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A Literature Review on Teaching Text Comprehension
to Students with Intellectual Disabilities

By

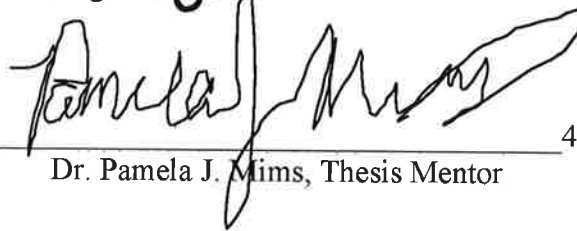
Abigail Combs

An Undergraduate Thesis Submitted in Partial Fulfillment
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Clemmer College
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4/13/2023
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A Literature Review on Teaching Text Comprehension to Students with Intellectual Disabilities

INTRODUCTION

The purpose of this review is to determine if particular instructional strategies, from a sufficient number of studies, are qualified as an evidence-based practice (EBP) for teaching text-based comprehension skills across content areas for students with intellectual disabilities (ID). This focused review will be added on to the previous review conducted by Mims et al. (in submission) where the search ended in 2018. Due to the time gap in the searched literature, the studies included within the Mims et al. study is no longer comprehensive. Therefore, this focused review of the literature will fill the gap of literature that was missing between 2018 to the present (i.e., April 2023). By combining these two literature reviews together, a much more thorough comprehensive review of the literature will be formed to demonstrate instructional strategies that qualify as an evidence-based practice for teaching text-based comprehension skills across core content areas to students with ID.

The concentration within both reviews will ultimately provide guidance to educators on EBPs for instruction on text-based comprehension across content areas for students with ID, illustrate potential research gaps, and identify methods to strengthen research in the future.

The review incorporates studies that focus on text-based comprehension for students with an ID. In order to evaluate the various studies found, the Council for Exceptional Children's (CEC) standards for EBPs in special education was selected (Cook et al., 2014). The CEC standards for EBPs in Special Education allow for evaluation of group studies as well as single-case research (single-subject studies), and the CEC standards establish standards for five

evidence-based classifications: EBPs, potentially EBPs, mixed effects, insufficient evidence, or negative effects.

METHODS

Search Procedures

Literature was examined that was published on teaching text-based comprehension skills across content areas to students with ID in order to identify effective teaching practices. A search of all the potential literature was conducted by using the search term(s) or a combination of the terms, whole and truncated versions, “intellectual disab*,” “mental retard*,” “developmental disab*,” “content,” “reading,” “math,” “science,” “social studies,” and “comprehension.” While examining literature, the electronic search was restricted to peer-reviewed articles published between 2018 to the present and used the following electronic search engines: PsychInfo, ERIC, and General OneFile (GALE).

Inclusion Criteria

The following inclusion criteria were established: (a) used a single case (SCD) or group research design (N>30 participants with ID in each group); (b) appeared in a peer reviewed journal in English; (c) included one or more participant with ID (IQ below 70, a clear participant description that suggests ID as described by the IDEA definition, or an educational eligibility of ID) aged 3-24; (d) used an intervention, or packaged intervention (e.g., peer delivered and system of least prompts), to increase text-based comprehension skills at the word level or higher or applied to a novel exemplar (e.g., excluded comprehension of sight words, but included vocabulary if applied to novel exemplars); (e) included graphs of comprehension for SCD studies; and (f) examined text-based comprehension skills in any academic content area. Text-based comprehension included either when a reader reads independently or listens to text to

comprehend material. Studies focused only on vocabulary definitions and rote skills were not included (e.g., sight words).

Quality Analysis of Evidence-Based Practices in Special Education

The quality indicator score sheet, provided by the CEC Standards of Evidence-based Practices (CEC SBEPs), was used to rate the studies. The score sheet describes eight primary quality indicators (QIs) and twenty-two sub-indicators that include the following: (a) Content and setting; (b) Participants; (c) Intervention agent; (d) Description of practice; (e) Implementation of fidelity; (f) Internal validity; (g) Outcome measures and dependent variables; (h) Data analysis. Each indicator or sub-indicator was rated as met when the study being reviewed addressed the essential intent, regarding the criteria. According to the CEC SBEPs, studies must meet all quality indicators and sub-indicators in order to be determined to be methodologically sound. Also, based on the CEC SBEPs, to be identified as an evidence-based practice, the practice within the study must yield the following: (a) at least two methodologically sound group comparison studies with random assignment, with at least 60 participants across studies, and positive results; (b) four methodologically sound non-random assignment group comparison studies, with at least 120 participants across studies, and positive results; (c) five methodologically sound single-case studies, with at least 20 participants across studies, and positive results.

