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A Slice of Teaching: Reading Comprehension Intervention

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Reading Comprehension Intervention

Reading Comprehension Intervention

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Reading Comprehension Intervention

Abstract

Reading is an essential life skill that affects both learning, and life outside of school and participating in society. Reading is a complex skill that is influenced by cognitive processes, linguistic abilities, and relevant knowledge. One major component of reading and learning how to read is reading comprehension. The acquisition of reading comprehension is an individual's ability to learn to understand writing as well as he or she understands spoken language (Perfetti et al. 2013). Reading Comprehension is a crucial component to successful learning for all students but, for some students, reading comprehension is a task that does not come easy to them. Approximately 80% of students with learning disabilities also struggle with reading comprehension. Because of this large percentage, it is important to find reading comprehension techniques and teaching methods that will provide students with the skills to succeed in their educational careers and everyday lives.

In my current classroom placement, I work with a variety of students with needs that vary greatly. One student, Jane, struggles significantly with her reading comprehension, due to her various disabilities including, autism spectrum disorder (ASD), and Epilepsy. This project will discuss the current reading comprehension techniques used with Jane, techniques that were trialed to improve her comprehension rates, and the research-based evidence of the importance of high-quality reading comprehension strategies.

When broken down, reading comprehension is the result of decoding and language comprehension. Decoding is when you are learning to read by sounding out words and recognizing them. Language comprehension is making sense of the words within the sentence

Reading Comprehension Intervention

we hear and read. Those two skills together are what build a child's reading comprehension. Reading comprehension involved integrating, memorizing, and organizing all of the information that is provided in the text. Through numerous studies and research, it has been shown that students with ASD show significant struggles with reading comprehension and require explicit interventions to improve these skills. My research will connect the research behind reading comprehension difficulties and autism spectrum disorder, and the way that I used those interventions with my students.

Literature Review

When trying to find research articles pertaining to reading comprehension intervention for students with autism spectrum disorder, there was not a vast number of options to choose from but, the research in the articles found was extremely beneficial in aiding my personal research on this topic and furthering my knowledge and ability to educate my students the best as possible. Ultimately, I chose 5 articles specifically to focus my studies on.

The first article I read was titled, *The Relation Between Text Reading Fluency and Reading Comprehension for Students with Autism Spectrum Disorder*. This article talks about the role that reading fluency plays in the prediction of reading comprehension for individuals with autism spectrum disorder and the comparison to their peers that are typically functioning. Deficits in reading comprehension are well known and documented in individuals with autism spectrum disorder (Solari, Grimm, R., McIntyre, N. S., Lerro, L. S., Zajic, M., & Mundy, P. C. (2017).) The researchers found significant differences that were detected between the two test groups. In individuals with high-functioning autism spectrum disorder, the structural equation model shows that text reading fluency significantly predicts reading comprehension skills.

Reading Comprehension Intervention

Because of this finding, the treatment of reading deficits in individuals with autism spectrum disorder could be changed to best fit their unique needs.

The second article used for my research was titled, *Improving Reading Comprehension in Classes for Children with Autism Spectrum Disorder*. Researchers of this article wanted to examine teacher knowledge regarding best practices for teaching reading comprehension to children with autism spectrum disorder and how the implementation of their chosen intervention impacted the teachers and students. The rising prevalence of pupils with autism spectrum disorder in the classroom requires a greater understanding of their unique academic abilities, experience, and outcomes (Milgramm et al., 2021). It is a common report from teachers with individuals with autism spectrum disorder, to have difficult challenges regarding instruction, and therefore the children not receiving certain aspects of the individualized instruction that they require and therefore, their academic potential not being realized to its full extent. Much like most research shows, many children with autism spectrum disorder experience reading fluency and reading comprehension difficulties. Research has shown that evidence-based practices are the best and highest standard for instructional practices. Different from research-based practices, as they do not meet the criteria to be an evidence-based practices. According to the authors, it is common for teachers to choose interventions based on what appears to be most practical and attainable in their classrooms but, those often lack the knowledge from research-based or evidence-based practices. To improve the academic and educational success of students with autism spectrum disorder it is important to have knowledge regarding autism spectrum disorder and its characteristics, as well as having the knowledge of interventions through evidence-based and research-based instruction. (Brock et

