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Adapted Shared Reading for Minimally

Verbal Students with Autism

A thesis submitted in partial satisfaction
of the requirements for the degree of Master of Arts
in Education

by

Charlotte Alcestis Mucchetti

2013

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ABSTRACT OF THE THESIS

Adapted Shared Reading for Minimally Verbal Students with Autism

by

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Master of Arts in Education

University of California, Los Angeles, 2013

Professor Connie Kasari, Chair

Almost nothing is known about the capacity of minimally verbal students with autism to develop literacy skills. Shared reading is a regular practice in early education settings and is widely thought to encourage language and literacy development. There is some evidence that children with severe disabilities can be engaged in adapted shared reading activities. The current study examines the impact of teacher-led adapted shared reading activities on engagement and story comprehension in minimally verbal 5-6 year old children with autism using a multiple baseline/alternating treatment design. Four students and three teachers participated. Teachers conducted adapted shared reading activities with modified books and used specific strategies for increasing student engagement. Student performance during adapted activities was compared to performance during standard shared reading sessions.

Results: All students showed increased story comprehension and engagement during adapted shared reading. Average percent of session engaged was 87-100% during adapted sessions, compared with 41-52% during baseline. Average number of correct responses to story comprehension questions was 4.2-4.8 out of 6 during adapted sessions compared with 1.2-2 during baseline. Visual supports, tactile objects and specific teaching strategies offer ways for minimally verbal students to meaningfully participate in literacy activities. Future research should investigate adapted shared reading activities implemented classroom-wide, as well as joint engagement, language and literacy outcomes after using such activities over time.

The thesis of Charlotte Alcestis Mucchetti is approved.

Alison L. Bailey

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2013

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Communication impairments are a hallmark of autism spectrum disorders and many individuals with autism have significant difficulties with language and communication throughout life. Researchers estimate that more than 25% of individuals with autism remain non-verbal into adulthood (Schlosser & Wendt, 2008), while one third to one half of children with autism are unable to use speech functionally (National Research Council, 2001). Intervention and education for these individuals often include a focus on alternate methods of communication, such as sign language and picture or word based augmentative and alternative communication (AAC) systems. AAC systems consist of tools or equipment that aide the user in communicating and they range from simple picture-based communication books to dynamic text-based speech output systems. For individuals with autism who are minimally verbal, literacy offers an important avenue for communication. Individuals who develop sufficient literacy skills are able to access a wider variety of text based communication systems and use those systems more independently and fluently.

Few minimally verbal individuals with autism develop literacy skills beyond functional sight word recognition (Vacca, 2007), which significantly limits their ability to communicate. Teaching literacy to students with severe disabilities (including autism) is a relatively new practice (Katims, 2000) and there is little significant research in this area. Most current literacy instruction for this population is focused on isolated skills (such as word recognition), and teaching is dominated by decontextualized, behavioral approaches (Katims, 2000). A 2006 review (Browder, Wakeman, Spooner, Ahlgrim-Delzell & Algozzine) examined 128 studies on teaching reading to individuals with significant cognitive disabilities and concluded that although many studies focused only on sight words, attempts to teach broader literacy skills to students with severe cognitive disabilities could be successful.

There is extensive research on literacy instruction for typically developing students as well as students with mild disabilities, but minimal research extending those practices to children with significant disabilities. There is a need for research that explores how to adapt typical literacy education strategies for use with minimally verbal students with autism.

Literacy in Special Education

Teachers generally conduct literacy instruction by teaching incremental, foundational skills in a specific sequence, on which students will be able to build more advanced reading skills. When working with students with cognitive disabilities, professionals often assume that they cannot master prerequisite skills, and may therefore not attempt to teach literacy (Kliwer & Bilken, 2001). Even in inclusion programs, students with autism are often excluded from the literacy curriculum and instead are taught only sight words (Vacca, 2007). Choosing not to teach literacy to students is a decision that is life-limiting and should not be made based only on the presence of a disability. In order to develop and promote a more comprehensive approach to literacy instruction for students with severe autism, further research is needed investigating the efficacy of various instructional strategies.

There has been a recent push to develop guidelines and curricula for educating students with autism. The National Autism Center (2009) ranked autism interventions based on the strength and rigor of their research backing. All of the academic interventions that they evaluated fell into the “unestablished” category (meaning no substantial research backing), while the majority of the “established” treatments were behavioral in nature. By the NAC standards, there is a lack of research exploring best practices for teaching academics to children with autism. Much more research and development will be needed in order to create effective curricula, including literacy interventions, for students with autism. The adapted shared reading

intervention investigated in this study has been shown to be an effective intervention for students with severe disabilities (Browder, Mims, Spooner, Ahlgrim-Delzell & Lee, 2008), and further research may prove its efficacy as academic intervention for students with autism as well.