The initial search found 5,941 articles; of the initial found, articles were omitted or disregarded that did not meet the inclusion criteria. After screening the titles and information within the abstracts of the articles, the initial search got narrowed down to 52 articles. Of the 52 articles, more articles were omitted after examining the articles, as they did not meet the inclusion criteria. After more examination, thirty-one articles were excluded (e.g., did not have

>30 participants with ID in the study, did not measure text-based comprehension, included no graphs or results pertaining to comprehension, did not include one or more participant with ID, did not fall under an academic area), and 20 articles were held onto for deeper analysis.

Interrater Reliability (IRR) for Quality Analysis

A long-time special education faculty member, who was well versed in conducting comprehensive evaluations of quality, independently coded five of the articles that were selected randomly from the 20 total articles. They were coded for quality using the CEC SEBPs. IRR was conducted by utilizing a point-by-point method, where the number of agreements was divided by the total number of indicators and then multiplied by 100, resulting in 97.2% agreement.

RESULTS

Study Quality

Twenty studies (n= 19 single-case design; n= 1 group design) were found to meet the inclusion criteria identified above. Among these, 13 studies met all QIs; all 13 studies met all QIs for single-case design, and none met the QIs for group design (See Table 1).

Six single-case design studies were not included in the descriptive table due to not meeting all QIs, and the one group design study was also not included in the descriptive table due to not meeting all QIs (Alqahtani, 2020; Bilgi & Özmen 2018; Fajardo, Ávila, Delgado, Gómez-Merino, & Salmerón, 2022; Omori & Yamamoto, 2018; Pennington, Mims, Mohammad, & Muharib, 2020; Saletta, Kaldenberg, Rivera, & Wood, 2019; Stevens & Burns, 2021). The numbers of QIs unmet (out of 22 total sub-indicators, range of 1 to 11 indicators missed) and the reasons varied across all studies. Of the seven, most (n=5) did not meet the indicator of describing the frequency and timing of outcome measures (QI 7.4; e.g., Stevens & Burns, 2021).

As stated previously, the one group design study was not included in the descriptive table due to not meeting all 24 of its QIs.

Participants

Participant characteristics were examined for all thirteen studies (all SCD) that met all QIs according to their design. A total of 48 students were participants across these studies. Across those students, 31 students had been diagnosed with ID. Of these 31 students, 19 were male students, and 12 were female students.

The ages of all of the participants ranged from 7 years old to 22 years old. The grades of all of the participants ranged from 1st grade to senior year and beyond; some students were receiving special education services but had already graduated (e.g., Knight, Creech-Galloway, Karl, & Collins, 2018).

Among all thirteen articles, there were four articles that did not report the race or ethnicity of the student participants; across these four articles, the race or ethnicity of 18 student participants was not specified. Among the nine studies that reported the race or ethnicity of the student participants, 30 participants were identified as Caucasian, 4 participants were identified as Latino or Hispanic, 1 participant was identified as Asian, and 3 participants were identified as African American.

In regard to IQs and intellectual functioning, all thirteen studies that met all QIs for their design shared details relating to the student participants' disabilities or presence of IQ levels. Across these thirteen studies, there were six studies that did not include the IQs of the student participants (i.e., Cheek, Rock, & Jimenez, 2019; Greene & Bethune, 2019; Knight, Kuntz, & Brown, 2018; Roberts, Kim, Meyer, & Tandy, 2020; Roberts, Tandy, Kim, & Meyer, 2019; Ryan, Jameson, Coleman, Eichelberger, Bowmann, Conradi, Johnston, & McDonnell, 2019). For

the seven studies that included the IQs of the student participants, the IQs range from 41 to 82, with a majority of the IQs being in the 50s and 60s.

