

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Public Access Theses and Dissertations from the
College of Education and Human Sciences

Education and Human Sciences, College of (CEHS)

7-2019

Least Prompts Approach for Improving Reading Comprehension of Students with Intellectual Disabilities

Marisa M. Hoins

University of Nebraska-Lincoln, mesch@huskers.unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/cehsdiss>



Part of the [Other Education Commons](#), and the [Special Education and Teaching Commons](#)

Hoins, Marisa M., "Least Prompts Approach for Improving Reading Comprehension of Students with Intellectual Disabilities" (2019). *Public Access Theses and Dissertations from the College of Education and Human Sciences*. 340.
<https://digitalcommons.unl.edu/cehsdiss/340>

This Article is brought to you for free and open access by the Education and Human Sciences, College of (CEHS) at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Public Access Theses and Dissertations from the College of Education and Human Sciences by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

LEAST PROMPTS APPROACH FOR IMPROVING READING COMPREHENSION
OF STUDENTS WITH INTELLECTUAL DISABILITIES

by

Marisa M. Hoins

A THESIS

Presented to the Faculty of
The Graduate College at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Master of Arts

Major: Special Education

Under the Supervision of Professor Michael Armand Hebert

Lincoln, Nebraska

July, 2019

LEAST PROMPTS APPROACH FOR IMPROVING READING COMPREHENSION
OF STUDENTS WITH INTELLECTUAL DISABILITIES

Marisa Marie Hoins, M.A.

University of Nebraska, 2019

Advisor: Michael A. Hebert

In this study, the researcher employed a least prompts intervention to improve listening comprehension responses for three participants with intellectual disabilities (ID). All participants were required to (a) be diagnosed with a moderate ID or have a medical diagnosis of a disability typically co-occurring with ID (e.g., Downs Syndrome), (b) be in grades one to seven, (c) communicate orally, and (d) have normal hearing and vision. In addition, all participants expressed choices through orally responding yes/no or by pointing to a response board. The researcher used a multiple baseline design across three participants to determine if there was a functional relation between the intervention and the participants' ability to correctly answer listening comprehension questions. The researcher provided opportunities for participants to apply these skills using a system of least prompts intervention over short chapters from a series of books read by the researcher. Results indicated that all participants increased the number of independent correct responses and decreased the number of prompts needed for each intervention session across the course of the intervention. In addition, all participants responded correctly when given the opportunity to generalize the system of least prompts to an unfamiliar book series.

Table of Contents

Chapter 1—Introduction	1
Listening Comprehension	3
Description of and Research on System of Least Prompts with Students with ID	4
Pairing wh-questions with the system of least prompts for listening comprehension	4
Including peer tutoring as a component of the SLP.....	5
Use of least prompts when students with ID are included in the general education classroom.....	6
Addressing Limitations of the Previous Research.....	8
Purpose of the Current Study.....	9
Chapter 2—Method	10
Participants.....	11
Setting	12
Materials	13
Reading Series	13
Listening comprehension questions and response boards	14
Dependent Variables.....	17
Number of correct responses	17
Number of prompts needed for each story.....	18
Procedures.....	18
Baseline.....	19
System of least prompts.....	20
Generalization.....	21
Treatment Integrity	21

Data Analysis	22
Chapter 3—Results	22
Impact of Least Prompts on Listening Comprehension.....	23
Brooklynn	25
Brian.....	26
Rachel	27
Synthesis of the results across the three participants	27
Number of Prompts for Each Intervention Session	28
Brooklynn	30
Brian.....	30
Rachel	30
Chapter 4—Discussion	30
How the Results of this Study Extend Previous Research.....	32
Possible Alternative Interpretations of the Results.....	33
Limitations	34
Recommendations for Future Research.....	35
Implications for Practice.....	36
Conclusion	37
References.....	38
Appendix A.....	43
Appendix B.....	46

List of Multimedia Objects

Figure 1	16
Figure 2	24
Figure 3	29
Table 1	12
Table 2	15
Table 3	25

CHAPTER 1: INTRODUCTION

Historically, instruction for students with intellectual disabilities (ID) had little focus on reading skills. Kliever (1998) and Katims (2000) found a lack of literacy skills being taught in schools to students with ID. Many schools have focused on teaching these students functional skills rather than teaching reading skills. There are at least three possible explanations for why reading instruction has not received more attention for these students (Browder et al., 2009). First, resistance to teaching students with ID reading skills may stem from a cultural bias that these students do not have the intellectual capacity to obtain such skills (Kliever, Biklen, & Kasa-Hendrickson, 2006). Second, some educators assume students with ID can only learn some functional sight words, but lack the ability to decode and comprehend what they read (Browder et al., 2009). Third there is a belief that students with ID have deficits in language and communication that would interfere with them acquiring reading decoding and comprehension skills (Browder et al., 2009).

Special educators have emphasized that reading instruction for students with ID must be intensive and comprehensive (Allor et al., 2010). Recent research has found that students with ID can acquire decoding and comprehension skills by using a process of intense practice and repetition using the Early Intervention in Reading program (Allor et al., 2014; Allor & Mathes, 2012). Activities in this comprehensive intervention were developed to address the components of reading, which include phonemic awareness, phonics, fluency, vocabulary, and comprehension.

The National Reading Panel (2006) pinpointed five key features to successfully teach children to read: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary,

and (e) comprehension. However, Hudson, Browder, and Wood (2013) showed that most reading curriculum used for students with ID was adapted from the general education curriculum. They also found some limitations to the content teachers were using from the general education curriculum. For example, teachers tended to focus only on vocabulary instruction. The researchers further suggested that students with ID should learn a wider range of reading skills such as a series of processes, concepts, and comprehension (Hudson et al., 2013). These skills are important to learn so that students with ID are able to cope with the many tasks associated with daily living such as going to the grocery store, learning social skills from books, and how to navigate the world (Bochner, Outhred, & Pieterse, 2001).

Reading instruction for students with ID has primarily focused on teaching them sight words as a skill for functional reading in daily living such as knowing the word “stop” when it appears on a road sign (Browder, 2001), or basic decoding skills (Lemons, Mrachko, Kostewicz, & Pattera, 2012). Although sight word and decoding instruction have been shown to be beneficial in aiding the daily living skills for students with ID, these students still need explicit instruction in other areas of reading (i.e., comprehension) to become literate (Groff, 1998; Stahl, Duffy-Hester, & Stahl, 1998). In describing the Simple View of Reading (SVR) theory, Hoover and Gough (1990), developed an equation indicating that reading comprehension equals decoding times listening comprehension ($D \times LC = RC$). Reading only takes place when both decoding and comprehension are both greater than zero. By developing this as a multiplication equation, the authors essentially asserted that a child who cannot decode cannot read ($0 \times 1 = 0$), and a child who cannot comprehend cannot read ($1 \times 0 = 0$).

Despite advances in understanding for how to improve sight word reading and decoding for students with ID (e.g., Browder, 2001; Lemons et al., 2012), many of these students still have limited reading skills (e.g., Towles-Reeves et al., 2009). Because reading comprehension is the ultimate goal of reading instruction (Hodges, 1980), it is important to examine the role of listening comprehension for these students. Reading comprehension plays a critical role in the learning process and helps students become successful not only in reading class but in all subject areas in a school setting (Towles-Reeves, Kearns, Kleinert, & Kleinert, 2009). However, in order to improve reading comprehension for students with ID, the SVR theory indicates that attention needs to be first paid to listening comprehension. Students with ID are often dependent on more skilled readers to read for them and, therefore, listening comprehension is an appropriate first skill to focus on as a goal for instruction, in addition to working on decoding skills.

Listening Comprehension

Browder et al. (2009) defined listening comprehension as the ability to draw meaning from spoken communication or text read aloud. Therefore, as students develop decoding and listening comprehension skills, reading comprehension should then improve, helping them to become literate readers (Hoover & Gough, 1990). Students who perform higher on listening comprehension exercises also exhibit higher levels of performance on decoding, global language, and oral reading fluency exercises (Browder et al., 2006). There is not much evidence on developing listening comprehension (and by extension reading comprehension) for students with ID, and the research on listening

comprehension for this population has primarily been conducted using a strategy called the System of Least Prompts (SLP).

