Research Study:

Adolescents with Autism, Intellectual Disabilities, and Multiple Disabilities Improve Emergent Reading Skills in 7-Week Study

April 2010

Penelope (Penny) Hatch. Ph.D. CCC-SLP,
University of North Carolina at Chapel Hill,
Center for Literacy and Disability Studies

Start-to-Finish Literacy Starters age- and ability-appropriate texts were shown to help 43 adolescents with autism, intellectual disabilities, and multiple disabilities improve emergent reading skills.

"Traditionally, special education teachers have kept their approach narrow when teaching students with significant disabilities to read. The approach typically involves using sight words only and/or learning the alphabet through decontextualized drill and practice. We took a different approach in our study…we set out to see if students with moderate to severe intellectual disabilities could improve their emergent reading skills when given daily access to age- and ability-appropriate books. We also wanted to see if students made more improvement when the books were used by teachers who were familiar with comprehensive literacy instruction."

Penelope Hatch, Ph.D.

Background/Introduction

In Spring 2007, Karen Erickson Ph.D. from the University of North Carolina at Chapel Hill, Center for Literacy and Disability Studies conducted Project Converge, an eight-week intervention study. In the study she paired three Start-to-Finish Literacy Starters books with 40 comprehensive literacy lessons developed to accompany the books. The results of the research showed that upon completing the intervention, students made significant gains on a test of early literacy skills.

This study, 'The Effects of Daily Reading Opportunities and Teacher Experience on Adolescents with Moderate to Severe Intellectual Disability,' conducted by Dr. Penelope Hatch grew out of a concern about what would happen after the Project Converge study ended and the students had no more age- and ability-appropriate books to read.

Dr. Hatch was interested in discovering how students' early reading skills might be affected by daily opportunities to read a wide variety of age- and ability-appropriate books. She was also interested in how the lessons used in Project Converge might influence teachers in their future literacy instruction. She also knew that texts designed for adolescents with intellectual disabilities are difficult to find because:

- The reading ability of adolescents with intellectual disabilities is often below what is expected for their chronological ages.
- Books written for beginning readers are typically not topics of interest to teens.
- Books about topics of interest to adolescents are often too difficult to read.
- Even when teachers customize reading materials, there are often only a limited number of topics to match with student interests.

Students, ages 12 to 21, participated in the study... students came from diverse ethnicities and exceptionalities.

Student Demographics

Students, ages 12 to 21, participated in the study, and the students came from diverse ethnicities and exceptionalities. Student participants included 34 males and 9 females of which:

- 40% were diagnosed with autism
- 30% moderate intellectual disabilities
- 7% severe intellectual disabilities
- 23% multiple disabilities
- 26 qualified for free or reduced lunch
- 53% were unable to use speech to meet face-to-face communication
- 7% Hispanic
- 33% African American
- 53% Caucasian
- 5% Asian
- 2% Multi-Racial

Methodology

In this study, students were divided into two groups based on their teacher's prior experience with the comprehensive literacy lessons used in the previous Project Converge study. Both of the interventions were implemented over seven weeks.

Group 1 students were given Start-to-Finish Literacy Starters books for 30 minutes each day to use during self-selected reading, teacher-led instruction, or a combination of both. These teachers did not have experience using the comprehensive literacy instructional approach from Dr. Erickson's Project Converge research study.

Group 2 teachers had previous training with 40 prepared literacy lessons, which were specifically written for three of the Literacy Starters book sets. The lessons focused on word and/or vocabulary instruction, reading comprehension or writing. During this study, the teachers no longer had these lessons but applied what they had learned about comprehensive literacy instruction to similar, but completely new Start-to-Finish Literacy Starters books. They allotted the same 30 minutes per day as Group 1 did to instruction and/or reading of the Start-to-Finish Literacy Starters books.

Results of the Intervention Program

Both intervention groups made **significant gains** on an emergent literacy skills assessment and achieved a small effect size after seven weeks of intervention. The study outcomes were measured by a researcher-designed pretest/posttest (r =. 77-.83) administered individually by team members, as well as classroom observations and teacher interviews conducted before, during, and after the intervention. **The results showed that both groups of adolescents made significant gains from daily access to the books.** Students in Group 1 who were given Start-to-Finish Literacy Starters books for 30 minutes per day improved by 5% from pretest to posttest; students in Group 2 who had the books as well as teachers trained on comprehensive literacy instruction, improved 8% from pretest to posttest.