Settings

Out of the thirteen studies, eleven of the studies occurred in self-contained special education settings. To be more specific, two took place in self-contained high school classrooms (Roberts et al., 2019; Knight et al., 2018), two took place in self-contained middle school classrooms (Head, Flores, & Shippen, 2018; Ryan et al., 2019), five took place in self-contained elementary classrooms (Aldosiry, 2022; Dieruf, Ault, & Spriggs, 2020; Greene & Bethune, 2019; Knight, Collins, Spriggs, Sartini, & MacDonald, 2018; Strickland, Boon, & Mason, 2020), one took place at a postsecondary education program at a university (Hua, Yuan, Monroe, Hinzman, Alqahtani, Alwahbi, & Kern, 2018), and one took place in a self-contained classroom at a private school (Cheek et al., 2019). Also, one study that took place in the self-contained setting also took place in a general education setting as well (Ryan et al., 2019).

Out of the thirteen studies, two of the studies occurred in a classroom setting that was not self-contained. To be more specific, one study took place in a conference room near the self-contained education classroom (Roberts et al., 2020), and another study took place in an inclusion classroom (Knight et al., 2018).

Out of the thirteen studies, the researcher or one of the researchers served as the interventionist in eight of the studies (e.g., Roberts et al., 2019). The classroom teacher was trained and served as the interventionist in three of the studies (e.g., Knight et al., 2018). A paraprofessional was trained and served as the interventionist in one of the studies (Ryan et al., 2019). Graduate students served as interventionists in one of the studies (Hua et al., 2018).

Targeted Skills

The thirteen studies that met all QIs represented targeted skills across content areas of English Language Arts (ELA), math, science, and social studies. Reading comprehension was the most frequently targeted skill across these studies; this skill appeared in six studies (Aldosiry, 2022; Head et al., 2018; Hua et al., 2018; Roberts et al., 2020; Roberts et al., 2019; Strickland et al., 2020). Both targeted skills, reading comprehension and listening comprehension, appeared in five studies (Dieruf et al., 2020; Greene & Bethune, 2019; Knight et al., 2018; Knight et al., 2018; Ryan et al., 2019). Listening comprehension was a targeted skill that appeared in two studies (Cheek et al., 2019; Knight et al., 2018).

Dependent Variables and Measures

Six studies used questions developed by the researchers in order to point out the effectiveness of the intervention they implemented (e.g., Roberts et al., 2020). Five studies utilized the implementation of comprehension questions, both literal recall and open-ended, in their intervention in order to detect the improvement of comprehension skills among the student participants (e.g., Cheek et al., 2019). Two of the studies used a task analysis or task analyses within the interventions in order to increase the text-based comprehension skills of the student participants during science instruction (Knight et al., 2018; Knight et al., 2018). Two of the studies utilized and implemented graphic organizers within the intervention in order to support the student participants while learning new material or give the student participants the opportunity to demonstrate their comprehension skills (Dieruf et al., 2020; Roberts et al., 2020). Two of the studies asked student participants, during the process of the study, to identify vocabulary words and their respective definitions in order to support the student participants in their future learning as well as to help the student participants show what they know (Greene & Bethune, 2019; Knight et al., 2018). One study used a reading fluency assessment that checked

the student participants' correct words per minute (CWPM) in order to detect the overall gain in reading comprehension skills they acquired in the study (Strickland et al., 2020). One study used the process of oral retelling in order to assess the student participants' comprehension skills (Hua et al., 2018).

Research Design

Across all thirteen studies that met all QIs of their design, all of the studies utilized a multiple baseline across participants design or a multiple probe design. Across these thirteen studies, five of the studies had an emphasis of being a single-subject or single-case research design (Cheek et al., 2019; Knight et al., 2018; Knight et al., 2018; Roberts et al., 2020; Roberts et al., 2019). Four of the studies had an emphasis of being a concurrent design (Greene & Bethune, 2019; Hua et al., 2018; Knight et al., 2018; Roberts et al., 2019). One of the studies utilized an adapted alternating treatment design (Aldosiry, 2022). Another study utilized a response-guided design (Hua et al., 2018).