Description of and Research on System of Least Prompts with Students with ID

The SLP is a potentially effective approach for teaching reading comprehension to students with ID. According to the U.S. Department of Education, Institute of Education Sciences (2018), the SLP involves defining and implementing a series of prompts to assist a student in learning a new skill. A prompt is given by a teacher, such as a verbal instruction, to help a student respond correctly. The SLP is used after the target stimulus is presented and the student is given a chance to respond independently. If an error or no response occurs, the least intrusive prompt is delivered. Following the prompt, another opportunity to respond is given. This process is continued until the student responds correctly or the more intrusive prompt in the hierarchy is delivered (Doyle, Wolery, Ault, & Gast, 1988). For example, less intrusive prompts may be verbal prompts (such as telling students the steps in forming a letter), and a more intrusive prompt might be showing the student how to form the letter. An even more intrusive prompt might be using hand-over-hand techniques to help the student form the letter.

Pairing wh- questions with the system of least prompts for listening comprehension. Mims, Hudson, & Browder (2012) investigated the effects of SLP on text-dependent listening comprehension (recalling information directly from text read aloud) with four students ranging in age from 12 to 14 with severe developmental disabilities. They demonstrated that a modified system of least intrusive prompts on text-dependent listening comprehension for middle school students with moderate and

severe ID was successful for improving listening comprehension when teachers read adapted grade-level biographies aloud to them. The researchers adapted the biographies from sixth grade literature textbooks by summarizing the text.

In this study, the researcher used the SLP to provide additional opportunities for students with ID to hear sections of the biography again. Participants were taught the type of wh- question words (i.e., where, what, who, when, why) and their rules. Researchers recorded the number of correct unprompted responses to comprehension questions during the read-aloud. The first prompt involved the researcher stating the type of wh- question being asked and its rule while pointing to the wh- word and rule on a chart. Then, the researcher reread the paragraph containing the answer, repeated the question and response options, and waited 4s for a response. If a participant failed to respond or responded incorrectly, a second prompt was given. In the second prompt, the researcher reread the sentence containing the answer, repeated the question and response options, and waited 4s for a response. In the third prompt, the researcher pointed to the correct answer and said, “The answer is John. Your turn. Your point to John.” All students improved listening comprehension after intervention and three students generalized skills to new biographies. Although the student increased the number of correct responses to comprehension questions, the authors did not provide information on the number of prompts given during each session.

Including peer tutoring as a component of the SLP. A study conducted by Hudson, Browder, and Jimenez (2014) focused on increasing correct listening comprehension responses for three elementary students with ID in the fourth-grade general education classroom. Extending on procedure Mims et al. (2012) used, peer

tutors read aloud from a script to deliver the SLP intervention and read-alouds of adapted science content. Like Mims et al. (2012) study, the first two prompts gave participants an opportunity to hear the text again. The third prompt gave the correct answer, and in the fourth prompt, said and pointed to the correct response on a six-option response board. Unlike the Mims et al. (2012) study, participants were not given rules answering wh- questions. This allowed the researchers to determine whether the SLP would be effective without the use of an additional comprehension strategy, which would be a less complex intervention for teachers to use. All participants increased the number of correct comprehension responses after intervention. Yet, only one student demonstrated generalization of skills to new science content.

Use of least prompts when students with ID are included in the general education classroom. Hudson and Browder (2014) extended on Mims, Hudson, and Browder (2012) to examine the SLP with two males and one female (aged 9 to 11) using a chapter book from a 6th grade general education classroom. The researchers modified the chapters to be more appropriate for students with ID by reducing the length and complexity of the texts to produce “summary-like” texts. The primary question in this study evaluated the peer-delivered SLP and adapted grade-level read alouds improved prompted correct comprehension responses for participants. All participants’ prompted correct responding was low and stable during baseline, and then increased immediately after intervention for two participants and after the first chapter for the third participant. The researchers extended the previous use of SLP to a four-prompt series, like Mims et al. (2012) and Hudson et al., (2014) study, the first two prompts gave participants an opportunity to hear the text again (paragraph and sentence,

respectively). The third prompt involved stating the answer and then having the participant repeat the answer, and the fourth prompt involved reading the answer and pointing to the answer on a choice board.

This study strengthened the findings that the SLP helped students use the text to answer the questions because the questions were not repeated. In the prior two studies, the same comprehension questions were used, therefore correct responding could have been due to recalling what they had heard during previous sessions (Hudson, et al., 2014; Mims et al., 2009). It is more likely that participants were selecting the correct answer based on the text they had heard rather than memorizing correct responses.

A second question in this study evaluated if the peer-delivered SLP and adapted grade-level read-alouds improved independent correct responses after the first reading of the text. One participant increased over baseline levels, but two participants did not improve their responses. This study also evaluated if participants generalized to a literacy class where the generalization sessions were conducted by the general education teacher. Two participants correctly answered 4 out of 12 questions independently, and 5 out of 12 after prompting. The other answered none independently and only 2 out of 12 correct after prompting.

One drawback of this study was the researchers randomized the chapters given to the participants. Randomization of chapters from a chapter book was artificial because chapters in a chapter book are written to be read in a sequential fashion. The story plot builds on previous events in chapter books, therefore participants could be confused on the chapters or given answers to comprehension question in earlier sessions.

Addressing Limitations of the Previous Research

The previous research conducted with this population has made significant contributions to the literature for understanding how to improve listening comprehension of students with intellectual disabilities using the SLP. However, there are still many unanswered questions and limitations of the previous studies that need to be addressed in future studies. As previously mentioned, Hudson and Browder (2014) examined the use of the SLP with a modified chapter book, with chapters used out of sequential order. These types of modifications to text may be cumbersome for teachers to implement in the classroom, and the use of non-sequential texts may have influenced the outcomes. Therefore, it is important to examine whether SLP might be effectively implemented with independent texts that need no modifications, such as short stories.

Additionally, the researcher could not locate any studies that tracked the number of prompts used during intervention sessions. Therefore, it is unclear whether students with intellectual disabilities require fewer prompts over time with this type of intervention, or whether they need continuous prompting as a part of their daily listening comprehension activities. Future research needs to be conducted to determine the amount of prompting needs for students over time.

It is also important to note that the researchers in the studies reviewed previously in this introduction refer more to reading comprehension than listening comprehension, despite reading the text aloud to the students. This creates a clarity issue, and may create confusion in the findings. Therefore, it is important that future research on the SLP with students with ID provide stronger rationales for studying listening and reading comprehension.

Purpose of the Current Study

The goal of this project was to examine the efficacy of the SLP intervention by increasing listening comprehension with individual short stories from a reading series. Short stories have been shown to have positive effects on comprehension and recall for students who struggle with reading (Graves, Cooke, & LaBerge, 1983). Short stories were also used to create more authentic experiences for participants so the study was more generalizable for students with ID, which may closer represent the length of stories they typically learn to decode. There are several other benefits of short stories for students with ID, including that the researchers do not have to use chapters out of order, and participants do not have to remember content across sessions. However, the researcher, after conducting a search, was unable to locate any literature that focused on increasing listening comprehension with individual short stories from a reading series. A second goal of the study was to address limitations of previous research by examining the number of prompts participants needed during the intervention. Collecting this information allowed the researcher to determine whether the participants required fewer prompts over time, or whether the participants needed continuous prompting throughout the intervention.

Therefore, the purpose of the present study was to evaluate the SLP intervention on listening comprehension for three participants with ID that have IQs that range from 50-70 and are in grades one through seven. Specifically, the researcher had three questions of interest:

- (1) Is there a functional relation between the SLP and the ability of students with ID to correctly answer text-dependent listening comprehension

questions, when using a popular book series with familiar repeating characters?

- (2) If students with ID increase in their ability to correctly answer text-dependent listening comprehension questions, can this ability generalize to an unfamiliar book series?
- (3) Does the number of prompts needed for each intervention session decrease across over the course of the intervention?

