

## INCREASING THE READING COMPREHENSION OF STUDENTS WITH SPECIFIC LEARNING DISABILITIES BY USING GRAPHIC ORGANIZERS/STORY MAPS

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## ABSTRACT

Learning disability which includes reading disorder, mathematic disorder and writing disorder, is described as the biggest categoryunder IDEA (the Individuals with Disabilities Education Act). In this study, reading disorder is introduced and graphic organizers are suggested to improve the academic achievement of students with learning disabilities, specifically to improve reading comprehension skills.

Keywords: Specific Learning Disabilities, Graphic Organizers/Story Maps

## **INTRODUCTION**

All human beings have unique characteristics. Some of them wear big shoes, and others have curly hair, but some characters of them are so important. What are these characteristics? The characteristics that set them apart are intelligence and the skills of reading, writing, and communication. In terms of these important features, people want to be described as normal, even though many of them are not. Who is qualified to describe them as a person with or without a disability? Some of the professionals who can identify or label people as having or not having a disability are clinical psychologists, school psychologists, child psychiatrists, neuropsychologists, and psychometrics (HELPGUIDE, 2012).

The individual with Disabilities Education Act of 2004 identifies people with disabilities in thirteen categories in terms of their characteristics (IDEA, 2004). These categories are: autism, deaf-blindness, developmental delay, emotional disturbance, hearing impairments including deafness, mental retardation, multiple disabilities, orthopedic impairments, other health impairments, specific learning disabilities, speech or language impairments, traumatic brain injury, and visual impairments including blindness (IDEA, 2004). However, according to statistical facts, the most prevalent disability category is Specific Learning Disability, and 2,537,000 out of 6,593,000 students between the ages of 3-21 were provided special education services, in the fall 2008 (Boulineau et al., 2004; Education Week, 2012). Furthermore, it was claimed that one out of five people who live in America have a learning disability (NICHCY, 2012).

What is a specific learning disability? It was said that "a learning disability is a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfection ability to listen, speak, read, write, spell, or to do mathematical calculation, including calculations such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia" (IDEA, 2004). In the description of specific learning disability, Speece and Shekitka (2002) underlined three important things; appropriate instruction for students with a disability, discrepancy model, and exclusion of some disabilities from learning disabilities, such as mental retardation and sensory impairment. NICHCY (2012) also stated that there are important things emphasized in the description of specific learning disability. These are the discrepancy models which show differences between a student's actual ability and predicted ability, the provision of appropriate education in terms of scientifically validated intervention, and the exclusion of sensory impairment, mental retardation, and the emotional problems (NICHCY, 2012).



Even though the reasons for specific learning disability are exactly unknown, there are many reasons which contribute to the specific learning disability, such as acquired trauma, genetic factor, biochemical abnormalities and environmental possibilities (ACLD, 2012). It is also claimed that almost 50 % of the factors that contribute to the specific learning disability is genetic (ACLD, 2012). Some of the signs of the specific learning disabilities with pronunciation, word choices, rhyming, following directions, controlling education materials such as pencils, telling time, comprehension, and math (HELPGUIDE, 2012).

To be successful in academics, one should be able to read, write, use language effectively, and do mathematical calculations. These are the few, but important skills. However, people with specific learning disability may have difficulty with one or many of them. The most prevalent disorder among students with specific learning disability is reading disorder, and according to some researchers, the rate is almost 90% (Mothus&Lapadat, 2006). Reading failure is a critical problem that leads to lowered self-esteem, school drop-out, and inappropriate social behavior. Mothus and Lapadat (2006) claimed that reading has a critical importance, especially when students are in high school or a higher institution because they are then required to read and comprehend more information from written text. In addition, Garjia et al. (2007) stated that in the early grades the goal is for students to learn to read, but soon the main purpose of reading is to gain knowledge from written sources.

Much research has shown the criticality of reading for academic success. For example, in the report of the National Assessment of Education Progress (NAEP), it was claimed that approximately half of the students who are provided education in the U.S.A do not have basic reading skills, and this lack of basic reading skills leads professionals to label and identify students as needing special education services (NAEP, 2004; NCES, 2004). In addition, there is an interesting research which was conducted by Boyle who claimed (1996) that many students identified as learning disabled had reading problems, with many high school students reading at only a fourth grade level.