Study Results

In this review, all thirteen studies had a functional relation and yielded positive results. Two studies specifically stated there was a functional relationship between an instructional strategy and the student participants' results; one study (Dieruf et al., 2020) showed a relationship between the system of least prompts, a graphic organizer, and the participants' ability to answer questions, and the other study (Head et al., 2018) showed a relationship between a direct instruction program and the specific reading comprehension skills of the student participants. Two studies were shown to have an immediate effect on the student participants with minimal overlap, meaning these studies contained effective interventions (Roberts et al., 2020; Roberts et al., 2019). Three studies specifically stated that there were increases in

comprehension and accuracy in direct correlation with the intervention and its effectiveness; there was increases in comprehension when comprehension strategies were applied as well as when responding during probes (Greene & Bethune, 2019; Roberts et al., 2020). Two studies showed that a frequency of questions has a direct impact on student participants' comprehension; within these two studies, the student participants' engagement remained high as well (Cheek et al., 2019; Greene & Bethune, 2019). The results of two studies shared the outcomes of student participants' fluency after the intervention was implemented; repeated reading is an effective strategy to increase student's fluency skills, which is a necessary condition for generalization (Hua et al., 2018; Strickland et al., 2020).

In this review, all thirteen studies yielded positive results that were specific to core content areas, such as ELA, math, science, or social studies. Across all thirteen studies, seven studies showed improvements during ELA instruction, five studies showed improvements during science instruction, one study showed improvements during math instruction, and one study showed improvements during social studies instruction. During science instruction, instructional strategies, such as a task analysis or explicit instruction or an adapted text, increase the student participants' text-based comprehension skills (Knight et al., 2018; Knight et al., 2018; Roberts et al., 2020; Roberts et al., 2019). During ELA instruction, instructional strategies, such as constant time delay or system of least prompts, increased the student participants' text-based comprehension skills as well as listening comprehension skills overall (Aldosiry, 2022; Dieruf et al., 2020). During math instruction, a video-prompting intervention helped student participants complete academic and functional skills at consistently higher levels (Knight et al., 2018). During social studies instruction, an embedded structured inquiry-based instruction helped student

participants to acquire and recall information without any prompting from others (Ryan et al., 2019).

Reliability

Inter-observer agreement (IOA), also known as Inter-rater reliability (IRR), was found to be acceptable across all studies that met their QIs with a range from 83% to 100% overall.

Procedural fidelity was also found to be acceptable across all studies that met their QIs with a range from 90.5% to 100%.

Social Validity

Across all thirteen studies, nine of the studies included social validity measures, and four studies did not include social validity measures. Among the nine studies that measured social validity, seven utilized a survey or a questionnaire (e.g., Roberts et al., 2019), and four used a Likert scale for said survey (e.g., Knight et al., 2018). Four studies utilized interviews to address social validity; two studies interviewed teachers and students (Roberts et al., 2020; Roberts et al., 2019), one study interviewed the teacher and the two trained observers (Aldosiry, 2022), and one study interviewed the student participants (Strickland et al., 2020).

Evidence-Based Instructional Methods for Teaching Comprehension

There are many practices that have sufficient evidence to be deemed as evidence-based practices or instructional methods for teaching comprehension. In Mims et al.'s study that this review is adding on to, the following methods were deemed to be evidence-based: (a) graphic organizers; (b) model-lead-test; (c) story-based lessons; (d) system of least prompts; (e) task analytic instruction; (f) time delay. With this review, six instructional methods will be emphasized for teaching comprehension that are deemed evidence-based in both reviews.

In the current review, graphic organizers were used in two methodologically sound studies that demonstrated positive effects to teach text-based comprehension skills (i.e., Dieruf et al., 2020; Roberts et al., 2020). In the previous review, graphic organizers were used in fourteen methodologically sound studies that all demonstrated positive effects. These fourteen methodologically sound studies contained 49 participants in total. With the addition of this review, there are 6 additional participants that can be added to this total. In relation to the overall review, the addition of two more studies that used graphic organizers as an instructional method emphasizes the importance of this evidence-based instructional method being utilized to teach comprehension within the classroom.