CHAPTER 2: METHOD

The researcher used a multiple baseline design across participants in the present study to establish experimental control (Gast, 2010) and to track changes across three participants. The intervention used the SLP and measured students' ability to answer listening comprehension questions after listening to a text read aloud. By using a multiple-baseline, the researcher could demonstrate experimental control by introducing participants to intervention at staggered times. Participants who were not yet introduced to the intervention continued baseline measures until a functional relation was established between the intervention and dependent variable. Because of the staggered nature of the replications, the design eliminates alternative explanations for behavior changes, such as learning the skills from other sources, or maturation. For example, it is possible that participants could have been receiving reading instruction at school at the same time or prior to the SLP intervention, which might have confounded the results if a multiple baseline design was not used. In other words, the design allowed for the researcher to make decisions on when to change phases for each participant, and allowed the researcher to begin instruction with one participant while the two other

participants remained in baseline. Study phases included baseline, intervention, and generalization. The generalization phase applied the same SLP to a new story from a different series of books.

Participants

The researcher developed a set of inclusion criteria to ensure the intervention was appropriate for the participants. To be included in this study, all participants were required to (a) be diagnosed with a moderate ID or have a medical diagnosis of a disability typically co-occurring with ID (e.g., Downs Syndrome), (b) be in grades one to seven, (c) communicate orally, and (d) have normal hearing and vision. In addition, all participants expressed choices through orally responding yes/no or by pointing to a response board. The researcher included this assessment to ensure that participants could respond in a format that comprehension could be evaluated. Participants who could not respond to questions were not included in the study. Additionally, participants were read a short story and asked who, what, when, where, and why questions similar to those in the intervention. Participants had to answer three or fewer questions correct in order to be included in the study because it was necessary to ensure there was not a ceiling effect on the study measures. Participants were also required to be able to state their name and respond to yes/no questions (orally or by pointing) to ensure that they would be able to partake in the intervention.

The researcher recruited participants from a parent support group and a private consulting practice for students with ID in the Midwest. Four potential participants were identified for potential inclusion in the study. However, one participant hit the ceiling on the reading screening measure, and was therefore excluded from the study. The three

remaining participants met all of the inclusion criteria and were included in the study. Brooklynn and Ben Two were diagnosed with ID, whereas Rachel was diagnosed with a developmental delay due to her age; she was only 8 years old at the time of the study, and was medically diagnosed with Downs Syndrome. Two of the participants were female and one was male. Demographic information for Brooklynn, Brian, and Rachel are presented in Table 1. Brooklynn was homeschooled. Brian attended a school in a rural school district, and Rachel attended a school in a large urban school district.

Table 1

Participant Demographics

	Brooklynn	Brian	Rachel
Gender	F	M	F
Age (in years)	9	11	8
Grade	3	5	1
Ethnicity	Caucasian	Caucasian	Caucasian
IQ Information	53	58	*
Disability Category	ID	ID, Down's Syndrome	Developmental Delay, Speech and Language Impairment, Down's Syndrome
Communication	Verbal	Verbal	Gestures with 1-2 word utterances

Note. *Due to her age, Rachel has not been given an IQ test. Her disability category is Developmental Delay, and will likely get changed to Intellectual Disability at her next evaluation.

Setting

There were two different settings used for different participants. The researcher conducted all sessions (Screening, Baseline, Intervention, and Generalization) the

setting for participant 1 was her home in the Midwest. The parents requested that the sessions occur at home due to a medical condition. Brooklynn was homeschooled and had a school room that was only used for academic instruction. All sessions occurred in the school room that was in a quiet 10 by 15-foot room and included a large table with chairs around the table and shelves containing the participant's school materials. The researcher, homeschool teacher, and the participant were the only ones in the room during the sessions, with the exception of days that a graduate student attended the session to conduct fidelity observations.

For Ben and Rachel, the researcher conducted all sessions in a university research lab in the Midwest. The main setting used in the study was in a quiet 15 by 20-foot room and included a large table with chairs around the table and a white board on the wall, and the researcher and the participant were the only ones in the room during the sessions (with the exception of days that fidelity observations were conducted).

Materials

The researcher used three types of materials in this study. These included a reading series, comprehension question sheets, and student response boards.

Reading series. The researcher chose one of six book series formatted in a similar fashion. Selection of books occurred during the design of the study, prior to recruiting participants. Due to the IQ ranges of students with moderate IDs, the researcher and reading specialist consultant identified second grade level text as a potential target for the intervention, and decided to use the screening process to ensure the text was an appropriate level for the participants. Twenty-four different short stories from seven Henry and Mudge (Rylant, 2018) books were used for the intervention text.

The stories within a book are sequential, but can stand alone, allowing the researcher to randomize the stories without compromising reading comprehension. The Henry and Mudge series are chapter books, with three to four short stories in each. On average, each Henry and Mudge story contained approximately 13 pages and 215 words. The researcher numbered the stories and used a random number table to randomly assign stories in different orders for each participant across sessions, ensuring that any effects of instruction are not due to specific stories or a sequence effect of the stories (i.e., story 1 potentially influencing the participants' comprehension of story 2).

Although there are other potential series of books that could be used with this intervention (e.g., Frog and Toad, Poppleton, etc.), the researcher chose the Henry and Mudge series for three reasons. First, this series includes dogs and both male and female characters, which make the series appealing to a variety of participants. Second, schools have access to these commonly used series, making this an intervention that teachers could use in the future. Third, using single series of books allows the potential for participants to become familiar with characters across the series, which may keep participants motivated by allowing them to identify with the same characters session after session (a generalization text was included to ensure that the effects were not simply due to familiarity with a single series).

Listening comprehension questions and response boards. Each story included 10 factual recall listening comprehension questions (see Table 2), with

Table 2

Wh- Question Template

Question	Definition	Example question from short story	Example correct response	Example incorrect response
Who (verb) (character) (action from the story)?	Asks about what or which character engaged in a specific action. The participant has to identify the correct character.	Who jumped in the puddle?	Henry	Hugh
Where do/did (character) (verb)?	Asks about at, in, or which place that an event occurred. The participant has to identify the correct place.	Where was the puddle?	On the sidewalk	In the yard
When do/did (character) (verb)?	Asks about a time that an event takes place. The participant has to identify the correct time.	When did Henry's dad yell?	When Henry and Mudge got home	At the basketball game
What do/did (character) (verb)?	Asks about an action that the character(s) take place. The participant has to identify the correct action.	What happened when Henry and Mudge got home?	They ate dinner outside	They went to bed
Why do/did (action from the story)?	Asks about the reason or purpose an action occurred. The participant has to identify the correct reason or purpose.	Why did Henry jump in the puddle?	To have some fun	To take a bath

Note. These are templates of what questions were asked, their definitions, examples, and examples of correct and incorrect responses. This list is not exhaustive.

questions presented to address content in the story. Response boards were developed to be paired with each question so that participants could have the option of pointing to answers or answering orally (see Figure 1). The researcher generated text-dependent