Reading Comprehension Intervention

al., 2020; Knight et al., 2019). An overview of the literature regarding the implementation of best practices for people with autism spectrum disorder states that training and support are required to successfully implement appropriate interventions for people with autism spectrum disorder and that it is necessary to develop a coherent training strategy in an education context and keeping educators up to date with evidence-based and research-based practices. (National Council for Special Education, 2016). The research from this article breaks down the methods behind reading intervention for students with autism spectrum disorder and shows the need for explicit training for teachers on how best to use evidence and research-based instruction in all of their lessons. It is recommended through their findings that after effective training on how to be the best teacher and intervention provider, the researchers felt like there was a significant improvement in reading comprehension than found previously, due to their use of evidence and research-based instructional practices and their knowledge for such needs.

Another article I read was titled, *Efficacy of an Intervention to Enhance Reading Comprehension of Students with High-Functioning Autism Spectrum Disorder*. In this study, the researchers examine if explicit reading comprehension instruction for students with autism spectrum disorder is relevant. The research consisted of 45 students around the age of 9, that were randomly assigned to receive explicit instruction intervention in reading and specifically, reading comprehension. One thing that this research discusses that most have not, is the lack of well-known research-based interventions developed for students with ASD, that explicitly address reading comprehension difficulties. The students in this research were split into two groups, the control group, and the research group. The control group received standard reading instruction whereas the research group received explicit reading comprehension instruction.

Reading Comprehension Intervention

The intervention consisted of 3, 30-minute sessions each week for 16 weeks. This totaled 24 hours of intervention. Of those sessions, 42 of them were focused on vocabulary and text reading while the other 6 sessions focused on the identification of anaphoric relations. The research from this article shows that compared to their peers who receive the intervention, students who did make gains in vocabulary knowledge and main idea identification. The researchers were able to interpret their findings as suggesting that their intervention and instruction in reading comprehension, were relevant and meaningful for students with ASD. This study shows that reading comprehension can be improved for our students with ASD and that it is worth discussing the importance for most students with ASD to receive interventions in this area, to improve upon this important life skill.

An article titled, *Teaching Children with Autism Reading Comprehension Skills using Online Reding Instruction: Preliminary Evaluation of Headsprout Reading Comprehension*, was one I also included in my studies. This research was aimed at determining if HRC was a feasible added support, if it added any adaptations to the typical teaching procedures, or if extra support would be needed. It also served to determine the potential for HRC to improve its reading comprehension intervention strategies. Recently, studies have shown the positive impact that Headsprout Reading Comprehension (HRC), an online internet-based reading comprehension program, had on typical learners. This research article discussed the research done on the Headsprout Reading Comprehension program and its efficacy in supporting students with autism spectrum disorder. The study was done using a multiple-case series with 6 children. The researchers of this article indicate that although there is limited research, there is evidence that explicit instruction that is focused on reading comprehension strategies can benefit

Reading Comprehension Intervention

students with autism. One of the strategies discussed was Direct Instruction (DI). DI programs are designed with specific instructional formats that introduce and teach academic skills. The research also discussed computer-assisted instruction (CAI) and its potential benefit for children. It is thought that CAI may assist in learning when accompanied by teacher-delivered instruction, thus encouraging students to be more engaged in their learning, in comparison to complete teacher-led instruction. CAI incorporates an engaging visual interface, to which children with autism may respond well (Whalen et al, 2010). There is limited research regarding the use of CAI for reading instruction with children with autism, which is why the researchers of this article wanted to explicitly research such. Through their research practices, it was found that the CAI program being specifically researched for this article, Headsprout Reading Comprehension, allowed children with autism to increase their scores from their baseline scores. It was indicated that using HRC with additional teaching strategies may offer an effective tool for teaching children with Autism

The final article that I used was titled, *Reading Comprehension Interventions for Students with Autism Spectrum Disorders: A Synthesis of Research*. The authors of this research, synthesized reading intervention studies that were conducted between 1980 and 2012 with students in grades K-12 that have been identified as having autism spectrum disorder. Findings from the studies that they researched indicated that modifying instruction and intervention associated with reading comprehension was seen to improve skills and the ability to maintain these skills. Researchers of this article state that recent reports indicate a significant increase in the number of students that have been identified as having autism spectrum disorder over the last 20 years (Fombonne 2005; Kogan et al., 2009). Their estimates suggest that roughly

