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HOW READ ALOUDS CAN PROMOTE HIGHER-LEVEL THINKING SKILLS IN
STUDENTS WITH DEVELOPMENTAL DISABILITIES

A MASTER'S THESIS
SUBMITTED TO THE FACULTY
OF BETHEL UNIVERSITY

BY
JENNIFER M. BAKKEN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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HOW READ ALOUDS CAN PROMOTE HIGHER-LEVEL THINKING SKILLS IN
STUDENTS WITH DEVELOPMENTAL DISABILITIES

Jennifer M. Bakken

December 2022

APPROVED

Thesis Advisor: Lisa M. Silmsler, Ed. D.

Program Director: Katie Bonawitz, Ed. D.

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Abstract

This thesis consists of a literature review of research in the area of read alouds and how they can promote higher-thinking skills in students with developmental disabilities. Historically, read alouds have been used in early elementary schooling to expose children to their earliest reading experiences with an adult reading simple picture book stories. Recent research in read alouds has revealed strategies that educators can use to encourage the development of higher-thinking skills through ‘deeper’ comprehension of text. These techniques involve adapting both text material and literacy enhancements to text. Educators can improve outcomes through the use of prompting and time delay, modeling and scaffolding, and creating questions that require students to go beyond literal and basic recall. This moves their understanding, through analysis, prediction, and summation of text material, to a higher-level understanding of a text that prepares students to use those advanced thinking skills in making decisions that impact their future.

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CHAPTER I: INTRODUCTION

Rationale

Teaching students with developmental disabilities, aged 11 to 14 years old, in a middle school Level III program, brings many joys and quite a few heartaches; realizing most level III students enter middle school at an early emergent reading level is saddening. The years of reading instruction in elementary school, learning letter identification, letter-sound correlation, decoding of words, and support with reading comprehension have done little to improve their ability to read above a preschool to early kindergarten level. At this age, it is preeminent to start developing higher-level thinking skills through reading comprehension. Browder et al. (2009) recommended that as students age, the focus should start moving away from teaching students to read and should concentrate on exposing students to literature. As students prepare to move into upper secondary schooling, the focus should be on preparing them to become more independent by using their reading skills for life activities. The decision to implement read alouds into the reading curriculum helps students work on developing higher-level skills that were not being addressed through the use of simple narrative stories that held two to three words on a page that the student could barely decode. However, many of the students, when listening to a book read aloud, were able to answer inferential comprehension questions in texts that were beyond their independent reading level.

Historical Context

Traditionally, read alouds have been the bread and butter of reading instruction in elementary schools for decades. Daily read alouds in kindergarten classrooms across the country grant teachers numerous opportunities to introduce print concepts such as books having front and back covers, letters making words, words in a story are written by an author, pictures helping tell

a story, and words are read from left to right on a page. Read alouds also set the stage to introduce important concepts of letter and sound identification, decoding words, and simple retelling of texts to show comprehension that benefit children's commencement into formal reading instruction. Research has supported the use of read alouds in elementary classrooms and the multitude of benefits they provide to young children and early reading skills (Baker et al., 2020).

Research is scarce when examining how read alouds can be used to improve important academic skills in older students in secondary classrooms. Santoro et al. (2016) recommended using informational texts as read alouds with students who have reading difficulty or learning disabilities. Once students enter second grade, informational texts are used because they are more complex and introduce higher level academic vocabulary to students. Educators can build on comprehension strategies with informational texts to help students understand the material more deeply. When using challenging texts with readers who are at an emergent reading level, read alouds can expose students to texts they would not be able to decode on their own. Browder et al. (2009) investigation determined teachers' use of read alouds should change as the students age. When using read alouds in the upper grades, the focus should be on expository and narrative texts and asking probing questions to help develop listening skills, identifying key phrases in text, and using pictures to help interact with the text. All of these skills will aid students with severe developmental disabilities to incorporate literature throughout their life.

Definition of Terms

Critical Thinking (also known as Metacognition)

Organizing knowledge through the skills of inference, deduction, interpretation, and evaluation. These two terms are interchangeable with higher-level thinking (Magno, 2010).

Developmental Disabilities

This is the umbrella term for many disabilities that comprise cognitive and/or physical impairments. The most common disabilities under the label include autism spectrum disorder, intellectual disabilities, Down Syndrome, and Cerebral Palsy. Reviewed studies' cited work will include specific disabilities. Developmental disabilities will be used in this thesis to refer to all common disabilities listed under the above definition (May Institute, 2019).

Early Emergent

This term is used to represent what children know about reading and writing before they learn to read and write. The concepts of understanding how oral language works, creating background knowledge based on their experiences, and that print has meaning and is expressed through the spoken word (Ghoting & Martin-Diaz, 2006).

Emergent Readers

Emergent Readers are students who are emerging in their comprehension of the concepts of print, phonological awareness, alphabet knowledge, and who cannot read independently or may read some words but are dependent on continued support to make meaning from print. It is largely attributable to prior reading knowledge and opportunity; for this reason, many students with severe disabilities are still emerging readers due to limited learning opportunities (Erickson et al., 2010).

Extensive Support Needs

These needs are for students with a severe intellectual disability and can be related to other disabilities classified under developmental disability. Many communicate via gestures, vocalizations, facial expressions, and body language mannerisms to communicate their needs to adult staff supporting them in the classroom (Quick et al., 2022).