Shared Reading

Shared reading is a broad term describing activities where an adult reads aloud to children, incorporating interaction through the use of questioning and discussion (Fisher, Frey & Lapp, 2008, Holdaway, 1982). Shared reading exposes students to age-appropriate literature, while providing scaffolding for language and literacy skills through interaction with the teacher. Because it elicits joint attention and is presented as an explicit routine, shared reading is especially suited to encourage language development (Davie & Kemp, 2002). Specific characteristics of shared reading that are associated with language and vocabulary development include exposure to high quality oral language and targeted vocabulary, instructor demonstrated word learning strategies, opportunity for meaningful vocabulary use by students, links to the student's prior experience and social interaction (Gormley & Ruhl, 2005; Snow, 1991). Vocabulary is a strong determinant of reading success (Biemiller, 2003) and shared reading enables students who are not yet independent readers to access literature and new vocabulary. With typically developing children, factors that are associated with increased literacy learning from shared reading include rich dialogic discussions, multiple readings, performance-oriented readings, small groups and engaging books.

In addition to supporting literacy in typically developing students, shared reading is effective for students with mild disabilities. Shared reading has been shown to elicit more language, more intelligible language and more complex language in children with mild to moderate cognitive disabilities when compared to facilitated play activities (Davie & Kemp,

2002). Shared reading activities can be modified to meet the needs of students with mild to moderate disabilities by emphasizing the collaborative nature of the activity (pausing for students to respond, allowing the students to manipulate the book, choosing books with interactive parts and repeated text), choosing books with few words per page, and having the teacher interact with the book by commenting, questioning and tracking the text during reading (Justice & Kaderavek, 2002).

Shared Reading for Students with Severe Disabilities

A small number of prior studies have investigated the use of shared reading with students with severe disabilities. Skotko, Koppenhaver, and Erickson (2004) studied the effects of parent-directed shared reading activities on the communication behaviors of girls with Rett Syndrome. They found that parent reading behaviors such as commenting, questioning, pointing, labeling and waiting for child response were positively correlated with increased communication behavior from their children. Two studies examined the effects of structured, adapted shared reading activities with students with severe disabilities in the classroom. Browder, Mims, Spooner, Alghrim-Delzell, and Lee (2008) used a multiple baseline design across participants to measure the effects of planning and implementing shared reading activities designed for students with multiple disabilities. They found that student independent responding increased during shared reading activities that had been designed to support their unique needs. Mims, Browder, Baker, Lee, and Spooner (2009) used a multiple baseline design across materials (books) to investigate the effects of least-to-most prompting with shared reading activities for students with significant cognitive disabilities and visual impairments. They found that least-to-most prompting increased student independent correct responses to reading comprehension questions beyond structured, adapted shared reading activities alone. In both Browder et al. (2008) and

Mims et al. (2009), the researcher served as the interventionist, conducting the shared reading sessions with the students. In contrast, Browder, Trela, and Jimenez (2007) trained teachers to follow a task analysis for teaching story based lessons to students with severe disabilities. The task analysis instructed teachers in the steps of the story based lesson, including components such as “Teacher points to each word in chosen sentence while reading aloud” and “Gives students opportunity to point to/say vocabulary word” (Browder, Trela & Jimenez, 2007, p. 211). Using a multiple baseline design across participants, they found that the number of task analysis steps that teachers followed increased after training, as did student overall and correct independent responses.

Adapted shared reading activities are well suited to addressing the educational needs of minimally verbal students with autism. Research suggests that children with autism rely heavily on memorization to learn sight words, without necessarily developing symbolic representation (understanding that the word represents an object or concept) or comprehension (Nation, Clarke, Wright, Williams, 2006; Priessler, 2008). Shared reading activities present words and pictures in context, which increases the opportunity for students to develop symbolic representation and comprehension. Additionally, prior research has identified several curricular elements that have empirical backing as effective for instructing students with autism. Among the elements identified are: systematic instruction, structured learning environments and specialized curricular content (Ivoannone, 2003). Shared reading activities allow for repeated exposure to adapted and specialized materials in a structured context. Through the use of objects and visual supports to augment the activity, students with autism may be able to effectively participate in interactive shared reading.

