer rubric, and scored student responses. Initial agreement was 93% and this increased to 96% after discussion and resolving discrepancies. These levels meet the threshold of 80% - 90% agreement set by WWC (Kratochwill et al., 2010).

RESULTS

Figures 3 shows a graph of the results from Group 1 (Adriana and Charlie), Figure 4 shows a graph of the results from Group 2 (Shondra, Maria, and Antoine). Figure 5 shows a graph of the results from Group 3 (RaQuan, Ann, and Ricky). Figure 6 shows the multiple-baseline across groups graph that averages scores for students in each group.

Figure 3. Percent correct for students in group 1.

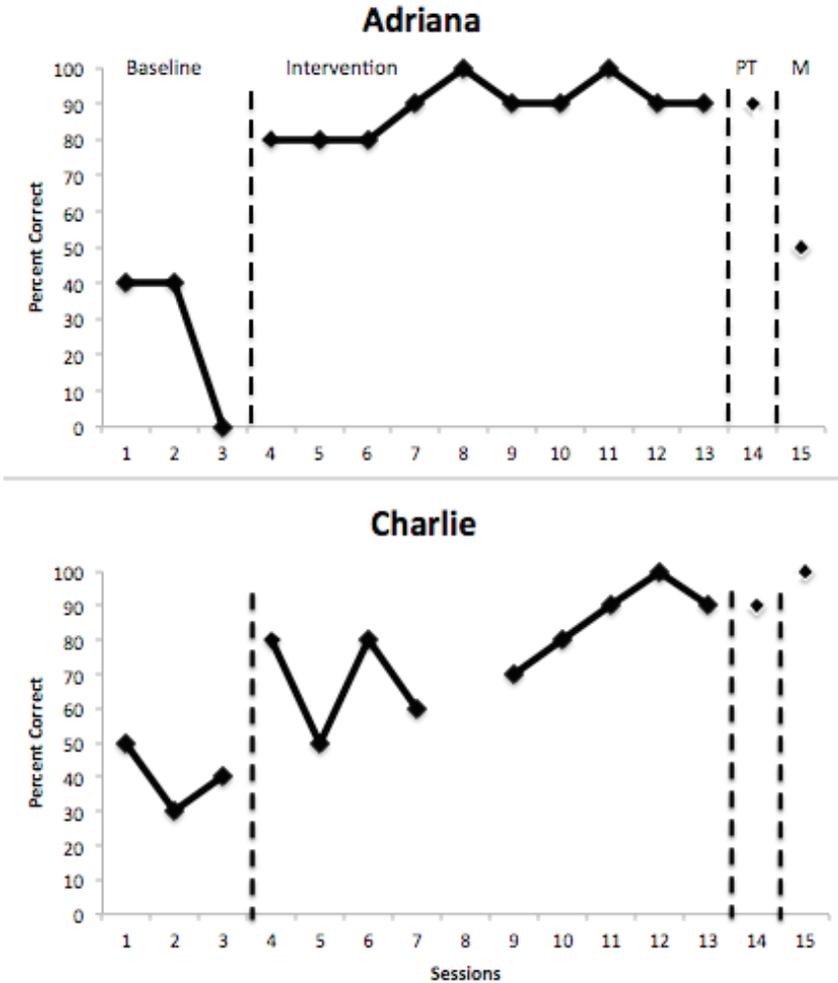


Figure 4. Percent correct for students in group 2.