Reading Comprehension Intervention

673,000 children ages 3-17 in the United States have been identified as having autism spectrum disorder with other reports stating that approximately 336,000 students with ASD are receiving services from public and private schools in the United States. (Center for Disease Control and Prevention 2009.) This article states that in the past, interventions provided for students with ASD have been more focused on removing and reducing challenging behaviors and improving communication skills rather than focusing on improving academic performance. But, due to the increasing number of children being diagnosed and identified as having ASD, it is becoming more apparent that there is a need to further investigate various ways to increase academic achievement in these students. A multi-step process was used by researchers to conduct a search for intervention studies regarding reading intervention for students with ASD. The researchers of this article were using various coding and criteria to organize the essential information that was found through the 12 studies that were selected for the synthesis. This synthesis provides guidance to educators about instructional strategies to improve reading comprehension based on current research. It also suggests that this type of research has not been explored adequately at that there is. High need for evidence and research-based knowledge to help with the enhancement of reading comprehension performance in students with ASD.

Method

My project is directly related to the intervention needs of a student whom I work closely with, specifically regarding her skills in reading comprehension. This student receives services

Reading Comprehension Intervention

directly related to her diagnosis of autism spectrum disorder, and she struggles significantly with her reading comprehension but, has every potential to improve upon these skills with the right interventions put in place. Through research, it is apparent of the need for some students with autism spectrum disorder, to receive explicit, individualized instruction and intervention in reading comprehension, due to their unique learning abilities.

Characteristics of the Student

The student receiving the individualized instruction and interventions in reading comprehension was a 10th-grade female student who has been identified as having a mild to moderate developmental disability and is on the Autism Spectrum. She also has been identified as having a speech and language disorder. This student also has a history of significant seizure activity that has caused trouble with her memory. Due to this, the student would need her lessons to follow a very strict routine, and she would also need things repeated from day to day, to ensure that she remembered, before working on the explicit comprehension components of the lesson. This student was receiving her individualized instruction while her peers were doing independent work during their reading class. The class consisted of 5 other students with similar disabilities, 1 teacher, and 1 paraeducator to support the class. The school in which this class is taught is in a suburban and urban mixed city and has students of multiple races and economic statuses that attend. The student receiving the individualized instruction comes from a family with a low-middle-income status, she is Caucasian and is the only child in the family who has a diagnosed disability. She has been identified and has been receiving special education services since she was 8 and in second grade and has been on an IEP since. To remain confidential, this student will be referenced as Jane as necessary.

Reading Comprehension Intervention

Individualized Instruction Procedures

During the time that Jane was receiving her individualized instruction from her teacher, she followed a similar routine each day to ensure that she was getting the most out of her time with the teacher and to help her be more independent in her work as she would often know what was next during the session and thus providing better outcomes. Jane's routine consisted of the following. First, she would come into class and grab out her language arts binder. In that binder, she had several worksheets that she could work on as her starter activities before the lesson started. These worksheets would have various short texts and comprehension questions to answer. About 5 minutes into the class period, Jane would put her binder aside and prepare for the lesson. The lesson would start by having Jane participate in a shared reading that we had continued from previous days, for instance, "Charlotte's Web." As we read, the student would answer multiple comprehension questions as well as probing questions to get her opinion on the situations, or how she would handle things differently than in the book. We would work together to figure out the main idea, problem, and solution. As well as figuring out who the main characters were and the setting. These things were discussed daily as we read because Jane struggles with her memory. When these facts were restated to her, she was able to maintain her ability to answer the comprehension questions. After reading a chapter or two, depending on the day, Jane would independently work on writing 3-5 sentences about what she read. During her independent work time, the teacher would work with other students on the independent work they had previously been doing, all related to the comprehension of the same story. Then as a group, the class would participate in a group activity. This would sometimes consist of a fun game with a beach ball, and various questions are written on it, that when caught, whatever your hand

Reading Comprehension Intervention

is on you must answer. There would also be interactive worksheets such as roll and writes, where students must roll a die, and whatever number they roll corresponds with a topic they must discuss with their neighboring peers. There were various activities that the group would participate in to really focus on the reading from the day and to encourage them to actively participate in their reading lessons to show them that reading is not always a boring thing. The class would end by having the students complete an exit ticket. The students receive a sticky note and must write one thing they liked best from the readings during the class period, and they stick it to the whiteboard before they leave. This routine was followed very closely most days and allowed for students to be more aware of what to expect and provided great outcomes in their comprehension.