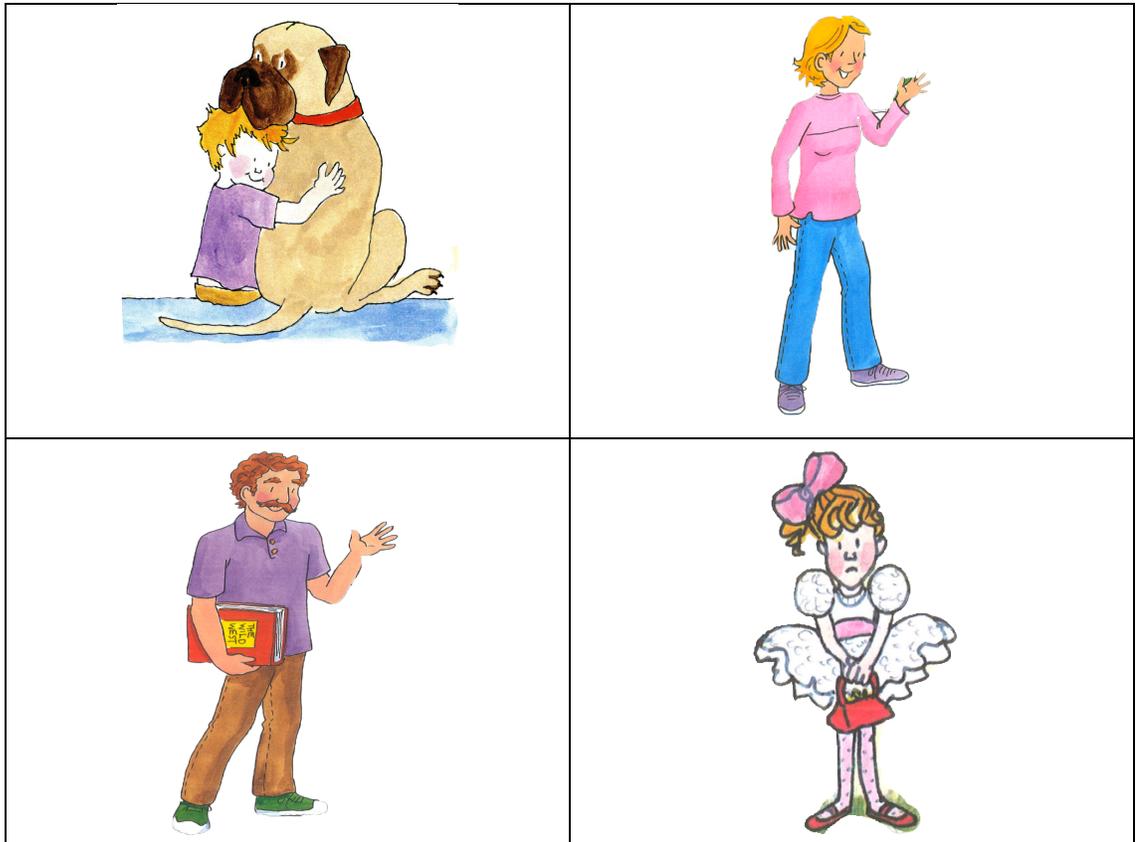


Figure 1. An example of a participant response board used to answer “who” comprehension questions.

questions and received feedback on the book questions and response boards from two reading specialists to ensure the validity of each measure. Initially, the researcher created a draft of questions and choice boards for all 25 stories. The reading specialists sat together to generate feedback for the researcher. The reading specialists examined

the text in the stories and questions to ensure they were text dependent. They also examined that the four choices and pictures for each choice board aligned with the text. Then, they suggested revisions for questions and/or response board options and invited the researcher to review the suggestions. The researcher edited the questions, choices, and response boards after discussion and agreement with the reading specialists. Finally, each response board was inserted into a protector sheet and placed in a three-ring binder. Each board contained four choices. The researcher organized the response boards by story.

Dependent Variables

There were two dependent variables that were the focus of the present study. First the number of correct responses to “Wh” questions were collected. Second, the number of needed for participants to answer questions correctly were recorded.

Number of correct responses. The dependent variable was number of correct responses to “Wh” questions (who, what, when, where, why) previously described (see materials section). The researcher defined a correct response as a verbal response indicating the correct answer to a comprehension question, or pointing at the correct answer on a choice board. Correct responses were scored as 1, only if the participant answered the question correctly without prompting. Incorrect responses and no response errors were scored as “0” for purposes of graphing the data, even if participants answered correctly after prompting using the SLP.

A trained second observer collected interrater reliability on participant responses. The second observer sat in on 33% of sessions during both baseline and intervention phases for each participant. The researcher used point by point agreement

when comparing her scoring to that of the second observer. The researcher calculated interrater reliability data by dividing the number of agreements by the number of agreements plus disagreements multiplied by 100. Reliability was 100%.

Number of prompts needed for each story. The researcher also measured the total number of prompts provided to students during each intervention session (no prompts were given during baseline sessions). For every question, the researcher recorded the number of prompts given. At the conclusion of each session, the total number of prompts for each question were totaled and graphed for each session. There possible number of prompts per questions was zero to four, for a total number of 40 possible prompts per story. This data was collected to determine whether participants required fewer prompts across stories during the intervention, which may provide contextual information about learning that occurred.

Procedures

After obtaining Institutional Review Board (IRB) approval, parents provided consent to allow their child to participate in the study. Following consent with parents, the researcher read the children the child-friendly assent form aloud to them on the first day of study. The researcher gave participants time to ask any questions. They indicated if they assented to participate and provided their signature. Participants were able to simply say “yes” if they were unable to sign the assent form. The researcher would then sign the assent form to indicate they accepted a verbal response from the participant (this procedure was approved by the IRB).

In this study, there were three different conditions—baseline, SLP, and generalization. All conditions for participants 2 and 3 were conducted within the same

research lab, and all conditions for participant 1 were conducted in the same school room at the participant's home. Participants 2 and 3 were not in the clinic at the same time, as each came on different days or at different times in the day. The same adults were present across all sessions including the primary researcher and a doctoral student who conducted treatment integrity using a pre-printed form with the study steps (see Appendix A for the baseline fidelity form and Appendix B for the intervention fidelity form). Two sessions occurred each day for three days a week over five weeks. The child completed two probes (or stories followed by questions) each day. Each probe/story was approximately 15 minutes in length. Following the first probe, the participants received a five-minute activity break, and would then return for a second probe/story.

On a piece of paper, the researcher recorded correct responses to the listening comprehension questions during each session across all phases immediately following the read aloud. In the baseline phase, no prompting occurred. The researcher recorded correct answers as a check mark and incorrect answers as an "x". In the intervention phase, the SLP provided prompts to help the participants gain comprehension skills by helping the participants understand that the information needed to answer the questions was located within the text. As noted earlier only unprompted correct responses were scored as correct so that the scoring was consistent with the baseline scoring. For the generalization session, the researcher used the same SLP hierarchy that was used during the intervention phase. Each of these phases is described in more detail in the following sections.

Baseline. In each session, participants listened to a story read aloud by the researcher. Participants sat next to the researcher in a chair. The researcher pointed to

the words while reading and the children were asked to follow along with their eyes as the researcher read out loud. After the story, the researcher placed the response boards in front of the participant and asked level one Wh- questions (who, what, when, where, why) with no prompts. After asking the question, the researcher simultaneously pointed to each of the choices and read them aloud. Participants were able to answer verbally or by pointing to a response board. They were not given any prompts to help them answer the questions. If no response is given, it is counted as an incorrect response. The researcher provided no reinforcement (e.g., verbal praise) during baseline.

System of least prompts. During this phase of the study participants listened to additional Henry and Mudge stories read aloud by the researcher. Similar to baseline, the participant sat next to the researcher in a chair and were asked to follow along as the researcher read out loud. After the story, the researcher placed the response boards in front of the participant and asked the listening comprehension questions while simultaneously pointing to each of the choices. Participants were able to answer verbally, or by pointing to a response board.

In this condition, when participants did not initiate a response within 10s of the question (i.e., no response) or made an incorrect response, the researcher began implementing the SLP. In this study, the SLP consisted of four levels of prompts: 1) rereading the paragraph containing the answer to the question and then rereading the question, 2) rereading the sentence containing the answer and then rereading the question, 3) eliminating two of the four potential answers to the question and then restating the question, and 4) stating the answer and pointing to the response board, and asking the participant to repeat the answer and point to the correct answer on the

response board. For each prompt the researcher also restated the four answer choices while pointing to each choice. If a participant answered the question on the first attempt, the researcher asked the next question. If the participant answered incorrectly on the first attempt, the researcher gave went through the series of prompts described previously until a correct answer was given. As previously mentioned, the researcher counted the number of prompts given for each question and totaled the number of prompts at the end of each session.

Generalization. Generalization involved determining whether the researcher could or could not replicate the findings of the SLP intervention to another series of books, using the same SLP. When effects were shown for a particular participant, the researcher collected a generalization measure on a different reading series, Mr. Putter and Tabby (Rylant & Howard, 2000). The researcher chose the first story from Mr. Putter and Tabby Paint the Porch (Rylant & Howard, 2000). This series was also written by Cynthia Rylant, at the same level, and the stories are organized into short story chapter books just like the Henry and Mudge (Rylant, 2018) series. Like the stories used in the intervention phase, this story also included 10 factual recall listening comprehension questions with response board options.