The purpose of the current study was to investigate the effect of shared reading activities adapted with modified text, tactile objects and visual supports on the story comprehension and activity engagement of minimally verbal students with autism and significant cognitive disabilities. Similar to previous studies, the current study uses a single subject multiple baseline design across participants to measure intervention effects. This study expands on previous research by specifically targeting students with autism, as well as using teachers rather than researchers as interventionists. Classroom teachers were taught to implement the adapted shared reading lessons according to a task analysis similar to the one developed by Browder, Trela, and Jimenez (2007). It was hypothesized that students would display increased reading comprehension and activity engagement during the adapted shared reading activities, compared with standard shared reading.

Methods

Participants and Setting

Three teachers and four students participated in this study. Inclusion criteria for teachers were that they taught elementary age minimally verbal students with autism and held the appropriate teaching credential. Inclusion criteria for students were a) a primary diagnosis of autism, b) a spontaneous vocabulary of 20 or fewer words (as reported by the teacher and parent), and c) have an IQ below 55 (as measured by the Leiter-R). Teachers were recruited by giving IRB-approved recruitment materials to all elementary school teachers at the special education school where the study took place. Teachers were invited to attend an information session with the researcher if they were interested in participating. The students were chosen based on the above criteria, as well as the appropriateness of the intervention to the student's educational goals. The teachers made the selection of which student(s) they believed would be

best suited for the intervention. Students were then assessed to confirm that they met inclusion criteria.

Student Characteristics

Four students (three male, one female) were selected by their teachers to participate (one teacher chose two students). Students were between six and eight years of age and were in early elementary school classrooms (mixed grades K-3rd). All student diagnoses were confirmed with the Autism Diagnostic Schedule – Module 1. Student language and cognitive abilities were assessed with the Leiter-R, Mullen Scales of Early Learning, and Peabody Picture Vocabulary Test. Student characteristics are summarized in Table 1.

Teacher Characteristics

Three teachers participated in this study. Teachers were chosen based on their interest in participating and the appropriateness of the intervention to the students in their classroom. All three teachers held moderate/severe special education teaching credentials. One teacher was in her first year of teaching, one in her second year of teaching, and one in her third year.

Setting

The students and teachers were from a non-public school serving students with autism in a large metropolitan area. The students were from various home school districts and attended a non-public school due to the severity of their disabilities. Each class had between seven and 12 students, one teacher and three to five instructional aides. The school served primarily students with autism. All intervention sessions took place seated at a table in the classroom, one on one with the teacher.

Experimental Design

Baseline and intervention conditions were arranged in a multiple baseline

design across participants. This was combined with a modified alternating treatment design through the alternating presentation of three different books. Books 1, 2 and 3 were presented in an alternating order during both baseline and intervention conditions.

Books 2 and 3 were used in the intervention condition. These books were modified as described below, and sessions with these books were conducted as described in the intervention condition below. Book 1 was not modified, and sessions with this book were conducted as described in the baseline condition below. Book 3 served as a continuing baseline for each student, to facilitate the comparison of intervention effects against the effect of extended practice with the same book without intervention.

Experimental Control

Experimental control was maintained in accordance with the standard procedures for single subject research design (Kazdin, 2010). This study utilized a combined multiple baseline/alternating treatment design. Experimental control was established according to the protocol for each of those designs. The adapted shared reading activities were initiated with successive students at least three sessions apart and only when the data for each participant was stable. Stability was defined as no new high or low measurements for three consecutive sessions.

This study used three books that alternated across intervention sessions. Once the intervention phase began, two books were used in the intervention condition (adapted with the teacher using the shared reading task analysis) and one book remained in the baseline condition (un-adapted with the teacher conducting shared reading as they normally would). Two books were included in the intervention condition to rule out the effect of individual books. If both books in the intervention condition lead to consistently higher performance than the book in the

baseline condition, it is less likely that the effect is due to book choice. By including a third book in the baseline condition throughout the intervention phase, the effect of repeated readings can be assessed.

Materials

Study materials included three different books, answer boards for students (with picture symbols and tactile objects), as well as picture symbols and tactile objects for book adaptations. Book characteristics and adaptations are summarized in Table 2.

Intervention Description and Treatment Fidelity

Baseline

During baseline, student performance was measured during shared reading activities. Shared reading was conducted one-on-one with the classroom teacher as the instructor. During baseline, the books were in their original format (un-adapted) and read without additional story props or visual aids. The teacher asked six comprehension questions during each story, and a response board showing picture symbols was provided for students to communicate their responses. The teacher did not provide corrective feedback for incorrect responses.

