

THE EFFECTS OF INTRODUCING A COMPREHENSION-BUILDING PROGRAM ON THE READING SKILLS FOR A STUDENT WITH AUTISM: A BRIEF REPORT*

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ABSTRACT

The purpose of this study was to determine the effectiveness reading for comprehension when the questions were directly taught to a student with autism. The participant was a 12-year-old male student with autism enrolled in a self-contained classroom for students with developmentally disabilities. The results indicate that the comprehension program gradually improved the student's comprehension. He was also able to read more stories when the intervention was employed. The combining of precision teaching with an academic intervention was also discussed.

Keywords: *autism, precision teaching, comprehension training, self-contained classroom, standard celeration charting*

INTRODUCTION

Assisting children with autism is a very important and worthwhile school outcome. With the growing number of children with autism impacting the public schools, there is a need to find evidence-based academic practices that can be of assistance to such children and youth (Heward, 2009; Perko & McLaughlin, 2002; Rogers, 1998). This is especially critical since number of children diagnosed with autism has increased every year for the past 15 years (CDC 2009; Fomboone, 2000; Heward, 2009; B. Williams & R. Williams, 2010). In fact these increases have labeled as an epidemic by several experts in the field.

The use of various procedures with children with autism to increase their appropriate behavior has been suggested by several authors (Foxx, 1982). There has been several procedures that have been suggested to improve the educational services for children with autism. For example, positive behavioral support (Sugai & Lewis, 1999), brief functional assessments to determine the function of behavior (Derby, Wacker, Sasso, Steelge, Northrup, Cigrand, & Asmus, 1992; Vu, Derby, Auvil, Hanks, Babb, M., McGee, & McLaughlin, 2002), and various academic treatments.

The purpose of the present case report was to improve the reading comprehension of a middle school student with autism. Based on his IEP goals and objectives, it was felt that improving his academic skills would function to reduce his aberrant behaviors. Finally, we were curious as to the effectiveness of a commercially available curriculum to improve his reading comprehension. Another purpose was to replicate our earlier work combining precision teaching (Holz, Peck, McLaughlin, & Stookey, 1996; Edmonson, Peck, & McLaughlin, 1996; West, Young, & Spooner, 1990) and various academic interventions (Perko & McLaughlin, 2002).

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METHOD

Participants and Setting

The participant was a 12-year-old male diagnosed with autism. The participant has been labeled autistic by a licensed clinical psychologist. Special education placement and services were part of the child's IEP when it was developed by the school district's multi-disciplinary team. The study was conducted in a self-contained classroom for students with moderate to severe disabilities. The participant was the only verbal student in the classroom. He was also the only student in the classroom who was able to complete academic work. He had been removed from a Developmental Impaired Classroom in another middle school earlier in the year due to his aggressive behavior. These behaviors which included pinching, biting, kicking and throwing objects. Data from the *Woodcock-Johnson III Tests of Achievement* (Woodcock, McGrew & Mather, 2001) indicated that the student decoded at a 2nd grade level and that his reading comprehension was very limited. The participant's classroom teacher felt that he would benefit from a reading comprehension program.

Materials

The first author, as part of her course requirements (McLaughlin, B. F. Williams, R. L. Williams, Peck, Derby, Weber, & Bjordahl, 1999), employed a reading curriculum that modified "classics" of literature so that they were low reading level, yet age appropriate. The curriculum was called *Bringing The Classics to Life* published by EDCON (Academic Distribution Services, 2003). We also chose the adapted novel *Huckleberry Finn* written by Mark Twain. The novel was broken into single page, large print "chapters." Each chapter included a preview, vocabulary check, and comprehension check as well as the story itself. For the purposes of the study, the researcher employed only the story itself, and the comprehension check questions. The rewards employed included Internet access, a variety of computer games, as well as access to walks outside the classroom.

Dependent Variables And Measurements Procedures

The dependent variable was the number of correct responses to comprehension questions. The curriculum supplied the questions as well as the answers. The questions were multiple choice, six of which were literal comprehension questions; the other four were a mix of inference, sequence, main idea, and a question that asked, "another name for this story could be...?" The student was required to meet the criteria of eight out of ten questions correct before proceeding to the next chapter.

Experimental Design And Conditions

An AB single case design (Kazdin, 2010) was employed to assess the effectiveness of the comprehension program. A description of the various conditions follows.

Baseline

During three days of baseline, the student was asked to read the chapter, and then answer the ten comprehension questions about the chapter. The first day of baseline the student answered 0 out of 10 of the questions correctly. The second and third days of baseline, the student answered 4 out of 10 correct. However, the data shows that the correct answers were inconsistent between days. Thus, the student was most probably guessing the answers.

Reading Comprehension With Internal Questioning

During this intervention, the researcher asked questions interspersed into the text, similar to the comprehension questions asked at the end of the chapter. This was an attempt to highlight important details and concepts for the student.

Inter-observer Agreement (IOA)

IOA data was taken on six out of 23 data days (26% of the time). An agreement was defined as each grader scoring the question and its answer in the same manner. Any deviation in grading was scored as a disagreement. Interobserver agreement was calculated by dividing the number of agreements by agreements plus disagreements and multiplying by 100. Interobserver agreement was 100% on all occasions.