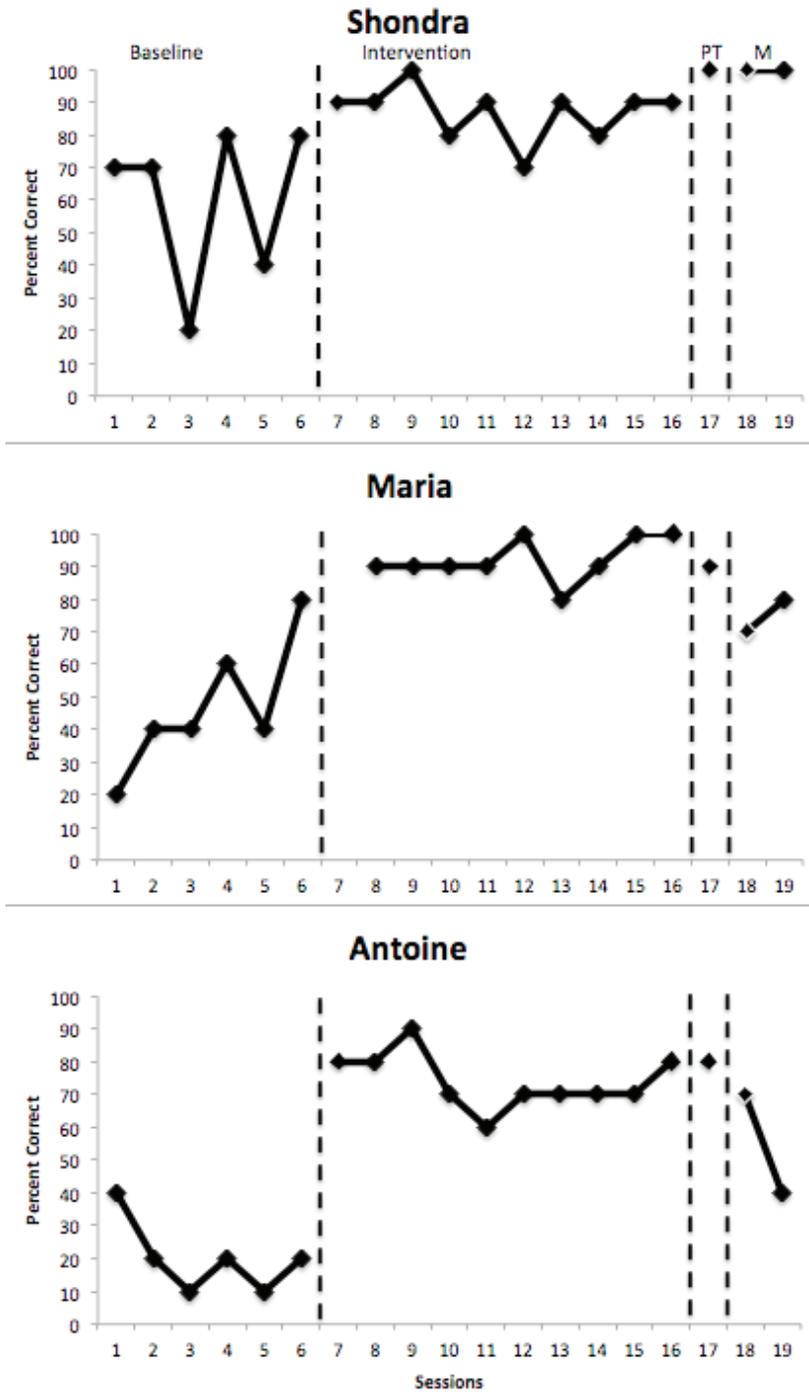


Figure 5. Percent correct for students in group 3.