Gains from Pre to Post

GROUP	PRE-TEST	POST-TEST	GAIN
Group 1 Teachers **unfamiliar** with comprehensive literacy instruction	13.6429 32%	15.3571 37%	+1.7142 +5%
Group 2 Teachers **familiar** with comprehensive literacy instruction	19.2414 46%	22.5517 54%	+3.3103 +8%

Measurement

Literacy gains were measured on an assessment of emergent literacy skills. A standardized reading measure was used for five of the students who read at an early conventional reading level. The number and variety of books used throughout the intervention was tracked using a student book log and compared to performance on a proxy measure of wide reading, a title recognition test. ***Paired samples t-tests*** yielded a statistically significant difference between pretest and posttest performance on a measure of emergent literacy skills for all students and on a standardized reading assessment for the five students who read at an early conventional level.

A ***one-tailed independent samples t-test*** compared group membership as the independent variable and gains scores as the dependent variable. On the posttest, Group 1 made a mean or average gain of 1.71 points, and the scores had a standard deviation of 3.99. Group 2 had a mean or average gain of 3.31 points with a standard deviation of 5.16. The high standard deviations for both groups are reflective of the heterogeneous nature of the students. The results of the t-test, $t(41) = -1.017$, were not significant as indicated by the p-value of .158. To have been significant, the p-value would have needed to be .05 or less.

Further examination of student performance between the two groups was conducted using an ***independent samples t-test***. Both groups demonstrated mean gains; although there was not a significant difference between groups, a difference was evident in the effect sizes. Although the result was not significant, calculation of effect sizes for each group indicated that while both groups achieved a small effect, students whose teachers had exposure to the comprehensive literacy lessons received nearly twice the effect ($d = .36$) as students whose teachers had not been exposed to the literacy lessons ($d = .19$). For students who read at an early conventional level and were taught by teachers who had been exposed to the comprehensive literacy lessons in the previous study, the effect of the intervention was even greater ($d = .47$).

Discussion

Students with significant disabilities typically make very slow progress, so the fact that both intervention groups made significant reading gains in just seven weeks shows the value of daily age-appropriate reading for this population. The quality age-appropriate texts seemed necessary for student achievement.

Additional observations include:

- Once students reach a conventional reading level, they benefit more from quality books and comprehensive instruction; most likely because they are now able to read independently.
- The more an individual reads…the better reader they become.

The larger effect size with Group 2 showed the value of combining the reading materials with good instruction.

Some possible reasons for this difference include:

- Group 2 teachers experienced student gains through their participation in the *Project Converge* study and therefore had higher expectations for their students.
- There may have been a cumulative effect for students who may have had previous experience with comprehensive instruction.
- The comprehensive literacy instruction instilled a confidence in the students who began thinking of themselves as striving readers and writers.

Students with significant disabilities typically make very slow progress, so the fact that both intervention groups made significant reading gains in just seven weeks shows the value of daily age-appropriate reading for this population.

Implications

In schools today, we need to question our assumptions about the literacy potential of adolescents with severe disabilities and whether our assumptions are based on fact or erroneous perceptions. In this study, we found that:

- Teachers and students benefit from and need access to quality age/ability reading materials.
- Teachers and administrators need to be aware of the value of comprehensive literacy instruction for students with moderate to severe intellectual disabilities.
- Teachers need training in how to deliver comprehensive literacy instruction.

Additional Research on Wide Independent Reading

What does the research say about specific reading skills correlated with wide independent reading?

- Improved orthographic processing/word recognition (Cunningham & Stanovich, 1990)
- Increased spelling skills (Cunningham & Stanovich, 1990)
- Greater fluency, prosodic reading, and correct words read per minute (Kuhn, 2005)

What language skills are correlated with wide independent reading?

- Increased knowledge of syntactically complex sentences (Chomsky, 1972)
- Increased vocabulary (Cunningham & Stanovich, 1990)
- Improved listening comprehension (Hedrick & Cunningham, 2002)