Intervention

During intervention, student performance was measured during shared reading activities conducted one-on-one with the classroom teacher as the instructor. Two of the books were adapted to include simplified text, visual supports and tactile objects embedded in the book. Book descriptions are summarized in Table 2. The teacher asked six comprehension questions during reading. Students were provided with a response board showing picture symbols and objects (matching those used in the book) to communicate their responses. If the student responded incorrectly or did not respond within 5 seconds, the teacher modeled the correct

response and then re-asked the question. If the student still responded incorrectly or did not respond within 5 seconds, the teacher physically prompted the student to choose the correct response (i.e. take the student's hand and touch the correct object).

Before intervention, the teacher was trained to use a task analysis for the shared reading activity (see Table 3).

Treatment Fidelity

Treatment fidelity was measured during 20% of the sessions. The researcher observed the session and recorded whether or not the teacher implemented each step of the task analysis. Treatment fidelity was 100%.

Screening and Descriptive Measures

Students were assessed using the Mullen Scales of Early Learning, Peabody Picture Vocabulary Test, Leiter-R and Autism Diagnostic Observation Schedule.

Leiter-R

The Leiter-R (Roid & Miller, 1997) is a completely nonverbal assessment of general cognitive ability that is often used to assess who are cognitively delayed and/or have limited expressive language. The Leiter-R was attempted with all four participants, but each participant failed to correctly respond to the training items, so testing was discontinued.

Mullen Scales of Early Learning

The Mullen Scales of Early Learning (MSEL) (Mullen, 1989) was used to assess general cognitive ability. Students were assessed using the visual reception, receptive language and expressive language sub-domains.

Peabody Picture Vocabulary Test

The Peabody Picture Vocabulary Test is a measure of receptive vocabulary. The participant is asked to point to the picture that matches the word that the examiner says. The PPVT was used to characterize student's receptive language. One student was not able to respond to any items on the PPVT.

Autism Diagnostic Observation Schedule

Module 1 of the Autism Diagnostic Observation Schedule (ADOS, Lord, Risi, Lambrecht, Cook, Leventhal, DiLavore et al., 2001) is a 30-45 minute observation of behavior. Only Module 1 is administered because it is intended for nonverbal children. The ADOS is a standard tool for making a research diagnosis of autism. All students participating in the study have a previous diagnosis of autism (from the school district, regional center, and/or private physician). The ADOS (Lord, C., Rutter, M.D., DiLavore, P. & Risi, S., 2001) was used to confirm these diagnoses for research purposes. It was administered by the first author, who was fully trained and reliable on the assessment.

Dependent Measures and Interobserver Agreement

Two variables were measured to determine treatment effects: student correct responses to story comprehension questions and activity engagement. Story comprehension responses were measured and recorded by the teacher (interventionist) during each session. Activity engagement was measured by a second observer during each session.

Reading Comprehension

Correct responses to story comprehension were measured during each session. A correct response was defined as the student saying, pointing to or touching the correct response after the story comprehension question is asked and shown. Responses to comprehension questions were recorded by either the teacher or the researcher during the shared reading session.

Activity Engagement

Activity engagement was measured with interval recording, using momentary time sampling. Intervals were one minute in length, and the observer recorded whether or not the student was attending at the end of each interval. Attending was defined as the student looking at the speaker or instructional materials, physically interacting with the instructional materials (such as turning the page or touching story props), and/or verbally or gesturally engaging with the instructor (such as answering a question or pointing). Activity engagement was recorded by the researcher and/or a second observer during the shared reading sessions.

Interobserver Agreement

The researcher and teacher collected data simultaneously on 30% of all sessions and recorded both story comprehension performance and activity engagement. Inter-observer agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements. Inter-observer agreement for story comprehension questions was 100%. Average inter-observer agreement for time on task was 97%, and ranged from 85% to 100%.

Teacher Feedback

Participating teachers were asked to provide information feedback throughout the study. Following the completion of the study, teachers were asked to rate how they felt about the shared reading activities and whether they would continue to use similar activities with their students.

Results

All four students showed gains in story comprehension and task engagement from baseline to intervention. Percent Non-Overlapping Data (PND) was calculated based the highest baseline point in the initial baseline phase. PND was high for all students, ranging from 80% to

100%. Results for story comprehension and activity engagement are summarized in Table 3 and Table 4.