Treatment Integrity

A trained second observer (doctoral student in special education) collected procedural fidelity. The observer recorded the presence or absence of error during the intervention for the purpose of calculating procedural reliability. The second observer sat in on the session. Following a protocol, the observer checked off steps that were and were not completed during the sessions. The trained second observer took a minimum

of 33% during both baseline and treatment phases for each participant. The researcher calculated procedural fidelity by dividing number of steps presented without error by the total number of steps delivered multiplied by 100 (Billingsley, White, & Munson, 1980). The researcher implemented 99.63% of the procedural components during baseline sessions, and 99.36% of instructional components during the intervention sessions. The second observer scored errors on the step, “Teacher engages the participant with eye contact, comments, and/or questions two times during the story,” because occasionally the participants needed more than two comments or questions to draw their attention to the story. The researcher delivered all of the other steps of the lessons as intended.

Data Analysis

The efficacy of the least prompts intervention was assessed using a multiple baseline across participants design. The researcher visually inspected the independent correct graphs to identify changes in trend, level, and variability and to determine if a functional relation existed between the independent and dependent variables. These are demonstrated following the staggered introduction of the intervention across the three participants.

CHAPTER 3: RESULTS

Results are presented for each participant. First, the researcher presents the impact of least prompts on reading comprehension for each of the three participants. For each participant, results are examined for each phase: baseline, intervention, and generalization. The results are then synthesized. Following examination of data related

to the primary research question, results are presented for the number of prompts given to participants in each instructional session.

Impact of Least Prompts on Listening Comprehension

The researcher graphed the number of independent correct responses (correct without a prompt) for participants in each phase of the study (see Figure 2). Means and

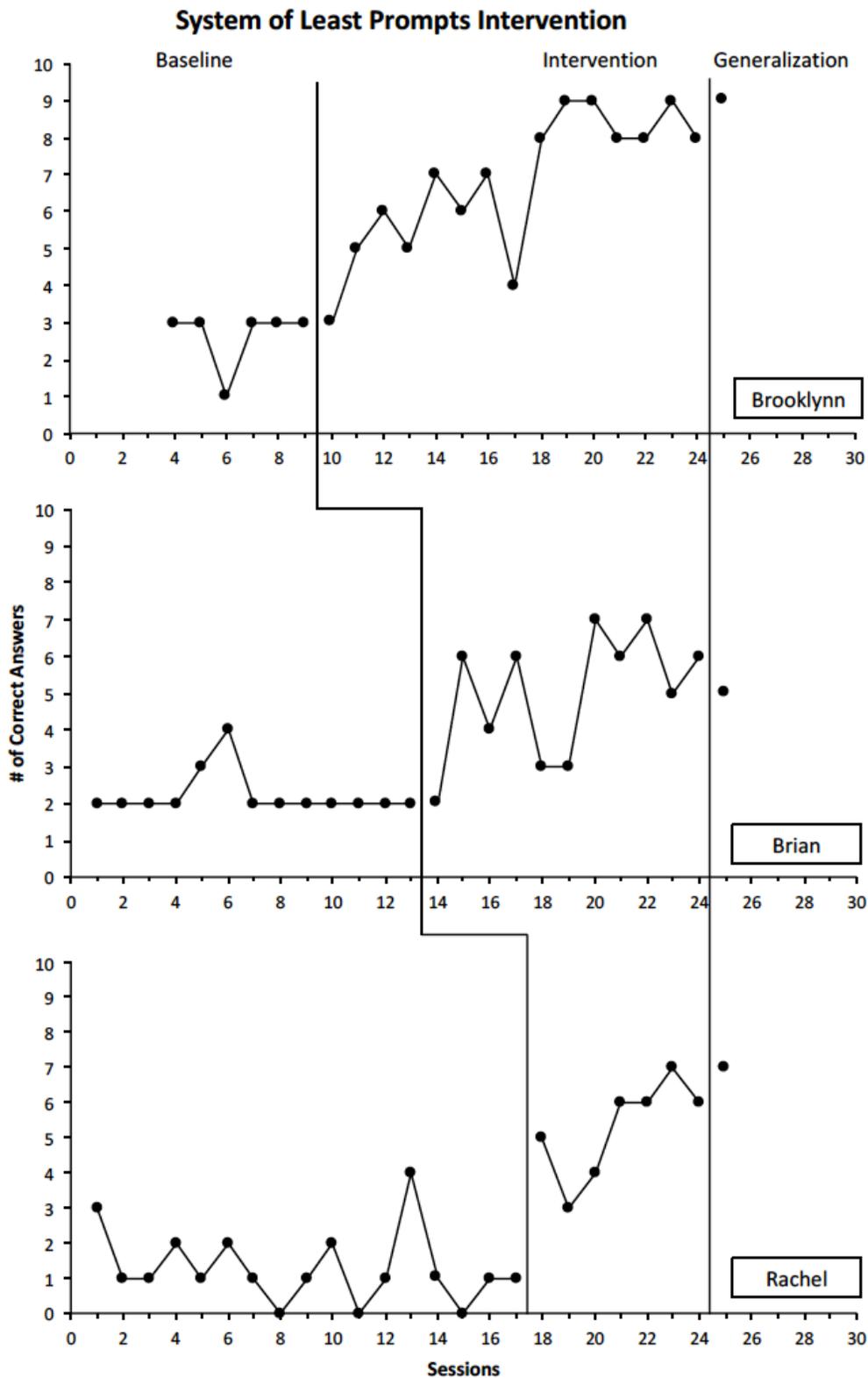


Figure 2. The number of correct responses per session during Brooklyn, Brian, and Rachel's assessment.

ranges for each phase of the study (baseline, intervention, and generalization) are located in Table 3. The primary question asked in this research study focused on if there

Table 3

Means and Ranges for Correct Responses

	Baseline M (range)	Intervention M (range)	Generalization*
Brooklynn	2.67 (1-3)	6.94 (3-9)	9.00
Brian	2.23 (2-4)	5.00 (2-7)	5.00
Rachel	1.29 (0-4)	5.50 (3-7)	7.00

Note. The number of correct responses that Brooklynn, Brian, and Rachel produced increased from baseline to the treatment condition.

*Only one prompt was given during the generalization session.

was a functional relation between the SLP intervention and participants' correct responses to listening comprehension questions without prompting. Data were subjected to visual analysis. This analysis involved examining data within and across phases to determine the degree to which participants' performance improved from baseline to intervention. The researcher inspected the data to identify trends and level.

Brooklynn. Brooklynn's performance during the baseline phase was relatively stable (M = 2.67, range = 1-3). She consistently answered 3 questions correctly for each story, with an exception of one story for which she only answered a single question correct. Because the baseline data were stable following 6 data points, and the baseline

data for other participants was relatively stable, the researcher implemented the intervention in the seventh session for Brooklynn.

In her SLP phase, Brooklynn's number of correct responses improved with a steep ascending trend ($M = 6.94$, range = 3-9), leveling off between 8 to 9 correct responses with one overlapping data point. The overlapping data point occurred in the first intervention session, which may be due to the SLP intervention sequence occurring after the story was read. Brooklynn may have been unprepared for the change in procedures, because she was not exposed to the prompting procedure prior to hearing the story. Therefore, this data point represents a somewhat similar condition to baseline. Following the first complete intervention session, the subsequent data points did not overlap with baseline.

During the generalization session, Brooklynn answered 9 out of 10 questions independently. This was similar to the levels of performance in the intervention phase, indicating transfer of the skills to an unfamiliar book series.

Brian. In Brian's baseline phase, he continued to provide correct responses at similar levels and the behavior was stable across probes ($M = 2.23$, range = 2-4). He consistently answered 2 questions correctly for each story, with an exception of two stories for which he answered 3 and 4 questions correct. Because the baseline data were stable and Brooklynn showed improvement, the researcher implemented the intervention in the fourteenth session for Brian.

Brian had a gradual increasing trend in his treatment phase ($M = 5.00$, range = 2-7) with four overlapping data points. As seen with Brooklynn, one of the overlapping data points occurred in the first intervention session which may be due to the SLP

intervention sequence occurring after the story was read. Two other overlapping data points occurred on the same day in back to back sessions. This could have been due to the participant having an off day.

During the generalization session, Brian answered 5 out of 10 questions independently. This was similar to the levels of performance in the last two intervention sessions, indicating a transfer of the skills to an unfamiliar book series.

Rachel. Rachel had more variability in her baseline phase ($M = 1.29$, range = 0-4). Because the data stabilized the last four baseline sessions, the researcher implemented the intervention in the eighteenth session for Rachel.