Progress Monitoring

To monitor Jane's progress toward increasing her reading comprehension, the teacher who pulled her aside for individualized instruction would take data through a variety of methods. The main method would be through work samples. Jane completed various reading comprehension worksheets independently, that were collected. The teacher would also collect any group activities that were done, as well as the student's exit tickets, to ensure that they were understanding the content at hand. The other way that the teacher would monitor progress was through direct observation. The teacher worked individually with specific students to ensure quality understanding and success in reading comprehension. By doing so, the teacher was able to explicitly see what the student was struggling with, at the time they were struggling with it, thus allowing the teacher to not only take note for future lessons but to also assist the student in understanding and working through the struggle that they had. Having

Reading Comprehension Intervention

various forms of progress monitoring techniques allowed for more of a “whole-picture” type of data to provide during progress reports, grades, and parent meetings which allows for more information to be provided to those involved.

Results

This type of explicit instruction and routine started in the fall of 2021 and had continued, with limited variations, through the spring of 2022. In September of 2021, the focus student, Jane’s, IEP reading goal indicated her reading comprehension abilities. It stated, “Jane will increase her reading comprehension skills from a current level of 50% to a level of 80%. Given a reading passage with various comprehension questions, Jane will utilize the text to answer the questions with 70% accuracy. Given a reading passage, Jane will answer Wh questions (Who, What, When, Where, and Why) with 70% accuracy.” This IEP goal was written in April of 2021 and would be re-written in April 2022. The IEP goals and objectives were not only the baseline data for the start of our interventions but, they guided the intervention and the way it progressed. Throughout the year of intervention, there were 3 official progress reports done, with monthly informal progress noted in the students working file. By having progress monitored in this way, it made for clear reports for each trimester's progress report needing to be done. The 3 official IEP progress reports were as followed.

December 2021: Jane has increased her reading comprehension skills from a level of 50% to a current level of 60%. Given a reading passage with various comprehension questions, Jane will utilize the text to answer the questions with 40% accuracy. Given a reading passage, Jane will answer Wh questions (Who, What, When, Where, and Why) with 50% accuracy.

Reading Comprehension Intervention

February 2022: Jane has increased her reading comprehension skills from a level of 60% to a current level of 65%. Given a reading passage with various comprehension questions, Jane will utilize the text to answer the questions with 65% accuracy. Given a reading passage, Jane will answer Wh questions (Who, What, When, Where, and Why) with 60% accuracy.

April 2022: Jane has increased her reading comprehension skills from a level of 60% to a current level of 75%. Given a reading passage with various comprehension questions, Jane will utilize the text to answer the questions with 75% accuracy. Given a reading passage, Jane will answer Wh questions (Who, What, When, Where, and Why) with 70% accuracy.

These progress reports are taken at the time of trimester change, at the end of summer programming, and/or right before the annual IEP meeting. The December 2021 progress report was showing any progress on the goal, from May 2021 through December 2021, including summer programming and 3 months of the intervention mentioned above. One thing that was different was that prior to the fall of 2021, the intervention from this project was not implemented, as Jane was participating in different programming, but her programming followed similar routines as the intervention from the project. That is why the IEP goal was used as the baseline, as it provided us with a more concrete understanding of the most recent spot Jane was at, regardless of the intervention being provided. Despite the lack of consistent programming during this time, the team did see the highest increase in progress during this time, but there was a long period to improve upon this skill. The skill we saw the most increase in was Jane's ability to re-read her text to answer comprehension questions. Initially, prior to the IEP goal being written, Jane could answer comprehension questions with 40-50% accuracy on average. She would often get about 4-5 questions out of 10, correct. For the December 2021