Story Comprehension

All students increased their story comprehension from baseline to intervention, as measured by story comprehension questions. Student 1 had an average of 2 correct responses in the initial baseline condition, which increased to 4.33 in the intervention condition. He demonstrated an immediate intervention effect, increasing from 2 correct responses in the last baseline session to 5 correct responses in the first intervention session. He showed a reversal effect the first time the alternating baseline was introduced (session 6), but then generalized to the un-adapted book in session 9. His story comprehension responses remained high, and he showed 100% PND between the initial baseline and intervention conditions.

Student 2 had an average of 1.5 correct responses in the initial baseline condition, which increased to 4.8 in the intervention condition. He demonstrated an immediate intervention effect, increasing from 0 correct responses in the last baseline session to 5 correct responses in the first intervention session. He showed a clear reversal effect each time the alternating baseline book was used (sessions 7, 10 and 13). His story comprehension responses remained high throughout the intervention condition, and he showed 100% PND between the initial baseline and intervention conditions.

Student 3 had an average of 1.17 correct responses in the initial baseline condition, which increased to 4.2 in the intervention condition. She also demonstrated an immediate intervention effect, increasing from 1 correct response in the last baseline session to 4 correct responses in the first intervention session. Her story comprehension performance in the intervention condition

remained high, with clear reversals each time the alternating baseline story was used. She showed 100% PND between the initial baseline and intervention conditions.

Student 4 had an average of 1.44 correct responses in the initial baseline condition, which increased to 4.75 in the intervention condition. He had the least stable baseline of the four students, with number of correct responses ranging from 0 to 3. His highest baseline points (sessions 6 and 9) were both obtained with the same book (Lost). He showed a clear reversal effect each time the alternating baseline book was used (sessions 11 and 14). His story comprehension responses remained high throughout the intervention condition, and he showed 100% PND between the initial baseline and intervention conditions.

Activity Engagement

All students increased activity engagement during shared reading activities, as measured by interval observation using one-minute intervals. Student 1 was engaged for an average of 51.67% of intervals during the initial baseline condition. During the intervention condition, his average activity engagement increased to 98.33%. He showed an immediate intervention effect when the intervention condition was introduced. His activity engagement remained high once intervention was started, and he did not demonstrate any reversal effects during the alternating baseline sessions. PND between the initial baseline and interventions condition was 100%.

Student 2 was engaged in the initial baseline activities for an average of 45.75% of intervals. During the intervention condition, his average activity engagement increased to 87%. He showed an immediate intervention effect, with 100% activity engagement during the first intervention session. He showed clear reversal effects during the alternating baseline sessions, with an average engagement of 39.99%. PND between the initial baseline and intervention condition was 80%.

Student 3 had an average engagement of 45.17% during the initial baseline sessions. Her engagement increased to 100% in the first intervention session, and remained at 100% throughout the remaining intervention sessions. She showed a clear reversal effect during the alternating baseline sessions, with an average engagement of 46.67% in those sessions. PND between the initial baseline and intervention condition was 100%.

Student 4 showed an average activity engagement of 41.22% during the initial baseline. His average activity engagement during the intervention condition increased to 88%. He showed an immediate intervention effect, as well as a clear reversal in the alternating baseline sessions. PND between the initial baseline and intervention condition was 100%.

Teacher Feedback

All three teachers reported that they felt the shared reading activities were meaningful for their students. Further, teachers reported that the activities were easy to implement and that they would likely continue to use similar activities in the future.

Discussion

This study demonstrated that minimally verbal students with autism, who evidence very low IQ scores on standardized measures, can be engaged in adapted early literacy activities. Results indicated that students showed strong increases in story comprehension as well as task engagement. This study suggests that minimally verbal students with autism can participate meaningfully in literacy activities that go beyond de-contextualized sight word activities. With simple adaptations to materials and activity steps, students are given the opportunity to access age appropriate literature and participate in dynamic, interactive language and literacy learning.

Activity engagement was high in all students throughout the adapted activities, ranging from 87-100%. Difficulty with engagement is one of the major barriers these students face in learning activities. Research has demonstrated that increased engagement is associated with increased learning, particularly in the area of language (Kasari, Gulsrud, Wong, Kwon, & Locke, 2010). The strong effect of the adapted shared reading activities on the engagement of the students makes this a promising intervention for increasing language and literacy skills of minimally verbal individuals with autism

Teacher fidelity of implementation was high, as was their satisfaction with the activities. This also has important implications for the use of adapted shared reading activities. Teacher support is a pre-requisite to implementing any classroom intervention. Although this study used a small group of teachers, these activities appear to hold promise as something that would receive widespread teacher support.