RESULTS

The data shows that internal questioning improves the student’s performance on the comprehension test. During three days of baseline the mean correct response was 2.67, median response rate was 4 comprehension questions correct (range of 0-4). The mean errors was 7.33 with a range of 6 to 10. During 20 days of employing comprehension with internal questioning, the mean correct increased to 5.3 questions (range 2-8). The participants average errors during this phase was declined to 4.7 with a range 2 to 8. Three story changes also took place during this time. To complete one story the student needed to answer eight out of ten comprehension questions correctly.

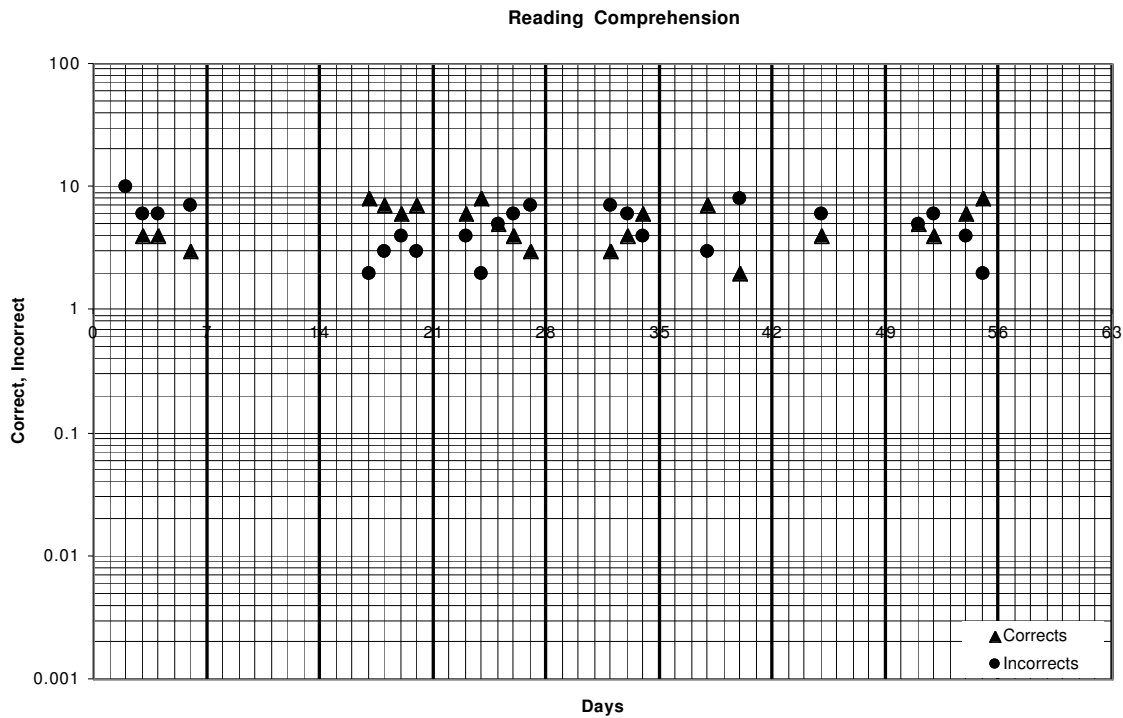


Figure 1. Number of corrects and errors for comprehension questions during baseline and the reading comprehension program

DISCUSSION

The results showed that internal questioning while the story was being read were vital to the comprehension ability of the student. Unfortunately, the participant displayed many stereotypical autistic behaviors . He often engaged in a variety of behaviors to escape the task of reading. His behaviors included hitting, pinching, biting, kicking, screaming, throwing the worktable over, tipping chairs, and refusing to read. These behaviors clearly interfered with his progress in comprehension. Although no data were taken regarding his aberrant behaviors, the days that the student had high rates of such behavior appeared to correspond with poor performance on the comprehension questions. Gathering data employing an experimental functional analysis may have proven quite important.

A variety of procedures were also employed in an effort to reduce aberrant behavior and increase correct responses. Encouraging the student to ask for break time (Derby et al., 1992) after completing a sentence without aggression and reading in an appropriate voice (i.e. not screaming or whispering) was employed with moderate success.

Near the end of the study the first author discovered that the most effective way to manage the participants behavior was to present the participant with the opportunity to ask not for a break, but to

request that the first author to read a sentence or two from the story. When the participant's reading was interspersed with reading by the researcher, the participant engaged in no aberrant behaviors and was willing to answer such questions. The participant enjoyed being read to, and even requested on one occasion that the first author read his completed stories to him for his reward one day. This practice was even more effective in managing behavior than when the student was rewarded with computer access (the consequence he almost always requested). However, since computer access was allowed, non-continently at other times during the day, this could affect the strength of this consequence (Cooper, Heron, & Heward, 2007; Laporte & McLaughlin, 1996).

This brief report was also time and cost efficient. The curriculum is easily available, and relatively inexpensive. Managing student behavior was most difficult part of data collection and analysis. Unfortunately, many teachers are unwilling to be confronted with aggressive student behavior on a daily basis. Extreme aggressive behavior can be potentially punishing for a teacher trying to implement this, or any other intervention (Williams & Williams, 2010).

Employing an ABAB reversal would have also strengthened the study (Kazdin, 2010). However, due to the limited time period allowed to conduct the study, the slow student progress, we would have lost valuable teaching time by employing a reversal. When employing precision teaching procedures an AB single case design can be viewed as quite appropriate (Vu et al., 2002; West et al., 1990). This issue will have to be examined in future research.

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