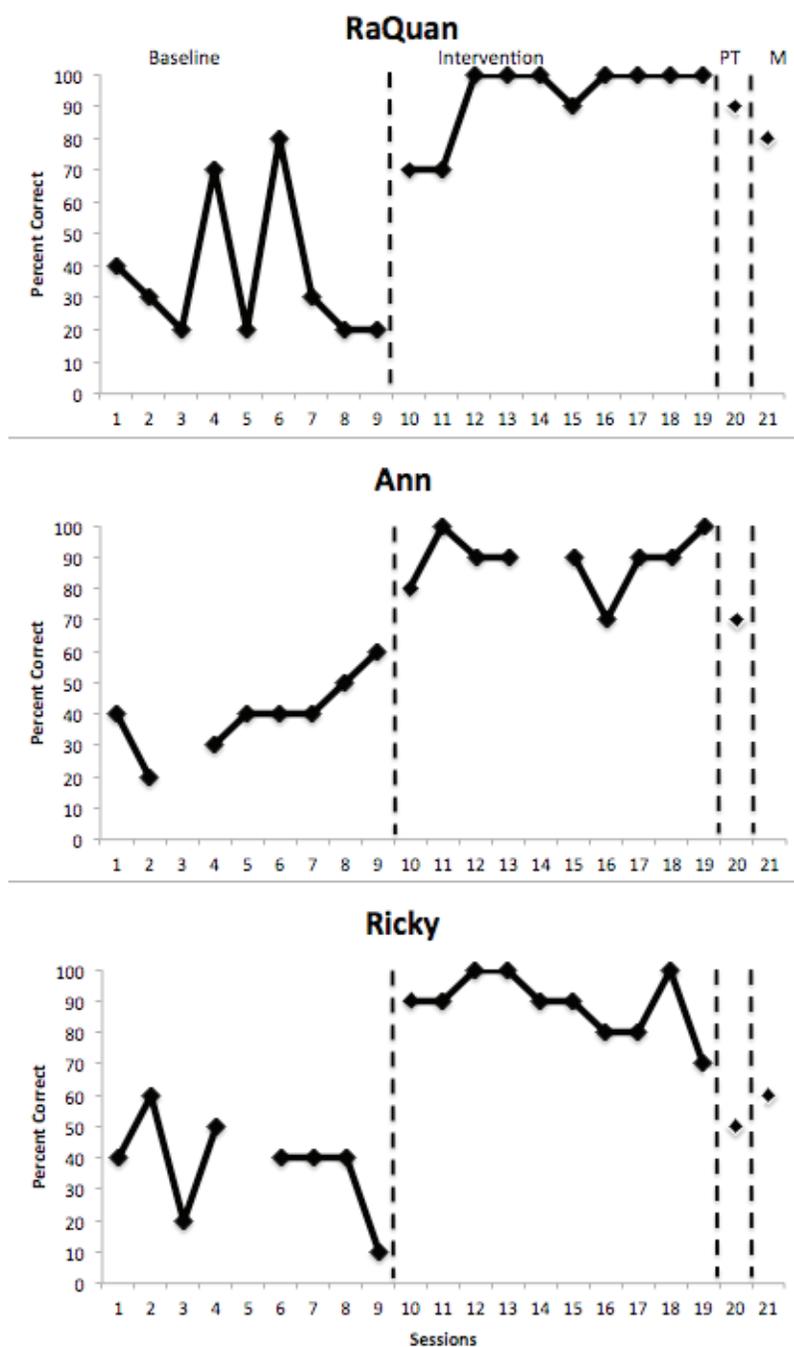
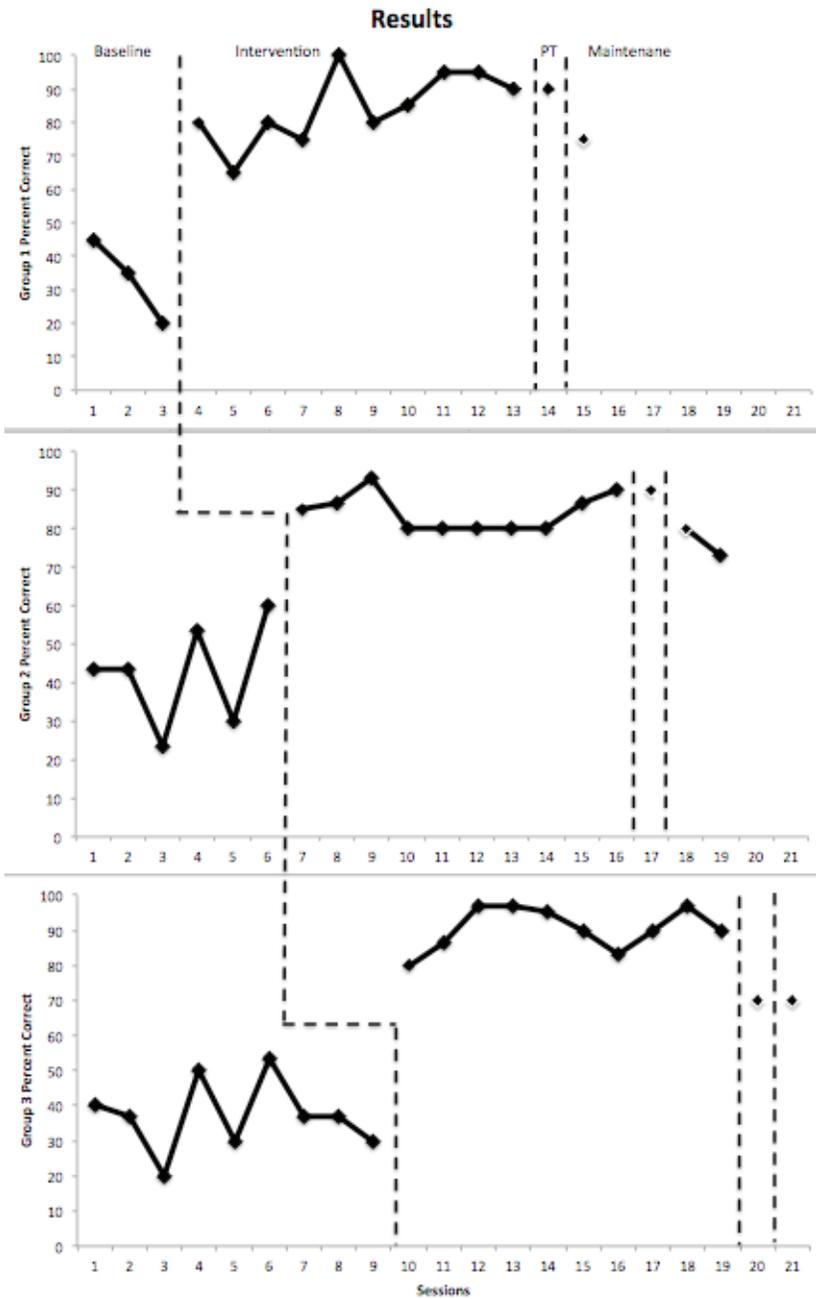