Reading Comprehension Intervention

progress report, it was noted that Jane was getting an average of a 60% accuracy on her reading comprehension skills. Most of the reading comprehension tasks consisted of 10 questions, and on average at the time of the December 2021 progress note, Jane answered about 6 questions correctly out of 10. This was a 10% increase in her accuracy, in comparison to the spring of 2021 when the goal was written. The team could assume that at this time, Jane should meet her annual IEP goal in reading comprehension. One thing that was different was that prior to the fall of 2021, the intervention from this project was not implemented, as Jane was participating in different programming, but her programming followed similar routines as the intervention from the project. That is why the IEP goal was used as the baseline, as it provided us with a more concrete understanding of the most recent spot Jane was at, regardless of the intervention being provided.

The February 2022 progress report was taken at the end of the month and the end of trimester 2, where the student had continued to receive the interventions since September of 2021. The progress seen between the December 2021 progress report and the February 2022 progress note was a smaller increase but shows evidence that the continued explicit instruction in this area was benefiting Jane and her ability to increase her reading comprehension skills. At the time of this progress report, Jane was still averaging 6-7 questions correct out of 10. The team did notice that her accuracy levels decreased if she had had any recent seizure activity, due to a lapse in memory and her short-term memory being stunted. Therefore, the team wanted to focus on Jane using other strategies to increase her comprehension, aside from just memorization as that is not always reliable for her. Jane and her teacher worked hard on remembering to look back at her text, and underline or highlight important parts. At this time,

Reading Comprehension Intervention

Jane was still on track to meet her goal at the time of her annual IEP, and it was hopeful that by honing in on using other strategies to increase reading comprehension, she would be able to push through this goal in no time.

The April 2022 progress report was taken during the middle of trimester 3, at the beginning of April, so there was not as long of a period to improve in comparison to the results of the February progress report but, nevertheless, Jane continued to make progress towards her IEP goals and objectives. Jane was showing an average of 7-8 correct answers out of 10. There were even some days that Jane got 10/10 right! Jane was focusing on the reading strategies that could help her during times when her memory was not the greatest, or if she was not understanding the content due to her cognitive disability. Through this intervention and the explicit teaching routine being followed, Jane was able to meet her annual IEP goal and objectives.

Discussion

The IEP team was elated to see that Jane had made such significant progress towards this goal and its objectives because Jane had been working hard on these skills for quite some time. The team discussed how this intervention had worked so greatly for Jane but, that it is quite possible that she will never get to 100% accuracy in this content area, due to Jane's memory deficits and cognitive delay. The team decided that we would no longer explicitly work towards increasing her IEP goal and objectives in this area but continue to receive this type of instruction and more specifically maintain the skills. The team is keeping this goal and objective but changing the verbiage to "maintain" vs. "increase."

Reading Comprehension Intervention

Although few, there has been explicit research done regarding intervention strategies for students with autism spectrum disorders. The research indicates that students with ASD do need explicit instruction in the area of reading comprehension due to their unique learning styles and abilities. By having explicit instruction, students with ASD are better capable of creating positive learning habits, gaining skills, and learning how to maintain those skills. One thing that I have yet to notice within the research articles that I had read were interventions or strategies for ways to help students maintain the skills. The interventions were able to help the students gain and show positive growth in their testing but, it does not often go into detail about the effect, and if the interventions that were implemented were able to be maintained after the intervention had ceased. This is something that would be beneficial to see in research as it would help show the long-term effects of the interventions being put into place, and not only how to teach and implement the interventions but how to ensure that the instructional strategy being used, is something that the students will learn from and continue to use in their lives, not just for one test.

Overall, the research indicated in the literature review as well as the results concluded from the explicit intervention provided in my classroom, it shows that many students with ASD do require direct reading comprehension instruction. Through the research that I had done, along with the extensive research done by others, my ability to provide reading instruction to my students with unique needs, has increased. I am confident that by following through with research and evidence-based instructional practices, other teachers who have similar challenges and students with similar needs, can also provide quality instruction to their

Reading Comprehension Intervention

students and leave them with not only academic achievement but the skill to benefit them for years to come.

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Reading Comprehension Intervention

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