In the current review, story-based lessons (i.e., shared reading) were used in two methodologically sound studies that demonstrated positive effects to teach text-based comprehension skills (Cheek et al., 2019; Roberts et al., 2019). In the previous review, story-based lessons were used in eleven methodologically sound studies that all demonstrated positive effects. These eleven methodologically sound studies contained 36 participants in total. With the addition of this review, there are 6 additional participants that can be added to this total. In relation to the overall review, the addition of two more studies that used story-based lessons as an instructional method emphasizes the importance of this evidence-based instructional method being utilized to teach comprehension within the classroom.

In the current review, the system of least prompts was used in four methodologically sound studies that demonstrated positive effects to teach text-based comprehension skills (Dieruf et al., 2020; Roberts et al., 2020; Roberts et al., 2019; Ryan et al., 2019). In the previous review, the system of least prompts was used in twenty-one methodologically sound studies that all demonstrated positive effects. These twenty-one methodologically sound studies contained 160

participants in total. With the addition of this review, there are 12 additional participants that can be added to this total. In relation to the overall review, the addition of four more studies that uses the system of least prompts as an instructional method emphasizes the importance of this evidence-based instructional method being utilized to teach comprehension within the classroom.

In the current review, task analytic instruction was used in two methodologically sound studies that demonstrated positive effects to teach text-based comprehension skills (Knight et al., 2018; Knight et al., 2018). In the previous review, task analytic instruction was used in fifteen methodologically sound studies with 52 participants in total. With the addition of this review, there are 12 additional participants that can be added to this total. In relation to the overall review, the addition of two more studies that use task analytic instruction as an instructional method emphasizes the importance of this evidence-based instructional method being utilized to teach comprehension within the classroom.

In the current review, time delay was used in three methodologically sound studies that demonstrated positive effects to teach text-based comprehension skills (Aldosiry, 2022; Greene & Bethune, 2019; Ryan et al., 2019). In the previous review, time delay was used in fourteen methodologically sound studies that all demonstrated positive effects. These fourteen methodologically sound studies contained 141 participants in total. With the addition of this review, there are 10 additional participants that can be added to this total. In relation to the overall review, the addition of three more studies that use time delay as an instructional method emphasizes the importance of this evidence-based instructional method being utilized to teach comprehension within the classroom.

In the current review, simultaneous prompting was used in one methodologically sound study that demonstrated positive effects to teach text-based comprehension skills (Aldosiry,

2022). In the previous review, simultaneous prompting was used in four methodologically sound studies that all demonstrated positive effects. These four methodologically sound studies contained 17 participants in total. With the addition of this review, there are 4 additional participants that can be added to the total. With the four previous methodologically sound studies containing simultaneous prompting, an additional methodologically sound study will deem simultaneous prompting to be evidence-based instructional method for teaching comprehension. In relation to the overall review, the addition of one more article containing simultaneous prompting as an instructional method emphasizes the importance of this evidence-based instructional method being utilized to teach comprehension within the classroom.

Instructional Methods for Teaching Comprehension with Insufficient Evidence

There are several practices that do not have sufficient evidence to be deemed as evidence-based practices. In Mims et. al.'s study that I am adding on to, the following methods were deemed to have insufficient evidence: (A) modified schema-based instruction & (B) video self-modeling or video prompting & (C) direct instruction & (D) strategy instruction. With this review, I will emphasize two instructional methods for teaching comprehension that still do not have sufficient evidence to be deemed an evidence-based practice.

In the current review, there was one study about video prompting that demonstrated positive effects, making this study the fourth overall study about video-self modeling or video prompting in the overall review (Knight et al., 2018). The previous review had 23 participants, and the addition of this review would include 3 additional participants in the evidence for this instructional method of teaching comprehension

In the current review, there was one study focusing on direct instruction and its effect on reading comprehension of students with disabilities, contributing to the overall review of direct

instruction as an instructional method (Head et al., 2018). The previous review had 27 participants, and the addition of this review would include 3 more participants in the evidence for this instructional method of teaching comprehension.