There may be factors which can contribute to the reading disorder, such as phonemic awareness, fluency, and reading comprehension. Many different studies were conducted with the aim of improving the reading skills of students with specific learning disability, but most considered foundational reading skills without focusing on reading comprehension (Boulineau et al., 2004; Hagaman& Reid, 2008). Hagaman and Reid (2008) claimed that studying foundational skills might not be enough, because although students with specific learning disability had high decoding skills and other foundational skills, they might not comprehend well enough to understand and extract knowledge from written text materials. It was also stated that to overcome their difficulties, students with reading disorder should be exposed to explicit instruction through comprehension strategies such as a graphic organizers, to improve comprehension skills (Hagaman& Reid, 2008). Therefore, teachers and other professionals should consider the vital importance of reading comprehension for academic success. Trends and Issues: Response to Intervention (RTI)

Currently, the trend in special education is Response to Intervention (RTI), especially in the category of specific learning disability. RTI is one of the approaches used to identify students with specific learning disability (IRIS RESOURCE LOCATOR, 2012). It was stated that if students were provided appropriate instruction, they were usually successful and they kept their placement; therefore, the appropriateness of the instructions and materials can be determined by using RTI (IRIS RESOURCE LOCATOR, 2012). RTI emphasized that all students should have received teacher support, and effective and appropriate



instruction. In addition, data showing student progress should have been gathered frequently before assigning placement. With RTI, many things are taken into consideration, such as research-based intervention, universal screening, and progress monitoring. RTI claims that inadequate academic performance may be the result of poor instruction or curriculum rather than merely student deficiency. By using the RTI model, a team can apply early, intensive, and effective interventions. It consists of four components;

a. Universal Screening: Class wide assessment for all students.

b. Tier 1: Effective and appropriate instruction is provided in general education setting, and the progress of students is monitored on a weekly basis.

c. Tier 2: Small-group instruction is provided in addition to Tier 1 instruction by a reading specialist, paraprofessional, general education teacher, or other trained personnel. Student development is continually monitored.

d. Tier 3: If students are still unresponsive to Tier 2 instruction, more intensive individualized instruction is used at this point. Few students are included in this tier, and some formal assessment can be used for special education services. Interventions

There are many interventions to improve the reading comprehension of students with specific learning disability, such as paraphrasing, computer assisted instruction, and graphic organizers (Hagaman& Reid, 2010; Sorrell, 1990; Stetter& Hughes, 2010).

The paraphrasing strategy is mainly conducted in three steps, the first is reading, the second is selfquestioning and the third is paraphrasing. Paraphrasing strategy can be used for elementary, secondary and high school students, and second language learners as well. During the implementation of this intervention, students' active participation is critical since the intervention requires high level thinking to facilitate the knowledge which was learnt from the given text.

Presently, computers are very common and have become an essential tool in every stage of our life, especially in schools. By using computers, students can access information, and utilize this information by combining it in innovative ways with previously acquired knowledge (Pacific for Education and Learning, 2012). Computer assisted instruction is also used to increase the comprehension of students with specific learning disability. Much research supports the previous claim. Kim and his colleagues (2006) stated that computer assisted instruction could be used as a tool to increase the comprehension of students with specific learning disability by teachers because it gave opportunity of learning and teaching for them. They also said that by using computer assisted instruction, teachers provided stimulating and interactive social learning environments to keep students' interests on topic (Kim et al., 2006). During the implementation of computer assisted instruction, students can talk with their peers about the given text, and by doing so students are also directed to think while they read (Gersten et al., 2001). Thinking about a given text, while reading, increases and facilitates the students' meta-cognitive activities (Gersten et al., 2001).

The third intervention is graphic organizers such as semantic maps, story maps, concept maps, and cognitive maps. A story map is a very effective intervention for improving the reading skills of students with specific learning disability since it supplies visual displays for critical information about given text by focusing the students' attention on relevant text materials (Boulineau et al., 2004). According to Boulineau et al. (2004), story maps can be used before reading, during reading, and after reading. Before reading it may be used for the retrieval of prior knowledge, for organizing discussion, and discussing the



given topic. They stated that story maps might be used during the reading period as a guide for writing critical information and it might also be used for a kind of review after all processing is finished. Furthermore, Boulineau et al. (2004) claimed that the story mapping intervention could be used for different age and grade groups to evaluate different abilities. Students with specific learning disability have problem with organization, self-monitoring and recalling previous storage knowledge; using graphic organizers provides this kind opportunity to the students (Horton, Lovitt, &Bergerud, 1990).

Throughout this paper, the use of graphic organizer intervention to improve the reading comprehension ability of students will be discussed.