Higher-Level Thinking

Thought processes that go beyond basic observation of facts and memorization. One needs to take information, analyze, manipulate, and process it to solve problems or raise new questions. The student uses the learned information to apply it to new situations or to aid in generating new ideas (The Center for Literacy and Learning, 2021).

Research Questions

The guiding question for this literature review is how can teachers use read alouds to increase higher-level thinking skills in students with developmental disabilities? The research found a gap in the literature where read alouds could go beyond the elementary classroom of students listening to a story as part of ‘storytime’ with no goal other than entertaining and exposing students to storybooks. Shurr and Taber-Doughty (2012) stated students with intellectual disabilities should be exposed to more age-appropriate texts, using visual supports and discussion; this could be possible. Many students with developmental disabilities are unable to read on their own. Can higher level thinking skills be furthered through listening to books instead of reading books? What strategies need to be used by teachers to foster these skills? Allor et al. (2009) felt that teachers needed training and support to make all reading activities as meaningful as possible to enhance a relevant connection to students with intellectual disabilities. Cox-Magno et al. (2018) found using a scaffolded instructional approach helped students to cognitively build knowledge through questioning techniques that lay the groundwork for students' comprehension of the entire text. Dougherty Stahl (2012) suggested allowing teachers opportunities to model think aloud techniques during shared reading offer possibilities for deeper critical thinking and comprehension of the text.

CHAPTER II: LITERATURE REVIEW

Literature Search Procedures

The research literature for this thesis was located through searches of Sage, Educational Resources Information Center (ERIC), Academic Search Premier, EBSCO MegaFile, JSTOR, Google Scholar, ResearchGate, American Psychological Association (APA PsycNet), Semantic Scholar, and Tandfonline (Taylor & Francis Online) and was conducted for publications from 2000-2022. Most of the reviewed empirical studies used in this study were from peer-reviewed journals that focused on the literacy areas of read alouds and students with types of developmental disabilities. Journal articles that were not peer-reviewed were used to give background on guiding questions and the definition of terms. The key word “read aloud” will be taken as synonymous with other key words “shared reading,” “shared book reading,” “interactive shared reading,” and “dialogic reading.” The words “read aloud” will be used throughout this study. Other published research in the field was also found by using articles found in the reference list. The structure of this chapter is to review the literature on read alouds in five sections in this order: Adapted Text for Read Alouds; Adapted Enhancements for Read Alouds; Prompting and Time Delay During Read Alouds; Scaffolding and Modeling, and Creating Questions to Promote Higher-Level Thinking.

Adapted Text for Read Alouds

Students with and without disabilities are primarily exposed to narrative picture book texts in their early elementary years. These texts are meant to introduce children to print concepts such as authors, letters and words that have meaning, and a text is read from left to right. Once students enter second grade, informational texts are used because they are more complex and introduce higher-level academic vocabulary to students (Santoro et al., 2016). However,

historically, students with severe developmental disabilities are not exposed to texts beyond simple picture narrative texts. Elleman and Oslund (2019) uncovered how imperative vocabulary, background knowledge, and inference-making all are when deriving meaning from written and oral language. Most U.S. states have adopted Common Core standards in English Language Arts to reflect the need for informational text to be focused on at all grade levels as students age. This ‘grade level’ text is to assist educators in providing ample material for students when learning inferencing skills. The authors gave recommendations on how crucial it is for educators to focus instruction on developing inferencing skills to foster deeper comprehension using ‘grade level’ text through shared story reading activities with students with developmental disabilities (Elleman & Oslund, 2019).

Browder et al. (2009) found that throughout all educational schooling, exposing students with severe developmental disabilities to all forms of literature is a priority. The use of read alouds is paramount in achieving this exposure. Teachers should adapt texts, which is text that is modified from its original print arrangement, to make them accessible to students. Browder et al. recommended teachers’ use of read alouds should change as students age. When using read alouds in the upper grades, the focus should be on expository and narrative texts and asking probing questions to help develop listening skills, identifying key phrases in text, and using pictures to help interact with the text (Browder et al., 2009).

Researchers have found it helpful to allow students to read grade level text through adapted texts. Roberts et al. (2019) examined the impact of a multi-component intervention on students’ literal and inferential comprehension of adapted grade level science texts. The researchers modified each adapted text to the student’s reading or Lexile level, to secondary science standards, and each student’s interest. Three students with moderate intellectual disabilities who needed extensive support to aid them when acquiring academic skills were

selected for this study. During the baseline data collection, the students participated in shared reading with the adapted text without literacy enhancements. Students read aloud, and after reading, were asked 10 comprehension questions that included literal and inferential questions from the text. The intervention phase added literacy enhancements that accompanied the reading methods before, during, and after each text section was read. Some of the enhancements included introducing new vocabulary words, 'stop' sign pictographs added at places in the text signaling reader to 'think' about what they just read, completing a simple graphic organizer during reading, and summarizing the main idea after the text was read. Intervention fidelity was 100% for the interventions due to a detailed task analysis for each intervention. The first student, Destiny, had a mean score of 38% for independent correct answers after six sessions for her baseline. After the intervention, her mean score increased to 83%. The second student, Matt, had a mean score of 44% for baseline after the intervention increased to 83% during the intervention. The third student, Sarah, had a baseline mean of 28% and during the intervention a mean of 87%. A significant finding from Roberts et al. (2019) was the percentage correct after the intervention for the open-ended questions given to the students. Initial baseline data for the open-ended questions correctly answered respectively for each student was 9%, 5%, and 0%, and after the intervention, their percentage correct jumped to 83%, 46%, and 95%. Three weeks after the intervention, researchers returned to the classroom to see if the students could maintain their comprehension of the material. All three students had scores higher than their baseline mean scores on their literal and open-ended questions; two scored 100% and one scored 80%. This study's findings reinforce previous studies that students with intellectual disabilities can improve their critical thinking skills in inferential text with support from a multi-component reading intervention (Roberts et al., 2019).