Contributions

This study builds on previous research demonstrating that adapted shared reading activities are effective for students with severe disabilities. It adds to previous research in three ways. First, it replicates previous findings of increased story comprehension and activity engagement using a more complex single subject design (combining multiple baseline and alternating treatment). Second, while previous studies included primarily students with intellectual disability and physical disabilities, this study targets specifically minimally verbal children with autism who demonstrate very low IQ scores. Finally, this study used classroom teachers as the interventionists. Most previous research of adapted shared reading activities used the researcher as the interventionist. The teachers who participated in this study demonstrated excellent treatment fidelity after a very short training session (30 minutes), and reported high

satisfaction with the activities. All three teachers reported that they would continue using similar activities with their students. This is an important contribution to the body of research regarding adapted shared reading activities for students with severe disabilities.

Limitations and Future Directions

Although the results of this study indicate a strong effect in single subject research, more complex study designs are necessary in order to continue to build support of adapted shared reading activities for students with severe disabilities. Future research should include group studies that use larger numbers of participants as well as control groups.

In this study, intervention was provided one to one. Although that is how much intervention research is carried out, it is not representative of how instruction takes place in the classroom. Future studies should investigate the effect of adapted shared reading activities implemented in small groups of students, as well as classroom wide.

Students in this study demonstrated clear intervention effects in a short period of time, using basic observational measures. A limitation of this study is that it did not include standardized measures to evaluate treatment effects. It is unlikely that standardized measures would have reflected treatment effects over such a short period of time. An important area for future research would be to implement activities over an extended period of time and evaluate student progress using standardized measures of engagement, language and literacy.

This study provides evidence that shared reading activities can be successfully adapted for minimally verbal students with autism. Visual supports, tactile objects and specific teaching strategies offer ways for minimally verbal students to meaningfully interact and engage in literacy activities. Student engagement in the adapted activities was high, which is associated with better learning outcomes, particularly regarding language. Adapted shared reading

activities can be easily implemented in the classroom context, and offer students increased opportunities for literacy and language development. Future research should investigate adapted shared reading activities implemented classroom-wide, as well as joint engagement, language and literacy outcomes after using activities for an extended period of time.

Appendix

Table 1
Student Characteristics

Student	Age	Gender	Diagnosis	PPVT	Mullen		
					Visual/Spatial	Receptive Language	Expressive Language
1	8:6	M	Autism	2:9	2:3	2:3	1:8
2	7:8	M	Autism	2:6	2:4	2:1	1:11
3	7:1	F	Autism	<2:6	1:9	0:10	0:10
4	6:11	M	Autism	<2:6	2:0	2:0	2:2

Note: Age and scores are reported in years:months.

Table 2
Book Characteristics

Book Title	Reading Level*	Objects Added	Comprehension Questions
The Puddle	1.9	1. Rain boots	1. What did the boy put on?
		2. Boat	2. What did the boy put in the puddle?
		3. Turtle	3. Who did the frog crash into?
		4. Alligator	4. Who broke the boat?
		5. Elephant	5. Who drank the water?
		6. Sun	6. What dried up the puddle?
Lost	1.6	1. Bear	1. Who is lost?
		2. Tree	2. What did they find?
		3. Boat	3. What did they ride on?
		4. Slide	4. Where did they play?
		5. Book	5. What did they read?
		6. Bus	6. What did they ride?
Me and My Dad	1.9	None (remained in baseline condition)	1. What did they find? 2. What did they swim in? 3. What did Dad carry? 4. Where did they hide? 5. What did they see? 6. What did Dad do at bedtime?

*Scholastic Grade level Equivalent

Table 3

Task Analysis for Shared Reading

(Adapted from Browder, Gibbs, Ahlgrim – Delzell, Courtade, Mraz & Flowers, 2009)

The teacher will:

1. Verbally introduce the book topic (“Today we are going to read about _____) and give students the opportunity to see/touch the relevant objects.
2. Read the title and give students the opportunity to point to or say the title
3. Model opening the book; give at least one student the opportunity to open the book
4. Point to relevant picture symbols, objects or printed words while reading
5. Give students the opportunity to point to or say vocabulary words
6. Give students the opportunity to fill in repeated story lines (verbally or by pointing to the appropriate picture symbol/object)
7. Give students the opportunity to turn the page
8. Give students the opportunity to label or point to pictures in the book
9. Give students the opportunity to answer comprehension questions verbally or using the response board

Table 4:

Story Comprehension Results

Student	Initial Baseline (<i>M</i>)	Intervention (<i>M</i>)	Alternating Baseline (<i>M</i>)	PND
1	2	4.33	3	100%
2	1.5	4.8	1	100%
3	1.17	4.2	1.33	100%
4	1.44	4.75	2	100%
Total				100%

Note: Reported as raw scores out of a possible total of 6.

