

Literacy and autism: a critical review of two shared reading interventions



Literacy and Autism: A Critical Review of Two Shared Reading Interventions

Introduction

According to the American Psychiatric Association (2013), autism spectrum disorder (ASD) affects one in 59 children in the United States.

Communication impairments are common, and many individuals with autism have difficulties with language and communication throughout their life. It is estimated that 30% to 50% of children with autism are minimally non-verbal until school age (Anderson et al., 2007). Another common impairment of autism is a deficit in social skills, such as responding to and initiating interactions with others.

Both of these impairments have a significant impact on their educational and social achievement in school, including literacy skills. The articles that I chose to critique deal with using shared book readings as interventions to increase literacy and social engagement in young students with autism. Shared book reading is described as an activity where an adult reads aloud to children while incorporating interaction through the use of questions and discussion (Fisher et al., 2008). Shared reading encourages literacy by exposing children to age-appropriate literature. " It elicits joint attention and is presented as explicit routine; shared reading is especially suited to encourage language development" (Mucchetti, 2013).

Critique

Measurement of Independent and Dependent Variables

D'Agostina, Duenas, and Plavnick(2018) wanted to increase the rates of gestural and verbal interactions of young children with autism spectrum disorder during a shared reading experience. The intervention or independent variable used to increase the interactions were adapted books and token boards. Criteria for choosing the books was adapted from an article by Whalon and colleagues (2015) and included the following: (a) pictures that illustrated story content and depicted more than one object in each picture, (b) books that were similar in length, and (c) books that were age appropriate. The adaptation consisted of post-it notes used to cover an image on each page of the book during the intervention. The use of visuals to prompt interaction was based on the previous work of Mucchetti, who is the author of the other article in my critique.

The researchers, D'Agostina, Duenas, and Plavnick, included the use of token boards as reinforcement during the intervention phase. The authors speak about how the boards are made and that the reinforcer is something either edible or tangible, but the token boards are not spoken about again throughout the rest of the study. There was also no justification for the use of token boards during the study.

The Mucchetti (2013) article wanted to investigate the effect of adapted shared reading activities on story comprehension and engagement of minimally verbal students with autism and significant intellectual disability. The independent variable in this study were three books with modified text, tactile objects, and visual supports. The author did not give any rationale for choosing the books in the study.

Research Design

The articles in my critique are both experimental single-case multiple baseline designs. The studies follow the key characteristics of single-subject experimental research, as outlined in the textbook by Mills & Gay (2019). The studies considered several individuals as one group, each participant served as their own control, and performance was measured during a nontreatment and treatment phase. Both of the studies met the standards of the What Works Clearinghouse evidence criteria for multiple baseline studies. The studies had greater than 6 phases with greater than 5 points in each phase.

Sampling

Both studies used the same population of young students with ASD. D'Agostina, Duenas, and Plavnick (2018) used cluster sampling to obtain the sample for their study. The participants were three students in a preschool setting. All participants were diagnosed with ASD, had a teacher reported interest in books, the ability to engage in an activity for 10 minutes with reinforcement, and the ability to use two- to three-words to communicate. The participants were all male, two were four years old, and one was five years old. The participants spent 4.5 hours a day in an Applied Behavior Analysis (ABA) classroom and 3 hours a day in an inclusive preschool program.

The Mucchetti (2013) study also used cluster sampling to obtain the sample for the study. Mucchetti had three teachers and four students participate in the study. The teachers implemented the shared reading baseline and <https://assignbuster.com/literacy-and-autism-a-critical-review-of-two-shared-reading-interventions/>

interventions. The teachers held moderate/severe special education teaching credentials and had an interest in participating in the study. The students were three males and one female within the ages of six and eight years old. The inclusion criteria for the students were having a primary diagnosis of autism, a spontaneous vocabulary of 20 words or fewer, an IQ of less than 50, and the intervention had to be appropriate within the student's educational goals.

Instrumentation and Data Collection

Both studies used observation as the instrumentation of the study, though neither study gave a rationale for choosing observation. The D'Agostina, Duenas, and Plavnick (2018) study had 12 trials to initiate comments and 12 trials to respond to comments. Each appropriate response or comment received a point — the guidelines for what constituted an appropriate response and comment were well defined in the protocol. Their paper states that “the researcher” was involved in the shared reading intervention, but how the researcher was involved or how the shared book reading was implemented is not mentioned in detail. There are, however, tables that document the number of independent comments and another for the number of independent responses.

There is mention of interobserver agreement in the paper. A second observer coded the recorded sessions. The first researcher provided the second researcher with training specific to the dependent variables. The interobserver agreement was between 98% to 99%. It would have been helpful had there been more specifics as to how the observations took place.

<https://assignbuster.com/literacy-and-autism-a-critical-review-of-two-shared-reading-interventions/>

I am not sure that I could implement this intervention in my classroom because I am not sure how the researchers implemented it.

The Mucchetti (2013) study goes into more detail about how the observations were conducted. During each one-on-one shared reading session, the teachers asked six comprehension questions, specifically designed for each book. The books and the comprehension questions were listed in a table in the research study. The students would then give their response using a symbol/text board with four items to communicate their answers. The baseline was done using unadapted books, and the teachers were given no instructions during this phase. For the intervention phase, the teachers were individually given training in a task analysis for shared reading that was adapted from a Browder et al. study. The task analysis consisted of nine steps the steps were provided in a table in the study. Treatment fidelity was measured during 20% of the sessions by the researcher or a second observer. Treatment fidelity was found to be 100%.