A common denominator throughout past and present studies on reading instruction for students with significant cognitive disabilities have found that many are still at an emergent reading level in the secondary grade levels cannot read demanding texts. Roberts et al. (2013) documented that of the 19 studies that were reviewed for their article, only one focused on comprehension and the rest on vocabulary-sight word instruction. These findings ask the question of why students with moderate to severe cognitive disabilities at an emergent reading level are not being exposed to more reading strategy components. Could it be that educators are not exploring basic reading skill strategies because students are out of their elementary years, and the intent is more on functional vocabulary? Yet, the findings proved that secondary students are not taught basic reading skills using evidence-based instructional practices. The authors argued that adolescents should have opportunities to learn fundamental reading skills along with the prospect of captivating these emergent readers with read alouds of adapted text that will expose them to consequential literacy activities.

Ruppar et al. (2017) explored the outcome of shared reading intervention in a general education ninth-grade English Literature Arts class with a 16-year-old student who received services from special education under Other Health Impairment and Speech/Language impairment. The study sought to examine the effectiveness and to gain direction on how shared reading interventions could be absorbed into general education high school inclusive classroom routines. The materials used for the intervention were an adapted version of *The Odyssey*, which was being studied by the ELA class as part of their curriculum. The ELA teacher reviewed the adapted version to ensure it adhered to themes and key elements the class would highlight in their study of the book. A task analysis was designed to focus on engagement, vocabulary, and comprehension of the adapted material. During the baseline data gathering, the interventionist went through the task analysis steps and delivered cues without the controlled prompt. The

student's correct and incorrect responses were recorded. Once the intervention began, each session introduced the steps for engagement, vocabulary, and comprehension separately. Additional steps were only added after the student had answered three or four questions correctly. Eventually, the student was asked all 12 steps and was delivered a cue, waited for the designated time delay, then if there was no response, gave a controlled prompt, which was considered an incorrect response. As the intervention went on, there were many times when the student had to be redirected because the class was working on other activities that may have been distracting to the student. The interventionists were able to adapt to the class's rhythm to try to reduce distractions with the student. This study illustrated how a read aloud using adapted text exposes grade level age-appropriate text to students with significant cognitive disabilities. Although there were no comprehension gains, the student was able to follow along with her peers with an adapted version of *The Odyssey*, a confusing book for grade level ninth-graders to understand and may have explained the student's slow progress in comprehension. The student had repeated interactions with content that had audio, and video activities that were prepared for the entire class, as well as multiple intercommunication opportunities with her classmates in an inclusive high school classroom environment. This study strengthened preliminary evidence that a student with severe multiple disabilities can have improved literacy interactions with grade level text and with their grade level peers.

Adapted Enhancements for Read Alouds

Adapted enhancements are visual supports, three-dimensional objects, or simplified text that can be added to text for use during read alouds to increase comprehension and engagement. Students with developmental disabilities can struggle with text engagement, which can impact their interest level and comprehension during read alouds. Mucchetti (2013) examined the effect adapted enhancements had on comprehension and engagement in students with autism who were

minimally verbal. The intervention involved four students, ages six to eight, who had a diagnosis of autism, used less than 20 communicative words independently, and had an I.Q. score below 55. Baseline data was collected using three books at the appropriate elementary level for the students with no adapted objects added. Comprehension questions were given, and students were able to answer using a response board with pictures and text on it. Baseline data averaged correct answers between 1.2-2 out of 6 questions. Adapted objects that included picture symbols that would highlight crucial story elements were added to the books for the intervention. After adaptations were made to books, students' correct answers increased to 4.2-4.8 out of 6 questions. Activity engagement was obtained through momentary time sampling, that was measured in one-minute intervals throughout the activity. Engagement of the student at the one-minute interval mark had the student looking at the teacher or materials, physically interacting with instructional materials, such as turning a page, or answering questions by gesturing or using verbal communication. Student engagement increased from 41%-52% during the baseline to 87%-100% during the intervention. The results from this study supported that adapted shared readings significantly improve comprehension and engagement for students with significant developmental disabilities. Student engagement historically correlates with student achievement and this study provided more evidence of that causal relationship (Mucchetti, 2013).

Roberts et al. (2019) also used adapted enhancements for their study of three students with moderate to severe developmental disabilities. The intervention phase added in enhancements that included introducing new vocabulary words, 'stop' sign pictographs added in places in the text signaling the reader to 'think' about what they just read, completing a simple graphic organizer during the reading, and summarizing the main idea after the text was read. Students were asked 10 comprehension questions that included literal and inferential questions about the text after the shared reading literacy enhancements were added in the intervention

phase. All three students significantly improved their comprehension of both literal and inferential questions.