Figure 6. Average percent correct for each group.



Group One Results

In group 1, Adriana had a mean baseline score of 26.7% and showed a decreasing trend. Charlie had a mean baseline score of 40% and showed a decreasing trend as well (Figure 3). The average for this group showed low level and decreasing trend, with some variability (Figure 6). According to visual analysis, both Adriana and Charlie demonstrated immediate improvement when the intervention was introduced (Figure 3). Their trend lines during intervention were at a high level and either consistently high (Adriana) or steadily increasing (Charlie). Both Adriana and Charlie demonstrated high scores at posttest that were on the same level as the final intervention point. Charlie continued to increase at maintenance, and although Adriana showed a decrease, her maintenance point was still above baseline levels. The averages for this group (Figure 6) demonstrated an immediate effect when the intervention was introduced and an average positive trend, with posttest scores level with the final intervention point.

When comparing overlap of data points (NAP) between the baseline phase and the intervention phase for Adriana, 100% of points were found to be nonoverlapping (Parker & Vannest, 2009). When the posttest and maintenance points were added to this analysis for Adriana, 100% of data points were nonoverlapping. For Charlie, 98% of data points were nonoverlapping when comparing baseline to intervention and 98.5% of points were nonoverlapping when comparing baseline to all following points. The NAP averages for Group 1 were 100% for both analyses. This indicated that the treatment demonstrated strong positive effects for both Adriana and Charlie with no average overlap between any of the baseline points and any of the points from the intervention, posttest, or maintenance.

Group Two Results

All of the students in this group showed some degree of variability during baseline, although levels were low for all students. The trend for Shondra was flat, for Maria was increasing slightly, and it was decreasing for Antoine (Figure 4). The overall baseline trend for this group was relatively flat, with a slight upward trend (Figure 6). When the intervention was introduced, Antoine showed a large immediate improvement, while the effect was not as pronounced for Shondra and Maria. Overall, the average for the group showed a steady trend for the intervention phase. Posttest scores were all close to scores for the final intervention point without much degree of difference. Maintenance scores for Shondra remained high, while they dropped somewhat for Maria and Antoine. The overall average for this group showed a posttest score level with the final intervention point and a slight dropoff for maintenance.

When comparing overlap of data points (NAP) between the baseline phase and the intervention phase for Shondra, 92% of points were found to be nonoverlapping (Parker & Vannest, 2009). When the posttest and maintenance points were added to this analysis for Shondra, 93% of data points were also nonoverlapping. Although Shondra did not demonstrate immediacy of effect during visual analysis, the high NAP scores do indicate improvement across the intervention. For Maria, 99% of data points were nonoverlapping when comparing baseline to intervention and 97% of points were nonoverlapping when comparing baseline to all following points. According to visual analysis, Maria had an increasing baseline and did not demon-

strate immediacy of effect, but the strong scores for NAP indicate improvements. For Antoine, 100% of data points were nonoverlapping when comparing baseline to intervention and 99% of points were nonoverlapping when comparing baseline to all following points. NAP averages for Group 2 were 100% for both analyses. This indicated that the treatment demonstrated strong positive effects for all students in this group, with no average overlap between baseline points and any points after the introduction of the intervention.