She had an increasing trend from baseline to intervention ($M = 5.50$, range = 3-7) with two overlapping data points. The two overlapping data points occurred with a spike in baseline on a day where there were more correct responses that were letter “d” or the last choice given.

During the generalization session, Rachel answered 7 out of 10 questions independently. This was similar to the last few sessions in the intervention phase, indicating a transfer of the skills to an unfamiliar book series.

Synthesis of the results across the three participants. There was a clear change in level for all three participants from the baseline phase to intervention phase. Brooklynn and Rachel had high levels and small amounts of variability in the last few sessions during the intervention phases. These findings suggest that experimental control was achieved, since in the multiple baseline design, experimental control is demonstrated when behavior change occurs only when the treatment is in active for one participant and the other two participants continue to perform at the same levels in

baseline. Interdependent baselines can be a concern in a multiple baseline design, but the data show that the dependent variable levels did not change until the SLP was introduced during the treatment phase. Participants' responding was low and relatively stable during baseline sessions, and then increased after the intervention for all three participants, indicating that the SLP intervention improved the participants' listening comprehension. The level of performance for all three participants was consistent in the generalization story, indicating that participants could generalize the skill to an unfamiliar story series.

Number of Prompts for Each Intervention Session

The results of the total number of prompts during each session for individual participants are presented in Figure 3. Data were subjected to visual analysis. This analysis involved examining the total number of prompts used during each instructional session for all three participants. The researcher inspected the data to identify trends. Participants' total number of prompts was higher in initial intervention sessions and then decreased steadily across subsequent sessions for all three participants.

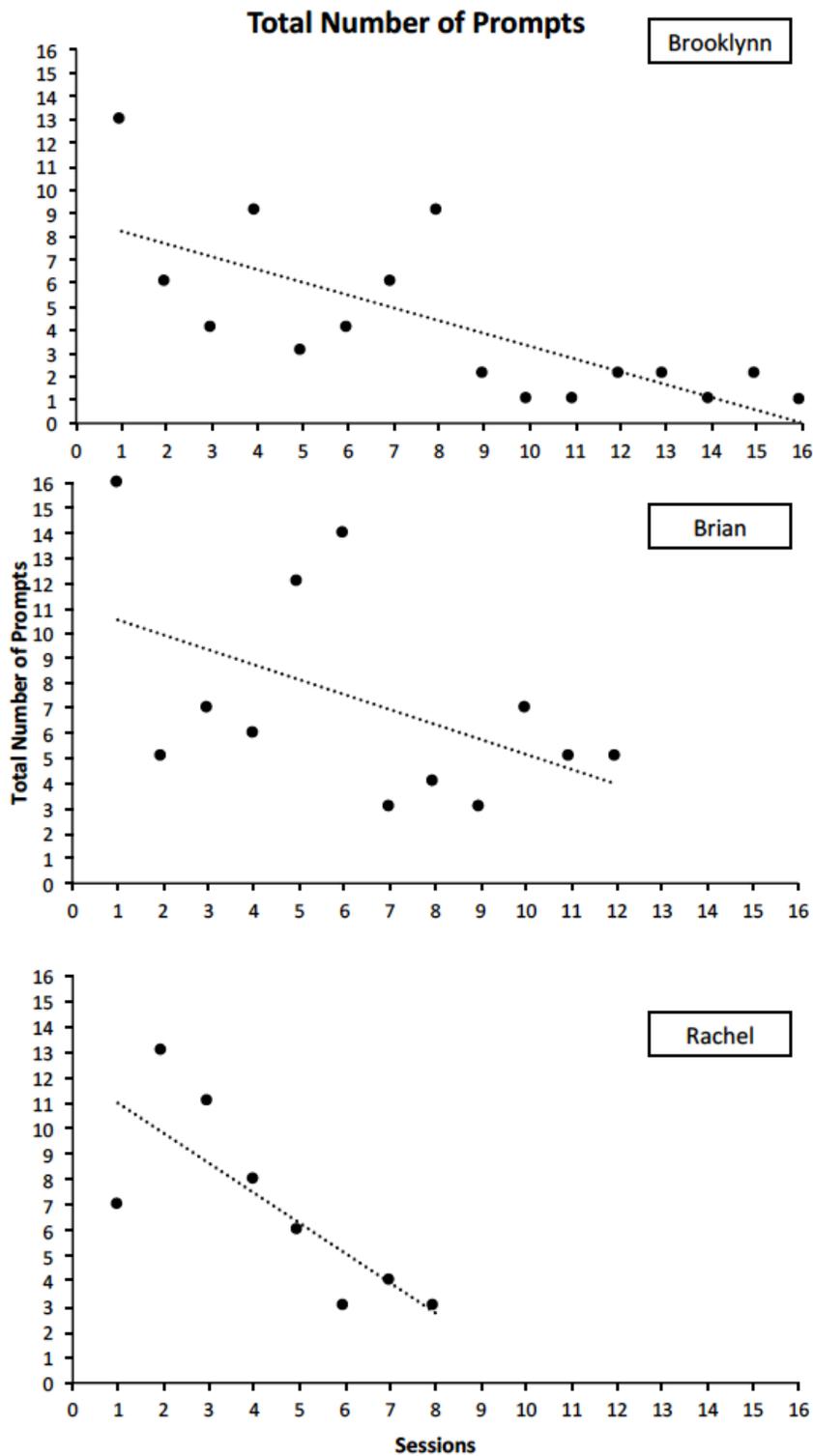


Figure 3. The total number of prompts per session during Brooklyn, Brian, and Rachel's assessment.

Brooklynn. During Brooklynn's intervention phase, the total number of prompts during each session improved with a steep decreasing trend ($M = 4.13$, range = 1-13). Thirteen total prompts were given during her first session and 1 prompt during her final generalization session. There was variability in the number of prompts needed during the first eight instructional sessions, but she needed no more than two prompts for any story from sessions nine to sixteen.

Brian. Brian had more variability in the total number of prompts during each session. He had a steep decreasing trend in his treatment phase ($M = 7.25$, range = 3-16). Sixteen total prompts were given during his first session and 5 prompts were given in the final generalization session. There was variability in the number of prompts needed during the first five instructional sessions, but less variability in the last six sessions.

Rachel. During Rachel's intervention, the total number of prompts during each session improved with a steep decreasing trend ($M = 6.88$, range = 3-13). Thirteen prompts were given during her second session and 3 prompts were given during her final generalization session. Rachel had very little variability in her eight instructional sessions.

CHAPTER 4: DISCUSSION

The purpose of this study was to examine the effectiveness of SLP on text-dependent listening comprehension of short stories in a series for participants with moderate ID. This discussion includes an overview of the results for each research question, followed by contextualizing the results in the context of previous studies, potential alternative explanations for the results, limitations, implications for teachers,

and conclusions. For the first research question, unprompted correct responses for participants was low and stable during baseline probe sessions, then increased immediately for Rachel and steadily increased after the second intervention probe for Brooklynn and Brian. This indicated there is a functional relation between SLP intervention and independent responses, and the researcher established experimental control of the correct response variable.

The second research question asked in this study was if participants were able to generalize the learned skills to an unfamiliar book series. Like the intervention sessions, the researcher asked text dependent comprehension questions and delivered the SLP as needed. The number of correct responses for all three participants overlapped with at least one of the data points in their last three intervention sessions. This is exciting to see because it gives the researcher good indication that this SLP can be used to improved other texts or even subject areas for students with ID.

A third question asked in this study was whether the total number of prompts per session decreased over time. The results of the scatter plot further indicate that the SLP helped increase responding due gathering information from the text. All three participants showed a steady decrease in total number of prompts needed per session during the intervention sessions that continued a downward trend all the way to their final intervention session. The participant that was in the intervention longest (Brooklynn) made the greatest improvement, as she needed only one or two prompts per session by the end of her intervention period. Since participants needed less prompts over time, it further suggests that participants increased their listening comprehension.

How the Results of this Study Extend Previous Research

The results of this study extended the findings of previous researchers. First, this study showed that the SLP could be used to improve participants listening comprehension in independent texts that need no modifications, such as short stories. This is in contrast to the Hudson and Browder (2014), which used modified chapter books, which is unrealistic in classroom setting because it requires teachers to spend considerable time modifying text. The results of the generalization text showed that participants could also transfer their skills to a new text, which is in line with results of previous research (Hudson et al., 2014).