Kim et al. (2018) and Shurr and Taber-Doughty (2012) used similar adapted enhancements of ‘stop’ sign pictographs added in places in the text signaling the reader to ‘think’ about what they just read, allowing the researcher an opportunity to ask probing questions to help activate student’s background knowledge to aid in text comprehension. Both studies demonstrated improvements in comprehension using grade level text, visual supports, simple graphic organizers, and dialogue with questioning strategies with students with autism spectrum disorder (ASD) and moderate intellectual disabilities.

Browder et al. (2009) supported using raised text and pictures for students with visual impairments to help when following along with the text during a read aloud. These enhancements are ways Browder et al. (2009) suggested as adaptations that provide opportunities for students with severe developmental disabilities to interact with literature. Baker et al. (2020), Browder et al. (2009), Cox-Magno et al. (2018), Roberts et al. (2019), and Whalon (2018) all found that doing before, during, and after literacy tasks such as reviewing vocabulary terms, making predictions, using text summaries, graphic organizers such as Know, Want to know, and Learned (KWL) charts, along with visual supports and cues with adult scaffolding and modeling provide compelling evidence that adapted literacy enhancements in read alouds support improved comprehension at the text level during read alouds for students with significant developmental disabilities.

Allor et al. (2009) examined if students with intellectual disabilities could make progress in early reading skills using explicit strategies in their study. They found students who are not able to read can still work on these skills through read alouds. The researchers taught

comprehension strategies for identifying story vocabulary, sequencing, and a simple graphic organizer supported the students' comprehension of the text. This study demonstrated that students with intellectual disabilities could learn basic reading skills simultaneously when explicitly taught with multiple multi-sensory strategies. The students were followed for three years as part of the study, and by the end had basic levels of comprehension. One of the key factors stated by the authors in this study was that teachers need to be skilled at teaching reading to this population and the need for support and resources are necessary to implement a reading program using these techniques (Allor et al., 2009).

Prompting and Time Delay During Read Alouds

When examining studies that promoted comprehension at the text level for students with ASD ranging from ages 7 to 17, Whalon (2018) found that using least to most prompting and time delay were important evidence-based practices that can be used when teaching students comprehension skills.

Mims et al. (2012) examined the impact of using a system of least intrusive prompts during a read aloud with four middle school aged students with moderate to severe developmental disabilities. One of the three students was able to communicate with simple words and phrases and was able to read some sight words; however, the other three students communicated via pictures and symbols. One student had no word decoding skills. Adapted biographical texts were used that had been modified by the researchers with key vocabulary matched with picture symbols summarizing the text. Eleven comprehension questions combining 'wh' (questions beginning with who, what, where, why, when) and sequence questions were inserted into the text and read during the read aloud. Students were given four response options that had a picture symbol matched to each word for each question. During baseline data

collection, the researcher used the adapted text in a read aloud session and students were given a four-second time delay after they were asked a question. A correct or incorrect answer was documented but no praise or prompts were given to the student during baseline. The intervention phase added direct instruction and least intrusive prompting telling the student the rule on how to answer the 'wh' question and then rereading the text. Each comprehension question and response option was read to the student with a four-second time delay for their response. If an incorrect response or no answer was given, the researcher intervened with increasingly intrusive prompts that increased to a third prompt, where the correct answer was given along with positive verbal praise restating the answer to the student. A visual graphic organizer was used to assist the students in answering the sequence questions. Intrusive prompts were used for each incorrect answer as the response options were brought down from four to two choice options. Students were asked to place their answers in each box showing 'first, next, last.' Each time a student had an incorrect answer, the choice option was reduced until the correct answer was given along with verbal praise from the researcher. Results for the intervention had three of the four students exhibiting a steady increase in correct unprompted responses. The student with no word decoding skills had slower progress on correct unprompted responses but was able to give responses once the intervention began, improving from baseline where no response was given to questions. This study provided compelling evidence that students with significant developmental disabilities can gain comprehension skills using least to most intrusive prompting during read alouds.

Towson et al. (2020) found that adding a time delay along with a prompting system in the dialogic style where the interaction is more conversational during an interactive read aloud with forty-two students with a primary eligibility of significant developmental delay had significant growth on the targeted vocabulary words during intervention compared to baseline data

collection. No preliteracy skills were explicitly taught during the intervention other than extended opportunities with storybooks through prompts and questioning techniques. Towson et al.'s research showed that students with disabilities need explicit instruction and increased intervention time to see gains in targeted literacy skills. This study added to the research base that prompting and pause time can positively impact students with significant disabilities in vocabulary gains and promote a higher level of understanding, which can translate to increased comprehension skills (Towson et al., 2020).

Roberts et al. (2013), Roberts et al. (2019), and Ruppert et al. (2017) used a system of prompts and time delays in their studies examining literacy comprehension with students with moderate to severe developmental disabilities. Prompts and time delays have been found to increase the probability that a student will elicit a correct response and reduce the likelihood of errors being made. When learning new tasks, this 'instructs' the student how to perform the skill, so they do not become frustrated and hinder the valuable instructional time with the student.