Group Three Results

RaQuan and Ricky demonstrated a steady trend in their baseline, although this was decreasing slightly for Ricky, while Ann displayed a slight increasing trend (Figure 5). Although Ann showed an increasing trend, the decision to begin the intervention was based on group average scores, which showed a decreasing trend the last four points before intervention (Figure 6). When the intervention was introduced, both RaQuan and Ricky demonstrated strong immediate growth, although Ann's growth was more marginal. However, the average for this group (Figure 6) demonstrated an immediate effect when the intervention was introduced and a consistently high level during the intervention. Although all students in this group decreased slightly at posttest and maintenance, these scores were still above baseline levels.

When comparing overlap of data points (NAP) between the baseline phase and the intervention phase for RaQuan, 97% of points were found to be nonoverlapping (Parker & Vannest, 2009). When the posttest and maintenance points were added to this analysis for Antoine, 97% of data points were also nonoverlapping. For Ann, 100% of data points were nonoverlapping when comparing baseline to intervention and 100% of points were nonoverlapping when comparing baseline to all following points. For Ricky, 100% of data points were nonoverlapping when comparing baseline to intervention and 99% of points were nonoverlapping when comparing baseline to all following points. NAP averages for Group 3 were 100% for both analyses. This indicated that the treatment demonstrated strong positive effects for all students in this group because there was no overlap between any of the average baseline points and any points after the intervention was introduced.

Overall Trends

At baseline, the majority of students scored a mean score below 50%, with only one student at 60%. Baseline scores were low overall and the average graphs for each group (Figure 6) show steady or decreasing trends. Visual analysis also demonstrated that average scores for each group increased substantially when the intervention was implemented and continued to increase or remain high for the duration of the intervention. Since the intervention was implemented at different periods for each group, this increase demonstrates the effect of the intervention with each of the three groups.

DISCUSSION

Students with learning disabilities often struggle with their ability to comprehend text, specifically in their abilities to monitor their own comprehension and in their knowledge of text structure (Gersten et al., 2001). In addition, students with LD

have trouble identifying story elements in text (Griffith, 1986; Montague, Maddux, & Dereshiwsky, 1990). Griffith (1986) and Montague and colleagues (1990) both found that students with learning disabilities who retold stories based on story grammar did not include as much information in their retells as students without disabilities. Research demonstrates that students with LD can benefit from specific instruction in comprehension strategies (Edmonds et al., 2009; Gersten et al., 2001; Scammacca et al., 2013; Swanson, 1999), and that one effective strategy is story grammar (Stetter & Hughes, 2010). In addition to students with learning disabilities, the current study also included students with other disabilities and struggling readers. All students were able to improve their reading comprehension scores, as measured by story grammar probes, indicating the effectiveness of this strategy for all struggling readers.

Results of this study confirm prior research that explicit instruction in a story grammar intervention can improve reading comprehension skills for students at the elementary school level (Boulineau et al., 2004; Idol, 1987; Idol & Croll, 1987; Stagliano & Boon, 2009). While some of the previous studies had long intervention periods (Stagliano & Boon, 2009), some of the students in previous studies received as little as six (Boulineau et al., 2004) or eight days of intervention (Idol & Croll, 1987). In addition, some of these studies provided only two days of teacher modeling (Idol & Croll, 1987). The current study not only extended the intervention period, but also increased the amount of modeling provided to students. Results indicate strong growth during the intervention phase, which may be due to the additional modeling and practice provided to students.