DISCUSSION

The purpose of this review is to determine if particular instructional strategies, from a sufficient number of studies, are qualified as an evidence-based practice (EBP) for teaching text-based comprehension skills across content areas for students with intellectual disabilities. This current review will add on literature to a previous study done by Mims et. al. (in submission) where the research ends in 2018, and it will fill the gap that is missing between 2018 to the present (i.e., April 2023). By combining these two literature reviews together, an overall literature review will be formed to demonstrate instructional strategies that qualify as an evidence-based practice for teaching text-based comprehension skills across core content areas.

In accordance with the literature review done by Mims et. al., using CEC's SEBPs, it was concluded that graphic organizers, model-lead-test, story-based lessons, task analytic instruction, response prompting strategies (system of least prompts and time delay), and the newly-identified simultaneous prompting can be considered EBPs to increase text-based comprehension skills across the core content areas of ELA, math, science, and social studies for students with ID in kindergarten through twelfth grade. Using CEC's SEBPs, it was concluded that the following practices were 'potentially evidence-based' or the following practices had 'insufficient evidence,' where there are zero to four single-case studies with positive student outcomes: modified schema-based instruction, video self-modeling or video prompting, direct instruction, and strategy instruction.

Limitations and Future Research

The current review has several limitations. First, two of the databases used in the Mims et al. review (i.e., Master File Premier & Academic Search Complete) were not accessible databases for this review. As a result, an expert librarian was consulted, and we were advised to use a similar data base (i.e., General One File). Another limitation was that a hand search was not conducted in this review, as was in the prior Mims et al. review. This was due to the limited time and access to the targeted journals needed for the hand search. Future reviews should try to replicate prior reviews for overall consistency. Third, the results included in this study only indicated if there was a functional relation and not the magnitude of effect. Future reviews may consider including the results of the identified studies magnitude of effect.

Conclusion

In conclusion, this targeted review added critical information to the prior Mims et al. comprehensive review of studies conducted on listening comprehension across content areas with students with ID. Results of these reviews provide teachers with additional evidence-based practices with which to promote access to grade aligned content focused on listening comprehension. Moreover, the results of these reviews provide researchers with areas of research gaps that need to be addressed in order to move some of these promising practices or minimal evidence-based practices forward for future consideration of moving to an EBP.

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Table 1. *Descriptive Components of the Studies Meeting All of CEC's Quality Indicators*

Ref	Student Info	Setting/ Content/ Comp type	DV	IV	Design	Results
Aldosiry (2022)	<ul style="list-style-type: none"> • N: 4 • Age: 7-9 • 4 F • IQ: 54-62 • Race: NS 	<ul style="list-style-type: none"> • SPED class • By teacher • ELA • Reading comp 	<ul style="list-style-type: none"> • # of words decoded and read correctly 	<ul style="list-style-type: none"> • CTD • SP 	<ul style="list-style-type: none"> • Adapted alternating treatment design replicated across participants 	<ul style="list-style-type: none"> • Both CTD and SP were effective when used to teach word decoding and reading skills to students with ID • Students maintained and generalized skills • IOA 100% • PR 100%
Cheek et al. (2019)	<ul style="list-style-type: none"> • N: 3 • Age: 7-9 • 2 M; 1 F • IQ: NS • Race: NS 	<ul style="list-style-type: none"> • SPED class • By teacher • ELA • Listening comp 	<ul style="list-style-type: none"> • # of correct independent responses to comprehension questions • Interval recordings of student engagement 	<ul style="list-style-type: none"> • CROWD in the CAR comprehension strategy • SBL • Online module • eCoaching 	<ul style="list-style-type: none"> • Single-subject, multiple-baseline across participants 	<ul style="list-style-type: none"> • Students improved listening comprehension • Students maintained and generalized skills • Functional relationship was established between comprehension strategy and students' comprehension responses during shared reading • IOA 100% • PR 100%
Dieruf et al. (2020)	<ul style="list-style-type: none"> • N: 3 • Age: 8-11 • Grade: 1st, 4th • 1 M; 2 F • IQ: 46-48 • Race: 1 A, 2 AA 	<ul style="list-style-type: none"> • SPED class • By researcher • ELA • Reading and listening comp 	<ul style="list-style-type: none"> • % of correct independent responses to text-dependent reading comprehension where students compared characters in an adapted text 	<ul style="list-style-type: none"> • SLP • GO 	<ul style="list-style-type: none"> • Multiple probe across participants 	<ul style="list-style-type: none"> • All students reached criterion when SLP and a GO were introduced • Students maintained and generalized skills • SLP and a GO are effective in increasing the ability for students to make comparisons between two characters from adapted texts • IOA 100% • PR 100%