Roberts et al. (2013) found that when teaching literacy, the most prevalent practices were the use of time-delay procedures in their literature review of 19 studies that focused on teaching literacy to adolescents with moderate to severe cognitive disabilities. Roberts et al. (2019) found three weeks after their intervention of using a system of least to most prompts for questions that were not answered or incorrect by students and a five-second time delay with verbal and gesture cues, that students were able to maintain their comprehension of the material. All three students had scores higher than their initial baseline data (Roberts et al., 2019).

Ruppert et al. (2017) also used prompting and time-delay procedures to explore the outcome of a shared reading intervention in a general education ninth-grade English Literature Arts class with a 16-year-old female student who qualified under other health impairment disability. The student was able to communicate with signs and gestures and was at an emergent

reading level where she could identify single-syllable words after repeated episodes. During intervention time, researchers provided the student with a controlled prompt when there was no response or an incorrect answer to instruct the student on the correct response. The results for the intervention in vocabulary, engagement, and comprehension showed a slow trend of correct responses. However, there was a fair amount of variability that occurred, so the trends proved slow during the 28 total sessions. The researchers felt that some of the slow trends were due to the student needing repeated exposure to the cue and numerous teaching lessons integrating the controlling prompt. The student had repeated interactions with content that had audio and video activities that were prepared for the entire class. Her intercommunication with her classmates in the high school environment benefited her peers and the student. This study added more research data to support shared reading using embedded instruction and time delay in a high school ELA classroom involving students with moderate to severe disabilities (Ruppar et al., 2017).

Scaffolding and Modeling During Read Alouds

Dougherty Stahl (2012) provided how shared reading can provide multi-leveled literacy experiences to students in all grade levels. Shared reading in the intermediate grades can offer more challenging texts to students who have difficulty decoding and comprehending the text when reading on their own. This allows teachers opportunities to model think aloud techniques and instructional possibilities for deeper critical thinking and comprehension of the text.

When examining studies that promoted comprehension at the text level for students with ASD, Whalon (2018) found adult scaffolding using think aloud modeling during read alouds were evidence-based strategies that have been successful with students with ASD when acquiring comprehension skills. Students with ASD struggle with understanding social interactions in narrative stories. The need for the teacher to interpret and ‘model’ character

interactions and motivations is vital to aid in comprehension due to higher-order language processing deficits that impact many students with ASD.

Strachan (2015) detailed Vygotsky's sociocultural theory of where children learn best in a social environment guided by adults through social interactions. The adults use scaffolding, or guided support, to aid children through learning. This support can help children develop higher-order cognitive thinking using direct instruction, where adults ask questions throughout the instructional process. Strachan stated that interactive read alouds are a social interaction that can be used to help children make connections between a book and their own world, and as these connections are made, new knowledge is gained and embedded. The study showed statistically significant gains that give evidence that children can be exposed to other types of texts during interactive read alouds that could potentially increase their cognitive skills with questioning and scaffolding techniques (Strachan, 2015).

Erickson's (2017) study provided a plan for how interprofessional collaboration of members of an education team of students with severe disabilities can work together to strengthen their students' educational outcomes in their study. The author found success with developing emergent literacy skills through read alouds with students with severe disabilities through dialogic reading, a type of structured shared reading strategy that uses adult scaffolding and cues to increase and develop student understanding of text. The adult used evaluative and expanding verbal interactions during the read aloud to elevate students' understanding of the text.

Zucker et al. (2013) found in their study that the type of interaction between teacher and students, called extratextual talk, was shown to have a positive link for improving thinking skills in children when the extratextual talk involved asking pointed inferential questions of students

throughout shared readings. The higher caliber of shared read alouds where students were asked to draw inferences from the session revealed that these skills were necessary for long-term language and literacy development. The study revealed that teacher's extratextual talk was focused on literal topics 57% of the time, and talk focused on inferential topics 32% of the time. When inferential extratextual talk is used, it encourages higher level language from students (Zucker et al., 2013).

Barnes et al. (2017) examined read alouds using fifty-two Head Start teachers and two hundred forty-two students who were the control group and two hundred forty-seven students whose standardized scores for initial language ability were low and were the intervention group. The results of this study did not show a causal relationship between vocabulary acquisition and extratextual talk during shared reading. However, teachers that had high levels of comments while doing read alouds with the students from both groups had higher end-of-year vocabulary improvements. When researchers ran hypothesis models based on the data, they found that students' initial vocabulary abilities adulterated the relationship between the teacher's comment methods and end-of-year vocabulary scores. This causal relationship was a key finding confirming how comments from the teacher could influence vocabulary growth and improved background knowledge. There is ample evidence proving that comments can help set the building blocks for conceptual knowledge, vocabulary acquisition, and background knowledge in students (Barnes et al., 2017).