Second, the study extended prior research by examining the total number of prompts needed for stories over time during the intervention. None of the previous studies of the SLP with students with ID examined this previously (Hudson & Browder, 2014; Hudson et al., 2014; Mims et al., 2009). This is a key finding of the research, as the study showed that students need fewer prompts over time, indicating that learning was sustained from session to session, and participants with ID can improve their listening comprehension steadily over time.

Third, this study clarified the distinction between listening comprehension and reading comprehension, providing a stronger rationale for studying listening comprehension. As mentioned in the introduction, listening comprehension is a necessary component of reading comprehension (Hoover & Gough, 1990).

Fourth, the study provided evidence that participants were using the text to answer the questions correctly because comprehension questions were not repeated. In prior studies, (e.g., Hudson et al., 2014; Mims et al., 2009), the researchers asked the

same comprehension questions multiple times. Correct answers in subsequent sessions could have been due to hearing the correct answers from questions repeated in previous sessions.

Finally, this study also strengthened the inferences participants were making from the text to answer the comprehension questions because the short stories were about different events. In the previous research, Hudson and Browder (2014) used a chapter book and so it was difficult to determine if the information they were providing as their answers came from making inferences about the text read that day or from previous parts of the book they read before the session. Graves, Cooke, and LaBerge (1983) found that short stories aid students who struggle with reading skills increase the students' comprehension and recall and this is consistent with the results from this study.

Possible Alternatives Interpretations of the Results

There may be alternative ways to interpret the results. The participants made gains quickly, without “instruction,” as much as prompting. Therefore, an interpretation may be that the SLP used in this study did not teach them new comprehension strategies, but rather looked at directing participant attention. The gains the participants showed could be due to knowing that the researcher was going to ask the question again. So instead of gaining a skill, it could have just drawn the participants' attention and awareness to the text.

It should also be noted that correct answers to listening comprehension questions during the baseline sessions could have been due to guessing. Since there were four choices, and the researcher listed off the choices after reading the question,

two of the participants responded with the last choice or choice “d” almost all of the time. Due to the nature of a, b, c, and d answer choices, some of the correct responses to the questions were letter “d”. During the intervention sessions, participants gave fewer “d” answers. In early intervention sessions, however, it appeared that if the participants did not know the answer, they still went with the last choice given to them. This was also true if a third prompt was given. During the third prompt, the researcher eliminated two of the choices and repeated the other two and the participants often chose the “second” or last choice. These guessing effects may have impacted the results and interpretations of the study.

Limitations

As mentioned previously, listening comprehension questions during the baseline sessions could have been due to guessing. Since there were four choices, and the researcher listed off the choices after reading the question, two of the participants responded with the last choice or choice “d” almost all of the time. Due to the nature of a, b, c, and d answer choices, some of the correct responses to the questions were letter “d”. Since there were four choices given to all participants in all sessions, participants correct responses could have been due to guessing. Since only one strategy was used for assessing listening comprehension (i.e., orally answering wh- questions). Using more than one or a variety of listening comprehension strategies may have increased correct responding for some participants and may have helped account for guessing. Fletcher and Clayton (1994) used a retelling strategy to improve listening comprehension. This is a question for future research.

Because the text chosen for this study was short, it was difficult to create 10 comprehension questions each from a single paragraph. During the SLP, the first prompt reread the paragraph and the second prompt reread the sentence. Sometimes questions came from the same paragraph so when the researcher reread the paragraph for one question, there was a possibility that the participant heard the correct response to a subsequent question, since they heard a section of the text a second time. Therefore, during prompting of the previous question, the participant was exposed to the text a second time possibly helping the participant respond correctly to another question.

The researcher obtained grade level, IQ score, and disability category on participants. However, the researcher did not collect any pre-assessment reading measures. The reading ability of the participants is therefore unclear, and their reading ability may have impacted the results of the intervention. For example, the stories may have been too easy for the participants, and therefore not a good barometer for the impacts of the intervention. This is less likely, given the use of the screening measure, but is still a possibility.

Recommendations for Future Research

This study examined participants' correct responses on listening comprehension. One area for future research is the need to look at the SLP with reading comprehension. Some students with ID can decode, but struggle with the comprehension piece of reading. Another area of future research would be to look at different text genres to see if the SLP could increase correct responding for comprehension questions. Students are required to read and interpret nonfiction texts. This could possibly help students with ID when navigating science and social studies materials or textbooks.

Another recommendation for future research would be to include more reading pre-assessments when selecting participants. This information would allow researchers to better describe the sample and determine whether this intervention is effective for only students with particular characteristics.

Implications for Practice

One implication for educators to implement the SLP is to use it in a one-on-one special education setting. Students with ID may require multiple redirects to attend to a task. This setup would allow for the instructor to work directly with the student and give them the prompts as needed during the listening comprehension questions.

A second implication is that teachers could train paraeducators on how to use the SLP to increase listening comprehension for students with ID. The first step for teachers would be to identify appropriate literature for the target student. Next, the teacher should determine the text dependent comprehension questions and response boards for the text. Then, the teacher would train the paraeducators on the process of the SLP they have identified. This training process could be implemented for the paraeducators in a short time period. Because of simplicity of the SLP, paraeducators would easily be able to implement the intervention in a one-on-one setting.

A third implication for educators is that having multiple response options for students to select their answers is important for students with limited communication skills. In this study, participants were able to select their choice from four response options. Depending on the level of your students you could increase or decrease the number of choices on the choice board.

A fourth implication is for the instructor to display only one choice board at a time. By keeping the choice boards clear of distractions, students may be able to produce more meaningful responses and avoid guessing. In order to help prevent visual distractions, print choice boards single sided or use a blank sheet of paper to cover up the board that is not in use.

A final implication for instructors to be aware of is that students may consistently choose the same answer (e.g., d, the last choice they hear). Therefore, when designing the answer choices and choice boards, response order should be varied so that all correct choices are not always in the same position. It is important to monitor how students are responding to help gauge if students are making meaningful responses or guessing.

Conclusion

Providing effective reading instruction for students with ID is a challenging but important task—especially in the area of listening comprehension because so much of becoming a literate reader depends on good listening comprehension skills for these students in addition to effective decoding skills. This study demonstrated how the SLP can be used to improve listening comprehension responses in the classroom. The SLP intervention can be used to focus on the correct responses made by students.

References

- Allor, J. H., & Mathes, P. G. (2012). *Early interventions in reading: Level K*. Columbus, OH: SRA/McGraw-Hill.
- Allor, J. H., Mathes, P. G., Roberts, J. K., Cheatham, J. P., & Champlin, T. M. (2010). Comprehensive Reading Instruction for Students with Intellectual Disabilities: Findings from the First Three Years of a Longitudinal Study. *Psychology in the Schools, 45*, 445-466. doi:10.1002/pits.20482
- Allor, J. H., Mathes, P. G., Roberts, J. K., Cheatham, J. P., & Otaiba, S. A. (2014). Is Scientifically Based Reading Instruction Effective for Students with Below-Average IQs? *Exceptional Children, 80*, 287-306. doi:10.1177/0014402914522208
- Bochner, S., Outhred, L., & Pieterse, M. (2001). A Study of Functional Literacy Skills in Young Adults with Down Syndrome. *International Journal of Disability, Development and Education, 48*, 67-90. doi:10.1080/10349120120036314
- Browder, D. M. (2001). *Curriculum and assessment for students with moderate and severe disabilities*. New York: Guilford Press.
- Browder, D. M., Hudson, M. E., & Wood, L. (2014). Using principles of high quality instruction in the general education classroom to provide access to the general education curriculum. In J. McLeskey, N. L. Waldron, F. Spooner, & B. Algozzine (Eds.), *Handbook of research and practice for effective inclusive schools* (pp. 339-351). New York, NY: Routledge.
- Browder, D. M., Wakeman, S. Y., Spooner, F., Ahlgrim-Delzell, L., & Algozzine, B. (2006). Research on Reading Instruction for Individuals with Significant

Cognitive Disabilities. *Exceptional Children*, 72, 392-408.

doi:10.1177/00144029060720040

Browder, D., Gibbs, S., Ahlgrim-Dezell, L., Courtade, G. R., Mraz, M., & Flowers, C.