Literature review of Graphic Organizer/Story Mapping

The first research article of this section was written by Boulineau et al., in 2004. The aim of the study was to provide replication of previous studies which stated that graphic organizers improved the reading comprehension of students with specific learning disability. In their study, they used six students as participants, and all of them had been labeled as having specific learning disability. Their IQ scores were from 90 to 98, and four of them were third grade and two of them were fourth grade students, Georgia. After the implementation of the intervention, it was proven that the results supported previous studies since students improved story elements identification by using story maps.

Boyle (1996) stated that by using graphic organizers, story mapping, cognitive maps, students might make the connection between the main idea and supporting ideas because these kinds of interventions provided a wide picture of the given topic. Moreover, graphic organizers also increased recall or retrieval of stored knowledge (Boyle, 1996; Darch& Eaves, 1986). In Boyle's study, there were thirty students, but twenty of them had specific learning disability, and they had difficulty specifically with reading. The aim of this study was to determine whether students with specific learning disability used the strategy without a teacher's help and to determine the efficacy of the strategy on students' comprehension. While implementing the intervention, how to draw and organize a cognitive map was taught to students without looking at the textbooks. The result of his study showed that the evidence supported the previous studies and the intervention was very beneficial for students with or without a disability.

Sinatra, Stahl-Gemake, and Berg (1984) stated that visual materials were very effective in increasing the comprehensions of story elements for students with specific learning disability. Graphic organizers can be used as assessment tools because they provide a wide picture of what students read and help to demonstrate how much they understand the given text. To determine difference between two approaches which were mapping approach, and verbally oriented readiness was the goal of their study. Even though twenty one students of all participants were from second to eighth grade level, their approximate reading comprehension levels were 2.5. The other six students were ungraded. After conducting the research, they realized that students who had been provided more verbal readiness instruction, and they stated that there were significant differences between their mean scores. Furthermore, they stated that visuals had improved the comprehension of students with specific learning disability.

Horton, Lovitt, and Bergerud(1990) stated the same results, and they claimed that students with specific learning disability that had used graphic organizers performed better than students with specific learning disability that had not used graphic organizers or any other kind of cognitive mapping intervention. They conducted a study in three different classifications, students with specific learning disability, students in a remedial class setting, and students without specific learning disability. The finding of the study is very



interesting. It showed that graphic organizers were very effective, and students performed better when they were provided by the teacher to students with text reference or cues. Furthermore, it was demonstrated that the lowest score achieved by using graphic organizers was better that the highest score achieved by self-study.

The goal of the study conducted by Gardill and Jitendra (1999) was to determine whether or not the effect of advanced story maps to increases the comprehension skills of students with specific learning disability. The participants were six middle school students with specific learning disability. All of the students had IEPs. These students were determined by using the following criteria: type of learning disability, level of difficulty in reading, and the results of Woodcock master test. Intervention was provided in a resource classroom during 40-50 minute period. Additionally, multiple baseline design was used during the implementation of the intervention. After conducting the study, these results were apparent: there was substantial improvement in comprehension and in story grammar for all six students with specific learning disability. Moreover, more story elements were recalled by five students when using the intervention.

Another study was conducted by DiCecco and Gleason (2002) to determine the efficacy of the graphic organizers to recognize important information from given text. They stated that graphic organizers facilitated the relationship between the main ideas and other details by lines and arrows. While using graphic organizers, details may be eliminated and which allows students to focus their attention on the key concepts. Even though in their study there were twenty six students, the data from two of the students was not used because of their excessive absences. These students were equally distributed by using several tests. Intervention was provided to students during 20 school days in a resource room. Test results showed that by using graphic organizers students improved their recall, and by using this recalled knowledge, they could perform better in essay writing. The results also supported the concept that graphic organizers were effective for gaining the relational knowledge from given text materials.

Vallecorsa and DeBettencourtconducted a study to learn how story elements were taught, in 1997. This study included there thirteen years old students who had difficulty with reading and writing, and these students met the criteria of the state in which they live. Story maps were taught to these students as a tool to identify story elements, to improve knowledge recall, and indirectly help to improve writing performance. They emphasized comprehension and written expression, because they were interrelated and were important for understanding a person. During the implementation of the intervention, ABC design was used, and data was collected based on their performance. In class, activities were distributed, for example, for the first 25-30 minutes students were required to read and for 15-20 minutes students were required to do writing activities. After conducting the study, they found that the students' improvements differed. One student, David, showed an upward trend in reading. Jason improved his comprehension slightly, but the other student, Nick, performed much better and his improvement in comprehension was striking.