Williamson et al. (2015) designed a multiple baseline study to determine if, after an intervention package of teacher scaffolding and modeling and using a character event map, comprehension could be increased in three high school students with high-functioning autism. All three students were not able to decode text beyond a sixth-grade level, and their respective comprehension levels were at a sixth, fifth, and third-grade level. Two students had listening

comprehension levels equivalent to an upper middle school level and one at a third-grade level. The book that was used for baseline and intervention was the *Hunger Games*. It is at a sixth-grade instructional reading level. Only one student was at that level, while the other two students had listening comprehension skills higher than their decoding skills level. The book was read aloud using an unabridged audio CD as the students followed along with a text copy. During baseline data collection, students were asked to summarize the chapter they had just listened to by answering a few questions from the teacher. One question asked what they learned from the chapter, and a follow-up question asked students to elaborate on their answers. If incorrect answers were given, they were given correct information from the teacher. After the discussion and probing questions, ten comprehension questions were asked of the students. These questions were designed to recall explicitly stated information and knowledge that had to be inferred from the chapter. At the start of the baseline data gathering, all three students' correct scores were at 60%, 58%, and 35%. The intervention phase included teacher scaffolding while creating a character event map, modeling of how to 'think aloud' when filling out the map, and a review of literary terms in previous and upcoming chapters. The students also worked on prediction skills of upcoming events in the next chapter based on previous chapter events. The intervention phase and three-week maintenance check results showed significant increases from each student's baseline data to average correct answers of 97%, 95%, and 79% (Williamson et al., 2015).

Quick et al. (2022) examined special education teachers' extratextual utterances during small group read alouds with their students with extensive support needs (ESN). This study involved forty-five students with an age range from 6 to 21 years that needed extensive, individualized instruction and who were unable to read with comprehension above a second-grade level. The study found that 51.7% of extratextual utterances were generally focused on classroom management through redirection of students with behavior issues, positive

reinforcement of student behavior, and comments by staff irrelevant to the book. The reduced time spent on read aloud sessions due to behavior management reveals how students with ESN have limited literacy opportunities compared to their non-disabled counterparts and how imperative it is for teachers to elevate the quality of extratextual comments during read alouds due to students diminished learning opportunities (Quick et al., 2022).

Creating Questions to Promote Higher-Level Thinking

Socrates used questioning as an instructional tool in the fourth century. Asking questions that challenged assumptions at that time, he exposed contradictions and brought new knowledge and wisdom that is relied on today in the 21st century (Corley & Rauscher, 2013). In their article, Corley and Rauscher emphasized that teachers need to start asking students questions that guide them on a path of understanding the layers below the obvious correct answers. One way to find the layers below the surface is to integrate the student's background knowledge into the lesson to help further comprehension of the text. Asking higher-order questions that require a student to make predictions about the text, make comparisons to other texts that have been previously read, and draw logical conclusions from a text that are not explicitly stated are ways to dig below the surface. In Corley and Rauscher's (2013) article, they found that, on average, only 20% of teachers present questions to students that go beyond requiring answers of simple recall. This deficit shows that teachers need to start motivating their students with higher-order questions that engage and hone critical thinking skills. The authors found a positive correlation between teacher use of higher-level questions throughout instruction and the resultant student improvement in content recall and students' usage of applying critical thinking skills (Corley & Rauscher, 2013).

Nappi (2017) stated using the metacognition skill of 'probing students to examine their thought process' can be accomplished through higher-order questioning and modeling to help promote students' critical thinking. Other strategies Nappi (2017) recommended for fostering

critical thinking in students are: utilizing higher-order questions that require students to make predictions, using text as evidence when expressing their thoughts, linking a student's previous background information to the text, and making comparisons to new information with the use of scaffolding (Nappi, 2017).

Adam's (2015) article described how Bloom's taxonomy set the stage when he identified cognitive learning levels when processing different information types. Adam (2015) detailed specific skills such as simple recall of information and stating facts or sequences of events that are discrete and available in the text as examples of when lower cognitive processing is used. The goal for students should be to use higher-level skills, such as making predictions and summarizing information using one's own words, resulting in a more profound comprehension of the text. These concepts can be used as educators create learning objectives for students. When asking students to process information, these guidelines can be called upon to support the learning environment by requiring learners to use higher-order skills to bring further awareness when absorbing information (Adams, 2015).

Another study focused on questioning strategies and their impact on developing critical thinking skills is from (Walsh & Hodge, 2018). Their study reviewed 20 shared book reading (SBR) interventions that examined different questioning strategies used during the interventions. The authors found most of the intervention's focus was on vocabulary and language development with little to no effort on developing critical thinking skills that require higher cognitive tasks during read alouds or shared book reading. The research did support that using higher-order questions that help students analyze, evaluate, and make predictions about a narrative or story they had read together in a shared book reading increases critical thinking skills. Predicting questions are often associated with higher-order thinking skills as they ask the

reader or listener to make predictions about a story before they read it. They are asked to predict what the story is about based on their background knowledge by using the name of the book or pictures on the front cover of the book. The researchers found that starting with lower cognitive demand questions and moving to higher-level cognitive demand questions can increase engagement. Still, it depends on a teacher's objective for the student's outcome from the shared book reading (SBR). Many factors influence a teacher's choice of questioning strategy, including the student's age, skill level, engagement with the book, and resultant learning outcome desired from the shared reading. These factors were critical when tailoring questions for students and were among the most important findings in their research studies (Walsh & Hodge, 2018).

Quick et al.'s (2022) investigation showed that when teaching students with extensive support needs (ESN), the reduced time spent on read aloud sessions due to behavior management and questions that did not try to assimilate material revealed how students with ESN have limited literacy opportunities compared to their non-disabled counterparts. Over half of the questions asked during read aloud sessions were not related to expanding on student's understanding of the text due to teachers not asking questions that encouraged higher text comprehension. When tailoring questions to promote higher-level thinking, Quick et al. (2022) found how critical it is that teachers construct types of questions that go beyond literal and activate student's background knowledge and own experiences into the text to promote deeper comprehension.