Greene & Bethune (2019)	<ul style="list-style-type: none"> • N: 3 • Age: 7-10 • Grade: 1st, 4th, 5th • 3 M • IQ: NS • Race: NS 	<ul style="list-style-type: none"> • SPED class • By researcher • Science • Reading and listening comp 	<ul style="list-style-type: none"> • # of vocabulary words and definitions identified • Answering questions related to unit concepts 	<ul style="list-style-type: none"> • CTD • SI 	<ul style="list-style-type: none"> • Multiple-baseline across behaviors with concurrent replication across participants 	<ul style="list-style-type: none"> • Students increased in accuracy of responding during probes across all units • Trial-by-trial IOA 98.9% average • PR 98%
Head et al. (2018)	<ul style="list-style-type: none"> • N: 3 • Age: 10-16 • Grade: 5th, 8th, 10th • 2 M; 1 F • IQ: 62-82 • Race: 2 C, 1 AA 	<ul style="list-style-type: none"> • SPED class • By researcher • ELA • Reading comp 	<ul style="list-style-type: none"> • Comprehension skills on parts of speech, combining sentences, contradictions, relevant or irrelevant information • Generalize comprehension skills to other tasks required in the academic setting 	<ul style="list-style-type: none"> • DI 	<ul style="list-style-type: none"> • Multiple probe across behaviors 	<ul style="list-style-type: none"> • Students improved on all measures of reading comprehension and mastered each skill presented • Students generalized and maintained skills • IOA 100% • PR 100%
Hua et al. (2018)	<ul style="list-style-type: none"> • N: 5 • Age: 19-22 • 3 M; 2 F • IQ: 53-79 • Race: 5 C 	<ul style="list-style-type: none"> • Postsecondary SPED program • By researcher (graduate students) • ELA 	<ul style="list-style-type: none"> • Narrative complexity of oral retell • # of correct words read per minute • # of correct words decoded 	<ul style="list-style-type: none"> • AIMSweb passages • Reread-adapt and Answer-Comprehend 	<ul style="list-style-type: none"> • Response-guided and randomized concurrent multiple-baseline across participants 	<ul style="list-style-type: none"> • Students improved on decoding and reading words more accurately • Students improved on narrative retelling skills • IOA: 91% • PR: 98%

		<ul style="list-style-type: none"> • Reading comp 				
<p>Knight et al. (2018a)</p>	<ul style="list-style-type: none"> • N: 4 • Age: 18-21 • Grade: 12th • 3 M; 1 F • IQ: 41-55 • Race: 4 C 	<ul style="list-style-type: none"> • SPED class • By researcher • Science • Reading and listening comp 	<ul style="list-style-type: none"> • # of correct responses on science comprehension probes 	<ul style="list-style-type: none"> • EI 	<ul style="list-style-type: none"> • Multiple probe across participants 	<ul style="list-style-type: none"> • Students increased number of correct answers on science comprehension probe trials when explicit instruction was introduced • IOA 100% • PR 100%
<p>Knight et al. (2018b)</p>	<ul style="list-style-type: none"> • N: 3 • Age: 7-10 • 2 M; 1 F • IQ: NS • Race: 1 C, 2 H 	<ul style="list-style-type: none"> • Inclusive class • By researcher and paraprofessionals • ELA/math • Listening comp 	<ul style="list-style-type: none"> • % of independent correct steps completed in task analysis for academic skill 	<ul style="list-style-type: none"> • TA • Video-prompting 	<ul style="list-style-type: none"> • Single-subject, combination design using a multiple probe design across participants and behaviors 	<ul style="list-style-type: none"> • Students performed all skills at higher levels upon introduction of the video-prompting intervention • Students generalized and maintained skills • IOA 100% • PR 97.2%
<p>Knight et al. (2018c)</p>	<ul style="list-style-type: none"> • N: 8 • Age: NS • Grade: 1st, 2nd, 3rd, 5th • 5 M; 3 F • IQ: 41-55 • Race: NS 	<ul style="list-style-type: none"> • SPED class • By teacher • Science • Reading and listening comp 	<ul style="list-style-type: none"> • # of questions answered correctly on science comprehension assessment 	<ul style="list-style-type: none"> • TA • Scripted and unscripted science lessons 	<ul style="list-style-type: none"> • Single-case multiple probe design across lessons with concurrent replication across participants 	<ul style="list-style-type: none"> • All students met criteria when teachers used the unscripted task-analyzed lesson • 7 of the 8 students met criteria when teachers used the scripted task-analyzed lesson • Students maintained skills • IOA 98% • PR 93.8%
<p>Roberts et al. (2020)</p>	<ul style="list-style-type: none"> • N: 3 • Age: 15-17 • 3 M • IQ: NS 	<ul style="list-style-type: none"> • Separate room • By researcher 	<ul style="list-style-type: none"> • # of questions answered correctly for each section of 	<ul style="list-style-type: none"> • SLP • GO • Adapted text 	<ul style="list-style-type: none"> • Single-subject, multiple- 	<ul style="list-style-type: none"> • Students had an increase in comprehension scores when the comprehension strategies were applied during intervention