Previous research using narrative text has also indicated that although students did improve their comprehension skills during the intervention, these results were inconsistently maintained, resulting in mixed evidence of success (Boulineau et al., 2004; Idol, 1987; Idol & Croll, 1987). In all of these studies, students were given a measure immediately following the intervention (within days of the last session) and while some students were able to maintain their comprehension skills, many declined significantly. Maintenance measures in the cited studies (Boulineau et al., 2004; Idol, 1987; Idol & Croll, 1987) were equivalent to the posttest in the current study because they were all given immediately following the completion of the intervention phase. In contrast to the other studies, six of the eight students in the current study received posttest scores comparable to their final intervention point (within ten points). Only two students demonstrated more significant drops at posttest. However, seven of the eight students had posttest scores that did not overlap with any baseline points. Ricky was the exception and had a posttest score that overlapped with two of nine baseline points. Overall, strong posttest scores indicate the results of this intervention continued past the conclusion of instruction.

Another way that the current study improved on previous research is that it included a maintenance measure conducted two weeks after the intervention ended. Although the majority of students did decrease somewhat at maintenance, they all remained above baseline levels, and most were able to maintain their scores within ten points of posttest scores. Six of eight students had maintenance scores that did not overlap with any baseline points, while the other two students had scores that overlapped with only one baseline point. This is another strong piece of evidence in support of this intervention. Finally, group two also received maintenance at four

weeks and two of the three students in this group were able to maintain their scores at high levels. The maintenance results indicate that the results of a story grammar intervention may continue even after the instruction ceases.

Implications for Practice

Since students with learning disabilities often lack knowledge of text structures (Gersten et al., 2001), it follows that explicit instruction in these text structures can be one way to help students improve their comprehension. Teachers can use story grammar and story maps in classroom instruction in order to provide students with a framework for approaching novel text (Idol, 1987; Idol & Croll, 1987). Use of story maps or other graphic organizers can help students with learning disabilities make sense of the text and allow them to record the most important information as they read (Edmonds et al., 2009). Explicit strategy instruction seems to be an effective way to improve reading comprehension for students with LD (Swanson, 1999).

Future Directions for Research

Results indicate that story grammar continues to be a way to improve reading comprehension for students with learning disabilities. Further research could expand on this work by continuing to provide students with longer intervention periods in order to allow students more time to internalize the story grammar framework. The current study provided ten intervention sessions, which was an improvement on previous work, but even longer intervention periods would likely benefit students with learning disabilities. The more instruction and practice that students receive, the more likely they will be to improve their independent use of this strategy. It is possible that longer intervention sessions will allow students to more successfully maintain their skills over time. In addition, research could examine student attitudes towards this intervention in order to assess social validity. Finally, future research should examine if students can transfer these skills to other texts and generalize their gains in reading comprehension to other contexts.

Limitations

There were several limitations to this study, the major one being that only eight students were included, which limits the generalizability of the results. These students were at the same school, which also limits generalizability. Students were in different grades and receiving reading instruction in several different groups, so this intervention was the only consistent instruction received by all of the students. The multiple-baseline across groups design provides evidence that the intervention was causing the changes in the reading comprehension scores. This evidence is tempered somewhat by rising baselines for several students. However, NAP demonstrates that intervention, posttest, and maintenance scores for these students were above baseline scores. The combination of these two sources of data lends support to the success of this intervention, however, additional classroom or standardized posttest measures could have also been included to further examine gains in reading comprehension.

This was a study to test the effectiveness of a story grammar intervention. All of the intervention sessions in this study were provided by the researcher. Although this was reasonable for this study, in the future, it would be beneficial to train teachers

in the story grammar intervention. That way, students could get this intervention as part of their regular reading instruction. The instruction could also be more consistent, instead of only being provided two days per week. If teachers were trained to implement this intervention, all students could receive it as part of their daily reading instruction.

Time also became a factor in this study, which was conducted during the winter and spring of a school year. There were many snow days that interfered with the implementation of this study, as well as school events (e.g., assemblies, field trips) that also interfered. This spread the study out over a longer time period than expected, which meant that the end of the study ran into end-of-the-year benchmark testing. Therefore, only one group was able to receive a second maintenance measure.

CONCLUSION

In summary, a story grammar strategy appears to improve reading comprehension for students with disabilities and those who are struggling readers. All students received ten intervention sessions and were able to make and maintain gains in their ability to answer comprehension questions about a story. Intervention scores all demonstrated strong improvements from baseline with very little overlap between baseline and intervention points. Posttest and maintenance scores also demonstrated no overlap with baseline points. However, more research should be conducted to determine if gains continue to be maintained at later dates, as well as if general and special education teachers can successfully implement this intervention in the classroom.

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