(2009). Literacy for students with severe developmental disabilities: What should we teach and what should we hope to achieve? *Remedial and Special Education*, 30, 269-282.

Chall, J. S. (1983). *Stages of reading development*. New York: McGraw-Hill.

Doyle, P. M., Wolery, M., Ault, M. J., & Gast, D. L. (1988). System of least prompts: A literature review of procedural parameters. *The Journal of the Association for Persons with Severe Handicaps*, 13, 28-40.

Fletcher, J., & Clayton, I. (1994). Measuring listening comprehension in adolescents with intellectual disability. *Australia and New Zealand Journal of Developmental Disabilities*, 19, 53-59.

Gast, D. L. (2010). *Single subject research methodology in behavioral sciences*. New York, NY: Routledge.

Graves, M. F., Cooke, C. L., & Laberge, M. J. (1983). Effects of Previewing Difficult Short Stories on Low Ability Junior High School Students Comprehension, Recall, and Attitudes. *Reading Research Quarterly*, 18, 262-276.

doi:10.2307/747388

Groff, P. (1998). Where's the phonics? Making a case for its direct and systematic instruction. *The Reading Teacher*, 52, 138-141.

Hodges, C. A. (1980). Toward a broader definition of comprehension instruction. *Reading Research Quarterly*, 15, 299-306.

- Hoover, W. A., & Gough, P. B. (1990). The simple view of reading. *Reading and Writing, 2*, 127-160. doi:10.1007/bf00401799
- Hudson, M. E., & Browder, D. M. (2014). Improving Listening Comprehension Responses for Students with Moderate Intellectual Disability During Literacy Class. *Research and Practice for Persons with Severe Disabilities, 39*, 11-29. doi:10.1177/1540796914534634
- Hudson, M. E., Browder, D. M., & Wood, L. A. (2013). Review of Experimental Research on Academic Learning by Students with Moderate and Severe Intellectual Disability in General Education. *Research and Practice for Persons with Severe Disabilities, 38*, 17-29. doi:10.2511/027494813807046926
- Katims, D. S. (2000). Literacy instruction for people with mental retardation. Historical highlights and contemporary analysis. *Education and Training in Mental Retardation and Developmental Disabilities, 35*, 3–15.
- Kliwer, C. (1998). Citizenship in the literate community: An ethnography of children with down syndrome and the written word. *Exceptional Children, 64*, 167–180.
- Kliwer, C., Biklen, D., & Kasa-Hendrickson, C. (2006). Who may be literate? Disability and resistance to the cultural denial of competence. *American Educational Research Journal, 43*, 163–192.
- Lemons, C. J., Mrachko, A. A., Kostewicz, D. E., & Pattera, M. F. (2012). Effectiveness of decoding and phonological awareness interventions for children with Down syndrome. *Exceptional Children, 79*, 67-90.
- Mims, P. J., Browder, D. M., Baker, J. N., Lee, A., & Spooner, F. (2009). Increasing comprehension of students with significant intellectual disabilities and visual

- impairments during shared stories. *Education and Training in Developmental Disabilities, 44*, 409-420.
- Mims, P. J., Hudson, M. E., & Browder, D. M. (2012). Using read-alouds of grade-level biographies and systematic prompting to promote comprehension for students with moderate and severe developmental disabilities. *Focus on Autism and Other Developmental Disabilities, 27*, 65-78.
- Morgan, M. F., Moni, K. B., & Jobling, A. (2009). Who? Where? What? When? Why? How? Question words—What do they mean? *British Journal of Learning Disabilities, 37*, 178-185.
- National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Pub. No. 00-4754). Washington, DC: U.S. Department of Health and Human Services.
- Rylant, C. (2018). *Henry and Mudge the Complete Collection: Henry and Mudge*. S.I: Simon & Schuster Books.
- Rylant, C., & Howard, A. (2000). *Mr. Putter & Tabby Paint the Porch*. Orlando: Harcourt.
- Stahl, S. A., Duffy-Hester, A. M., & Stahl, K. (1998). Everything you wanted to know about phonics (but were afraid to ask). *Reading Research Quarterly, 34*, 338–355.
- Towles-Reeves, E., Kearns, J., Kleinert, H., & Kleinert, J. (2009). An analysis of the learning characteristics of students taking alternate assessment based on alternate achievement standards. *The Journal of Special Education, 42*, 241-254.

U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, What Works Clearinghouse. (2018). WWC Intervention Report: System of Least Prompts. Retrieved from https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_slp_101818.pdf

APPENDIX A

The Baseline Fidelity Checklist

BL Fidelity Checklist

_____ Teacher
communicated that she is
going to read a book to the
student and their goal is to
answer the questions the
best they can

_____ Teacher
communicated the title of
the book

_____ Teacher communicated the title of the story

Student _____

Session Number _____

Story ID # _____

Date _____

Fidelity Name _____

Chapter Read

_____ Teacher states that student can follow along in the book as I read out loud

_____ Teacher states that when I stop reading, I will ask you questions about the
chapter

_____ Teacher states, you can also use your choice board to help you answer

_____ Teacher shows the choice boards and how to point to the answer

_____ Teacher reads the story to the student

_____ Teacher will read the story straight through unless the student engages with
questions or comments. If the student engages, the teacher can answer questions or
respond to comments.

_____ Teacher engages the student with eye contact, comments, and/or questions two
times during the story

Questions

_____ Teacher states, here are your questions.

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 1**

_____ If student points or says the correct response, the teacher records the
response

_____ If student did not initiate a response within 10 seconds of the question or
made an incorrect response, the teacher records the response and moves onto the
next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 2**

_____ If student points or says the correct response, the teacher records the
response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 3**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 4**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 5**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 6**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 7**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 8**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 9**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ Teacher states what type of question and choices

_____ Teacher asks **Question 10**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher records the response and moves onto the next question

_____ After first probe of the day, the teacher tells the student he/she will receive a break. After second probe of the day, the teacher tells the student they are done for the day.

APPENDIX B

The SLP Fidelity Checklist

SLP Fidelity Checklist

_____ Teacher
communicated that she is
going to read a book to
the student and their goal
is to answer the questions
the best they can

_____ Teacher
communicated the title of
the book

_____ Teacher communicated the title of the story

Student _____

Session Number _____

Story ID # _____

Date _____

Fidelity Name _____

Chapter Read

_____ Teacher states that student can follow along in the book as I read out loud

_____ Teacher states that when I stop reading, I will ask you questions about the
chapter

_____ Teacher states, you can also use your choice board to help you answer

_____ Teacher shows the choice boards and how to point to the answer

_____ Teacher reads the story to the student

_____ Teacher will read the story straight through unless the student engages with
questions or comments. If the student engages, the teacher can answer questions or
respond to comments.

_____ Teacher engages the student with eye contact, comments, and/or questions two
times during the story

Questions

_____ Teacher states, here are your questions.

_____ Teacher states choices

_____ Teacher asks **Question 1**

_____ If student points or says the correct response, the teacher records the
response

_____ If student did not initiate a response within 10 seconds of the question or
made an incorrect response, the teacher administers the **first prompt: rereads
the paragraph containing the information**

_____ If student points or says the correct response, the teacher records
the response

_____ If student did not initiate a response within 10 seconds of the
question or made an incorrect response, the teacher administers the
second prompt: reads the sentence that contains the answer

_____ If student points or says the correct response, the teacher
records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 2**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 3**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records

the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 4**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 5**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 6**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response,

the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 7**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 8**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds

of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 9**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ Teacher states choices

_____ Teacher asks **Question 10**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **first prompt: rereads the paragraph containing the information**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **second prompt: reads the sentence that contains the answer**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **third prompt: gives two choices**

_____ If student points or says the correct response, the teacher records the response

_____ If student did not initiate a response within 10 seconds of the question or made an incorrect response, the teacher administers the **fourth prompt: states the answer and points to the response board, asking the participant to point to the response board/orally repeat correct answer as well**

_____ After first probe of the day, the teacher tells the student he/she will receive a break. After second probe of the day, the teacher tells the student they are done for the day.