Table 5:
Task engagement results

Student	Initial Baseline (<i>M</i>)	Intervention (<i>M</i>)	Alternating Baseline (<i>M</i>)	PND
1	51.67%	98.33%	100%	100%
2	45.75%	87%	39.33%	80%
3	45.17%	100%	46.67%	100%
4	41.22%	88%	33%	100%
Total				95%

Note: Reported as percent of total task intervals.

Figure 1
Correct Responses to Story Comprehension Questions Across Participants

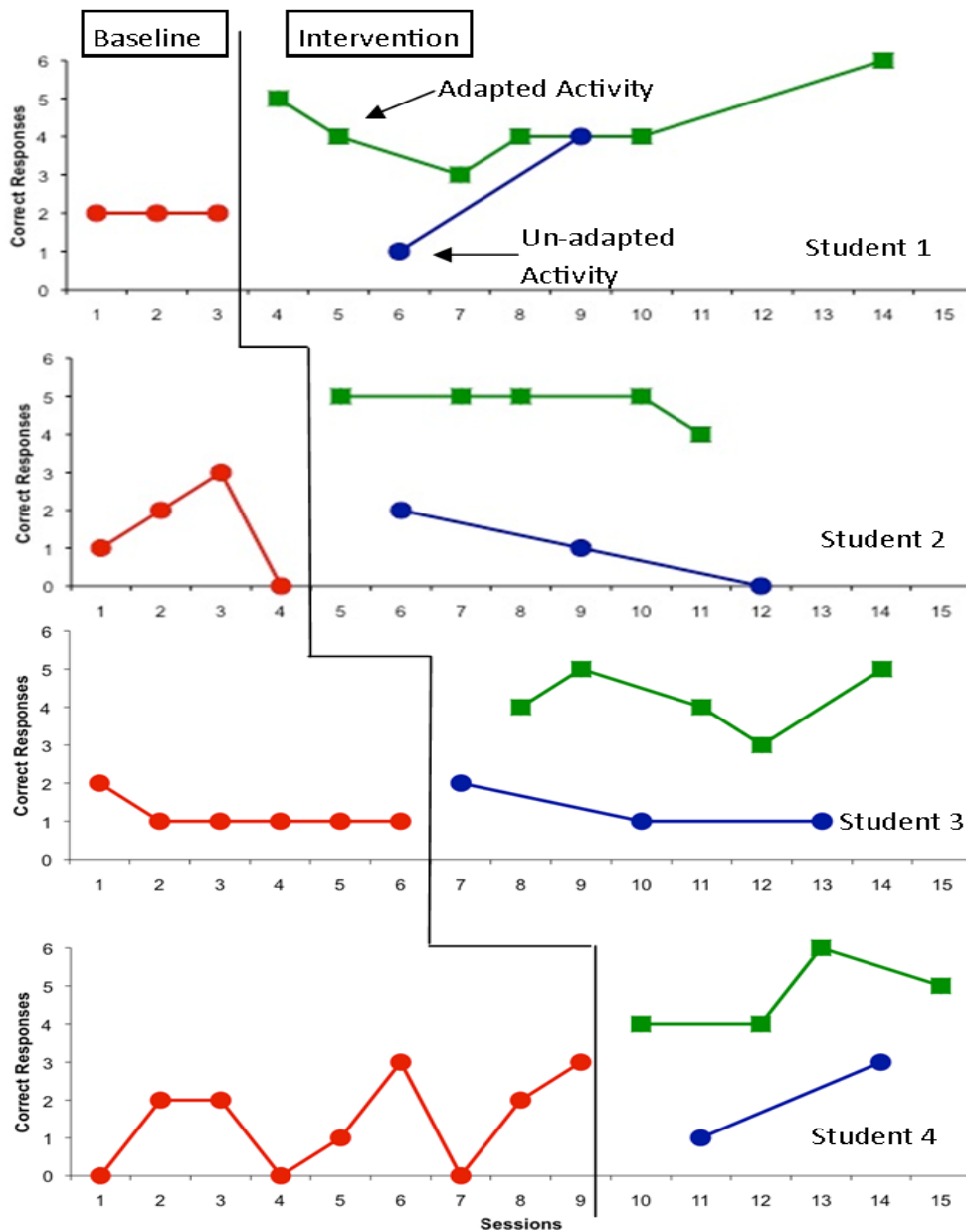
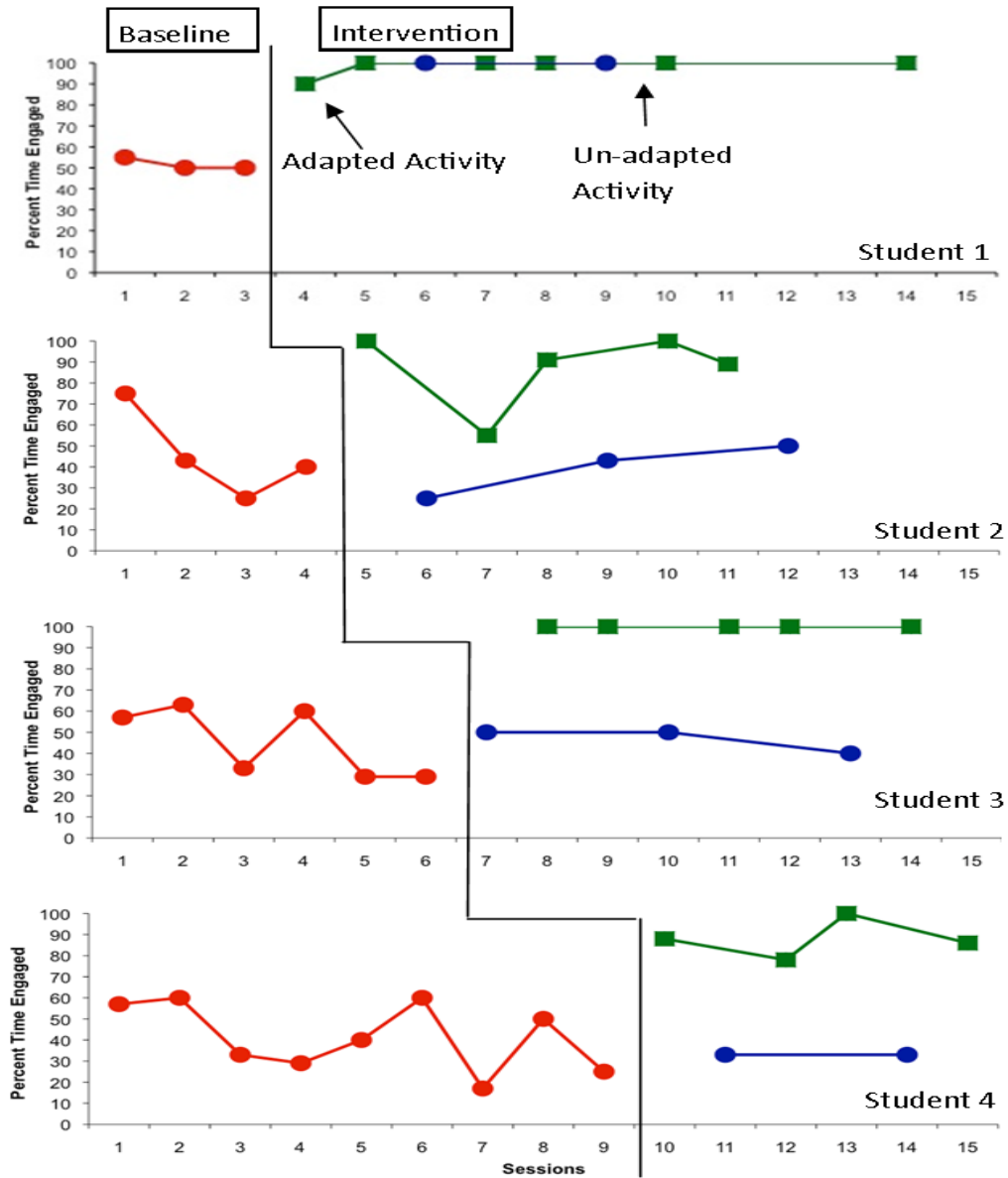


Figure 2

Percent of Task Engagement Across Participants



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