To measure reading comprehension, teachers followed specific steps to obtain a response. The teachers asked the six comprehension questions during reading. Student responses could be verbal, pointing, or removing a symbol and giving it to the teacher. If a student responded incorrectly or did not respond within 5 seconds, the teacher would model the correct response. I understand the procedure that was used in the sessions, but I do not understand how the results were calculated. There was no discussion about how the data was recorded. I would assume that the response was only counted if it was correct and self-initiated, but the study does not go into detail about that.

<https://assignbuster.com/literacy-and-autism-a-critical-review-of-two-shared-reading-interventions/>

The instrument used to measure activity engagement was momentary time sampling interval recording. An observer recorded whether the student was engaged with the activity at the end of each 1-minute interval for the duration of the activity. The researcher also included an operational definition for what engaged looked like during the activity. Reading comprehension and activity engagement used interobserver agreement, which was calculated by dividing the number of agreements by the number of agreements plus disagreements. For story comprehension, the interobserver agreement was 100%; it was 97% for activity engagement.

Author's Conclusion

The Mucchetti study concluded that minimally verbal students with autism could be engaged in early literacy activities. The results for all four students showed higher story comprehension and activity engagement with the intervention when comparing it to baseline. The study discusses the reading comprehension and activity engagement for each of the four student participants. They all showed improvement according to the data, but the paper did not explain exactly how the reading comprehension data was obtained, so I do not trust it as much as the activity engagement data.

The D'Agostina, Duenas, and Plavnick research study show a functional relation between shared book reading and the frequency of initiated comments for each participant but did not show a functional relation between book reading and verbal responses. The authors give the data for each participant in both commenting and responding independently. The findings suggest that the participants were taught to initiate comments

during shared book reading, but only two of the participants acquired an independent response. As with the previous study, I am not sure how much weight I give to the author's findings because I am not sure how they collected the data being observed.

Possible threats to internal validity

Both studies used baseline phases to ensure that the treatment effect was because of the treatment intervention. This can look like the pre-test treatment interaction when the pre-test exposes participants to the aspects of the treatment, which influences post-test scores (Mills & Gay, 2019).

The D'Agostina, Duenas, and Plavnick research study has a couple of factors that could be threats to internal validity. The first is that one participant displayed an increasing trend in the baseline. The second is that the experimenter may have inadvertently modeled target behavior for one participant. The third is that one participant also received differential reinforcement of low rates of behavior to decrease vocal stereotype during the intervention.

Possible threats to external validity

As with most single-subject research studies, these studies suffer from low external validity. The sample sizes are so low that the results cannot be generalized to the population of interest. Both of the studies implemented the interventions in a one-on-one setting in a separate

room, and not in a classroom setting, making the setting less generalizable too.

<https://assignbuster.com/literacy-and-autism-a-critical-review-of-two-shared-reading-interventions/>

Conclusion

These studies would be difficult to replicate in their entirety in my classroom. Doing almost any activity on a one-on-one basis is not viable. I also do not understand how either study measured their reading comprehension data. I will take the research reading comprehension results of each study with a grain of salt. Shared book reading is an activity that I currently employ in my classroom. With only minor adjustments, I can create more opportunities for reading comprehension for all students regardless of their ability.

The D'Agostina, Duenas, and Plavnick study is exciting because activity engagement was taught during shared book reading in a relatively short amount of time. The students in this study were higher functioning than most of the students that I work with, but at least I have some new ideas now. I already use momentary time sampling interval recording for a variety of other behaviors, and I feel like I could employ that to record activity engagement during shared book reading as well.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Anderson, D. K., Lord, C., Risi, S. et al. (2007). Patterns in growth of verbal abilities among children with autism spectrum disorder. *Journal of Consulting and Clinical Psychology*, 75 (4). 594-604.
- Browder, D., Gibbs, S., Ahlgrim-DeLzell, I., et al. (2009). Literacy for students with severe developmental disabilities: What should we teach

and what should we hope to achieve? *Remedial and Special Education*, 30 (5). 269-282.

- D'Agostino, S. A., Duenas, A. D, & Plavnick, J. B. (2018). Increasing social interactions during shared book reading: An intervention for preschoolers with autism spectrum disorder, *Topic in Early Childhood Special Education*, 00 (0). 1-13.
- Fisher, D., Frey, N., & Lapp, D. (2008). Shared readings: Modeling comprehension, vocabulary, text structures, and text features. *Reading Teacher*, 61 (7). 548-556.
- Mills, G. E. & Gay, L. R. (2019). *Educational Research Competencies for Analysis and Applications* (12th ed.). New York City, New York: Pearson Education, Inc.
- Mucchetti, C. A. (2013). Adapted shared reading at school for minimally verbal students with autism. *Autism*, 17 (3). 358-372.
- U. S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, What Works Clearinghouse.
- Whalon, K., Martinez, J. R., Butcher, C., & Hanline, M. F., (2015). The impact of reading to engage children with autism in language learning. *Topics in Early Childhood Special Education*, 35 . 102-115.