One study that sought to find the best way to introduce critical thinking skills through questioning was Murphy et al.'s (2014) study. This study examined critical thinking skills and how parents and educational staff can introduce those to children. The study analyzed how questions can be formed, beginning with literal and progressing to inferential. Questions that are inferential are not apparent in the text or content and answers to those types of questions necessitate the individual to provide inferencing, analysis, hypothesizing, and reasoning. These

types of questions provide opportunities to increase children's experience and knowledge in their language and critical thinking skills. Murphy et al. also found that the 'power of talk' can be a powerful way to promote both critical and analytic thinking in individuals, especially when combined with scaffolding by a teacher. This concept dates to Socrates, and the role 'talk' took place in learning through specific questions that focused not on the correct answers but on seeking out the individual's understanding of the content (Murphy et al., 2014).

Williamson et al. (2015) worked on prediction and summarizing skills through questioning. Their intervention involved three teenage males with high-functioning autism with listening and reading comprehension levels ranging from a third to a sixth-grade level. During baseline data collection, students were asked to summarize the chapter they had just listened to by answering a few questions from the teacher. One question asked was 'what they learned from the chapter' and a follow-up question asked students to 'elaborate on their answer.' If incorrect answers were given, they were given correct information from the teacher. After the discussion and probing questions, ten comprehension questions were asked of the students. These questions were designed to recall explicitly stated information and knowledge that had to be inferred from the chapter. At the start of the baseline data gathering, all three students' correct scores were at 60%, 58%, and 35%. The intervention phase included teacher activities and the students working on prediction skills of upcoming events in future chapters based on previous chapter events. The intervention phase and three-week maintenance check results showed significant increases from each student's baseline data to average correct answers of 97%, 95%, and 79% (Williamson et al., 2015).

Among the eight strategies that the National Reading Panel (U.S.) and National Institute of Child Health and Human Development (U.S.) (2000) found to be effective in improving comprehension in students were the question-and-answer method where story structure is asked

using 'wh' questions, question generating from the student, and summarization of text via questioning (National Reading Panel (U.S.) & National Institute of Child Health and Human Development (U.S.), 2000). These questioning strategies give numerous opportunities for teachers to work on critical thinking skills with their students while they work on comprehension of text.

CHAPTER III: DISCUSSION AND SUMMARY

Summary of Literature

Using adapted texts during read alouds exposes students with developmental disabilities to literature that surpasses their independent reading level. Browder et al. (2009), Roberts et al. (2019), Roberts et al. (2013), and Ruppert et al. (2017) all found in their research that adapting grade level text provides access to more complex texts where students with developmental disabilities can improve their critical thinking skills through comprehension of texts. Using informational and higher-level narrative texts is key to introducing academic vocabulary, activating students' background knowledge, and facilitating opportunities for teachers to ask inferential questions that hone higher level thinking skills (Elleman & Oslund, 2019; Santoro et al., 2016).

Adapted enhancements added to read alouds have been shown to improve comprehension and engagement with students. Kim et al. (2018) and Shurr and Taber-Doughty (2012) used enhancements of 'stop sign' pictographs added in places in the text signaling the reader to 'think' about what they just read and provide opportunities for questioning strategies for students to delve deeper into the comprehension of the text through inferential thinking.

Mucchetti (2013) examined minimally verbal students with ASD and found success in using visuals to aid students in understanding content vocabulary and highlighting key story elements in their study to help students with comprehension. The results from this study support that adapted shared readings can significantly improve comprehension and engagement for students with significant developmental disabilities.

Allor et al. (2009), Kim et al. (2018), Roberts et al. (2019), and Shurr and Taber-Doughty (2012) all used a simple graphic organizer along with visual supports in their studies to help students analyze and summarize text resulting in further gains in students' ability to integrate and apply strategies.

Baker et al. (2020), Browder et al. (2009), Cox-Magno et al. (2018), Roberts et al. (2019), and Whalon (2018) all found that doing before, during, and after literacy tasks of reviewing vocabulary terms, making predictions, using text summaries, and graphic organizers improved comprehension at the text level and taught students higher-level thinking strategies that could be generalized to their world.

Mims et al. (2012), Roberts et al. (2013), Roberts et al. (2019), Ruppert et al. (2017), Towson et al. (2020), and Whalon (2018) all used a system of prompts and time delays in their studies examining literacy comprehension. Teaching students through positive praise and using least to most prompting and time delay with explicit instruction promotes a higher-level of understanding and deeper comprehension of text.

Barnes et al. (2017), Dougherty Stahl (2012), Erickson (2017), Quick et al. (2022), Strachan (2015), Whalon (2018), Williamson et al. (2015), and Zucker et al. (2013) all found that during read alouds, asking challenging questions designed to the student and utilizing teacher opportunities to model think aloud techniques provided instructional possibilities during their studies for deeper critical thinking and comprehension of the text.