	<ul style="list-style-type: none"> • Race: 2 C, 1 H 	<ul style="list-style-type: none"> • Science • Reading comp 	the adapted science text		baseline design	<ul style="list-style-type: none"> • IOA 99% • PR 100%
Roberts et al. (2019)	<ul style="list-style-type: none"> • N: 3 • Age: 17-19 • 1 M; 2 F • IQ: NS • Race: 3 C 	<ul style="list-style-type: none"> • SPED class • By researcher • Science • Reading comp 	<ul style="list-style-type: none"> • # of questions answered correctly for each section of the adapted text 	<ul style="list-style-type: none"> • SLP • SBL • Adapted text 	<ul style="list-style-type: none"> • Single-subject, concurrent, multiple-baseline design across participants 	<ul style="list-style-type: none"> • Students improved comprehension of science text when the reading included comprehension strategies before, during, and after reading the adapted text • Students participated in summative evaluation • IOA 100% • PR 100%
Ryan et al. (2019)	<ul style="list-style-type: none"> • N: 3 • Age: 12-14 • 2 M; 1 F • IQ: NS • Race: 2 C, 1 H 	<ul style="list-style-type: none"> • SPED class • By paraprofessional • Social studies • Reading and listening comp 	<ul style="list-style-type: none"> • % of concept statements that students answered correctly per lesson 	<ul style="list-style-type: none"> • SLP • CTD 	<ul style="list-style-type: none"> • Multiple probe across participants 	<ul style="list-style-type: none"> • Students made progress and used structured inquiry-based instruction to acquire and recall information without prompting from others • Students maintained and generalized skills • IOA 99.8% • PR 93%
Strickland et al. (2020)	<ul style="list-style-type: none"> • N: 3 • Age: 11-12 • 3 M • IQ: 59 • Race: 3 C 	<ul style="list-style-type: none"> • SPED class • By researcher • ELA • Reading comp 	<ul style="list-style-type: none"> • CWPM • EPM • % of comprehension questions answered correctly 	<ul style="list-style-type: none"> • Repeated reading with systematic error correction 	<ul style="list-style-type: none"> • Multiple probe across participants 	<ul style="list-style-type: none"> • Students increased reading fluency skills and reading comprehension skills • Students maintained skills • IOA: 94.1% • PR: 100%

Notes: N= number; F= female; M= male; NS= race, ethnicity, language not specified; A=Asian; AA=African American; H=Hispanic/Latino/Mexican-American; C=Caucasian; SPED= special education; ELA= English Language Arts; Comp = comprehension; CTD = constant time delay; ORF= oral reading fluency; CWPM=correct words per minute; EPM= errors per minute; SP= simultaneous prompting; SI= systematic instruction; DI= direct instruction; EI= explicit instruction; GO= graphic organizers; SBL = story-based lessons; SLP= system of least prompts; TA= task analysis; IOA= inter-observer agreement; PR= procedural fidelity; ID= intellectual disability