In the study of Taylor, Alber, and Walker (2002), the goal was to compare results of different interventions to improve the comprehension of students with specific learning disability in elementary school and to learn the efficacy of them. Five students between the ages of 9 - 12 were participants in the study. Three of them were instructed in a resource room, and the others attended inclusive general education classrooms with special education teachers. The study was conducted in a resource room, and SPE teachers taught the students to use the strategies. Alternative treatments were also used during the implementation to handle more data about the efficacy of the interventions. The results showed that the students accurate responses to questions improved after using interventions (M = 85.8%; SD = 4.3). The



results also showed that there was no significant difference between self-questioning and story maps, but there were significant differences between self-questioning and no intervention, and between story maps to without intervention. Furthermore, the story maps and self-questioning strategy improved the comprehension of students.

Idol and Croll (1987) conducted a research to improve the comprehension skills of students with specific learning disability by using a schema-building technique. In this study, the participants five students were chosen from three different elementary schools based on criteria, such as teachers' opinions. ABA design was used to observe the improvements of students. Comprehension questions were used as dependent variables. On the first day of intervention, teacher familiarized students with the intervention, and directed them to read a story. During the practice of the intervention, the teacher gave more feedback for students' responses. The findings showed a noticeable improvement in comprehension, but only one student' reading increased slightly. After the intervention, students continued to use the strategy during the story retelling activities. The improvement in comprehension was also seen with more difficult materials.

The tenth article in this section was written by Stagliano, and Boon in 2009. In this study, there were three fourth grade students with specific learning disability. All of them were males, and their IQ scores were 92, 93, and 96. Their eligibility was determined by the discrepancy model of IDEA. Intervention was provided in a resource room. The aim of this study was to determine the efficacy of story map strategy on the comprehension of students with specific learning disability. After implementing the intervention, it was found that the number of correct question responses increased. It was also shown that the students continued to use the intervention. In addition, the same results were stated by Fore, Scheiwe, Burke, and Boon (2007) in their study.

Wade, Boon and Spencer (2010) conducted research to determine the effectiveness of integrated story maps with Kidspiration software. Three students were chosen for this study based on the following criteria: IEP, grade level performance, and regular attendance. ABC design was used during the implementation of the intervention. The results showed that marked improvement was seen, and it appeared clearly on the ABC design graph. Implementation of the intervention

Intervention preparation: Graphic organizers will be used as an intervention to improve the reading comprehension skills of students with specific learning disability. Graphic organizers help students and give a wide picture of the given text to comprehend the given textbooks by connecting main ideas with supporting details, and supplying visual presentation.

a. Lesson objective: By using graphic organizers, its aim will be to increase the comprehension of students with specific learning disability, and to have them respond correctly to four out of five questions.

b. Materials needed: Ten reading passages and questions are in the Appendix section will be used during the implementation of the intervention. Furthermore, students will be required to draw their own graphic organizers; therefore, paper, pencil, and etc. will be needed.

c. Time allotted for implementation: Intervention will be provided during one class session in one day for two consecutive weeks.

d. A description of participants: Four fourth grade students with specific learning disability will be in the implementation of the intervention. These students will be determined based on the criterion, such as having IEP.

Intervention implementation Procedures:

a. To implement the graphic organizers, a literature art class session will be used each day for two



consecutive weeks. In the first week of the implementation, students will be required to read five passages, and they will be required to answer the given five questions related to a passage each day. During the first week, the teacher should not help students. On Monday, the second week of the implementation, students are taught to use the graphic organizers during the reading session. Additionally, students are required to draw their own graphic organizers. The aim is to encourage students to think about what they are doing.

b. Data will be collected in terms of the AB design. AB design will be used to determine the functional relationship between variables. AB design graphs will show whether there are differences. Furthermore, the AB design graph will be analyzed based on the outcome criterion. Conclusion

As was previously stated, specific learning disability is the most relevant category of those described by IDEA. Moreover, reading disorder is also the most common disorder among students with specific learning disability. However, there are many interventions to help students deal with their problems, such as paraphrasing, computer assisted instruction, and graphic organizers. As was previously stated, graphic organizers and their effects have been discussed. There has been much research conducted to determine the effectiveness of the graphic organizers/story maps to increase the reading comprehension of students with specific learning disability. Boulineau et al., (2004); Boyle (1996); Sinatra, Stahl-Gemake, and Berg (1984) ; Horton, Lovitt, and Bergerud (1990); Gardill and Jitendra (1999); DiCecco and Gleason (2002); Vallecorsa and DeBettencourt (1997); Taylor, Alber, and Walker (2002); Idol and Croll (1987) stated that graphic organizers/semantic maps were very beneficial for students with specific learning disability to help their comprehension skills when used with intervention features such as; connecting the main ideas and supporting details, eliminating details, and supplying visual prompts.

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