Adams (2015), Corley and Rauscher (2013), Murphy et al. (2014), Nappi (2017), (National Reading Panel (U.S.) and National Institute of Child Health and Human Development (U.S.) (2000), Quick et al. (2022), Walsh and Hodge (2018), and Williamson et al. (2015) all used questioning strategies that provide opportunities to increase student's experience and knowledge in their language and critical thinking skills. Questions that are inferential and not

explicitly stated in the text necessitate the individual to provide inferencing, analysis, hypothesizing, and reasoning in their answer. Researchers found higher-level thinking skills are the result of using questioning strategies that go beyond literal and work on inferential comprehension of text material.

Limitations of the Research

In the research of journal articles on read alouds, limitations were found in quality research involving older students with developmental disabilities and increasing comprehension with a focus on higher-level thinking skills. Traditionally, read alouds have been an integral part of early childhood education. Read alouds introduce children to print concepts, build vocabulary, and provide engagement through storytelling. The pool of research was limited to read alouds that had guiding questions on increasing comprehension, engagement, higher-level thinking, or critical thinking/metacognition skills. Research that involved read alouds where the guiding question was increasing vocabulary, focused on decoding, phonemic awareness, fluency, language skills, and print concepts in early childhood education classrooms were excluded.

Another limitation is that many studies had small sample sizes. This is due to the difficulty of finding a representative case of a student with developmental disabilities, as each student's memory, cognitive, and language deficits are profoundly variable.

Implications for Future Research

The hope for future research is that more researchers investigate the reality of where many students with moderate to significant developmental disabilities are academically in secondary classrooms across the world and focus on what skills are critical to teaching them to be successful after they are done with formal education. Previous research has centered on students' language skills, leaving out the diverse possibilities for increasing higher level thinking

and comprehension skills in students with moderate to severe developmental disabilities.

Instruction using the strategies found in this research to increase higher-level thinking prepares students to go out into the community and assist them in making successful life decisions.

If educators are teaching basic reading skills of community sign identification and functional words during the secondary schooling years, might educators be doing a disservice to these students? Preparing students to advocate for themselves using analysis, summation, prediction, and reason will help students in their future endeavors. These skills can be developed in a reading classroom through the many evidence-based strategies when comprehending text. More research needs to be on this population and specific strategies and teacher training to instruct these skills during read alouds with students. This research focused on decreasing the research gap in what strategies educators can use to increase higher-level skills when comprehending text during read alouds. The research began with current research studies with students with intellectual disabilities but found that most students in special education classrooms with moderate to significant disabilities include students with Autism Spectrum disorder, Down Syndrome, Cerebral Palsy, and other developmental disabilities. All of these students' struggle with learning higher-level inferential skills due to their disability and the research focus needed to include all of these students that are being taught in the same reading classroom by special education teachers.

Implications for Professional Application

This literature review will impact the researcher's performance in the classroom through the use of read alouds to integrate grade level text into a functional reading class. The past four years of teaching a curriculum comprising of learning targets on letter and sound identification, decoding sight words, and using storybooks to teach simple retell comprehension were important objectives, but what was missing was strategies and guidance on how to teach higher-level

thinking skills that students could use beyond the classroom to prepare them for their future.

Applications for this research should be shared at the national and state levels, curriculum development, school districts, and teachers.

Shining a light on this learning gap at the national and state level will bring attention to the disparity of reading skills that need to be taught to students with developmental disabilities in the secondary classrooms around the world. The educational system is doing a disservice to these students by not providing them reading skills of higher-level thinking through the use of grade-level text. These students need to be exposed to many forms of literature that they will encounter as they age. Learning higher-level thinking skills to analyze, predict, and question and challenge assumptions help them navigate a world that will make many suppositions about what they can achieve.

New curriculum needs to be created that includes adapted grade-level text that can be used in English Language Arts secondary classrooms for students who are poor readers and students with disabilities. This research is not limited to only students with disabilities. Elleman and Oslund (2019) found comprehension assessments reflect extremely low literacy skills among secondary students in the U.S. They examined the Program for International Student Assessment (PISA) data that assesses students' literacy skills and found 19% of the 15-year-olds that were tested scored below a level 2. A level 2 is an ability to read simple narrative texts and understand them to a literal level. Only 10% in that age group were able to attain a level 5, where students can evaluate and summarize information on an inferential level. These findings exhibit why it is so important for students with and without disabilities to be learning to comprehend reading material beyond the literal level using read alouds with evidence-based strategies.

Professional development and trainings through school districts are needed to support educators on what evidence-based strategies and techniques need to be developed, and how to

execute those strategies successfully during read alouds. The same strategies and techniques can be integrated throughout all secondary general education and special education classrooms in all academic areas to further students' higher-level thinking skills.

Conclusion

The research question developed for this thesis is how read alouds can promote higher-level thinking skills in students with developmental disabilities. A comprehensive review and synthesis has been conducted to answer this research question. The synthesis has produced several applicable findings of strategies used during read alouds to promote higher-level thinking skills for students with developmental disabilities.

Using adapted texts and adding visual supports of before, during, and after literacy tasks increased engagement and assisted students' analysis and critique of text. Incorporating positive praise while using least-to-most prompting and time delay, utilizing teacher scaffolding and modeling think aloud techniques, and creating probing questions to be asked throughout the read aloud all promote higher-level thinking skills that students with developmental disabilities can use to generalize to their world. Students with developmental disabilities need to learn higher-level thinking skills so they can maximize opportunities in career and life choices beyond formal education.

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