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## Effects of the Post-It Note Strategy on Reading Achievement among Eighth-Grade Students with Learning Disabilities

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## **Effects of the Post-It Note Strategy on Reading Achievement among Eighth-Grade Students with Learning Disabilities**

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### **Abstract**

The purpose of this eight-week research study was to examine the effects of the post-it note intervention on achievement, attitudes, and engagement towards reading comprehension among eighth-grade students with learning disabilities. The participants ( $N=12$ ) were enrolled in special education, reading class based on their Individualized Education Plans. The students engaged in the think-aloud strategy the first four weeks of the study, and they engaged in the post-it note intervention the second four weeks. Data were collected throughout the study on academic achievement, attitudes toward reading, and engagement. Field notes were collected to analyze major themes of the study. When the data were analyzed, the mean increase from the post-it note intervention was higher than the think-aloud strategy at a statistically significant level ( $t(11) = -8.44, p < .001$ ). Data showed the students' attitudes toward reading and engagement improved when

they used the post-it note intervention compared to the think-aloud strategy.

Reading comprehension is a skill that is necessary for students to master in order to contribute effectively to society (Williams & Ari, 2011). However, students may not be able to master this skill if they are passive readers (Hughes & Parker-Katz, 2013). A passive reader is an individual who reads words within a text but does not analyze it for meaningful value (Foster, 2011). Conversely, students who are active readers participate with a text by analyzing it, questioning it, drawing conclusions from it, and making meaningful connections to it for a greater understanding and application (Harvey & Goudvis, 2013). The purpose of the quasi-experimental study was to determine the effects of active reading, specifically utilizing the post-it note strategy, on comprehension among eighth-grade students with learning disabilities.

#### **Deficits or difficulties in reading comprehension: National data**

The National Assessment of Educational Progress (NAEP) assesses students in fourth and eighth-grades every two years to determine their reading and math progress (2016). The results are reported on the Nation's Report Card and the data are aggregated in various ways. The students are placed into one of four categories based on their performance: below basic, basic, proficient, and

advanced. According to the NAEP (2016), only 8% of eighth-grade students with learning disabilities (SWLD) scored proficient on the reading portion of the assessment administered in 2015 and none of them scored in the advanced category. The majority of eighth-grade SWLD scored in the below basic level for the reading assessment with 63% and 29% scored in the basic level. The National Assessment of Educational Progress data for eighth-grade SWLD show that those students are significantly struggling with reading comprehension.

**Deficits or difficulties in reading comprehension: Research School**

According to the school improvement plan for the research site, 10% of the population was comprised of students with disabilities. In eighth-grade, there were 31 students with learning disabilities and 30 of those students had Individual Education Plan (IEP) goals addressed for increasing reading comprehension. Overall, the SWLD in the research school struggled with reading comprehension more than any other subject area. According to the research school's 2015 state testing data, 69% of SWLD scored in the beginning learner category, 28% scored in the developing learner category, 3% scored in the proficient learner category, and 0% scored in the distinguished learner category for reading. In comparison, only 11% of students without disabilities scored in the beginning learner category for reading. The achievement gap in reading between SWLD and non SWLD students was significant enough to be addressed in the form of a goal in the research site's school improvement plan.

## **Review of Literature**

Reading comprehension is an area in which students with learning disabilities continuously struggle (Hollenbeck, 2013; Hughes & Parker-Katz, 2013; Jitendra & Gajria, 2011; Kim, Linan-Thompson & Misquitta, 2012). Students with learning disabilities perceive and process information differently than students without learning disabilities (Hughes & Parker-Katz, 2013). Teaching SWLD explicit strategies to learn comprehension skills is vital because the students are not always able to glean the strategies through inferencing (Hughes & Parker-Katz, 2013; Jitendra & Gajria, 2011; Reed & Vaughn, 2012; & Wolff et al., 2013). Students should be actively engaged in reading in order to fully understand and analyze a text (Unrau & Quirk, 2014). Upon reviewing the literature, there was profound emphasis on motivation and engagement in regard to reading comprehension and reading comprehension strategies to utilize with SWLD.

### **Motivation and engagement for reading comprehension**

Unrau and Quirk (2014) suggested that before teachers implement explicit comprehension strategies, teachers should evaluate students' motivation and engagement towards reading. The researchers found that motivation and engagement affect comprehension when students read passively or stop when a text is uninteresting. Wolff et al. (2013) agreed with Unrau and Quirk (2014) that motivational factors play a substantial role in reading comprehension, and

furthermore Wolff et al. (2013) suggested that teachers use technology to motivate and engage students in the reading process. Fisher and Frey (2014) conducted a study to examine the effects of motivation on students when they were involved in an after-school intervention for reading comprehension. The intervention was based on close-reading techniques. The results of the study indicated that the students receiving the intervention came to the after-school program more frequently than the students who were not receiving the intervention and showed significant improvements in reading comprehension. Therefore, the researchers proved students should be actively engaged in reading to make sufficient academic progress.

### **Reading comprehension strategies**

After evaluating and addressing students' engagement and motivational issues, teachers should teach students avenues to glean meaning from texts they read and provide a framework on ways to do so (Finnegan & Mazin, 2016; Hollenbeck, 2013). Finnegan and Mazin (2016) and Jitendra, Burgess, and Gajria (2011) found that using graphic organizers is an effective instructional strategy for teaching SWLD to make meaningful connections to texts. Jitendra et al. (2011) suggested numerous strategies such as completing study guides, summarizing information, and questioning information to support and increase SWLD interactions with texts. Mahdavi and Tensfeldt (2013) explained that teaching students to use multiple modalities to grapple with a text is essential since all students learn in

diverse ways.

### **Importance of reading comprehension in all academic areas**

Swanson, Wanzek, Vaughn, Roberts, and Fall (2015) explained the significance of explicitly teaching comprehension strategies in other content areas besides reading and English language arts. Swanson et al. (2015) suggested that SWLD tend to struggle more in a social studies class because they do not have fair access to the text. For example, students who are reading below grade level may not be able to read an on grade-level social studies textbook (Swanson et al., 2015). Therefore, students should be provided with scaffolds in order to access the text on an appropriate reading level. Swanson et al. (2015) suggested using visuals, team-based activities, and other comprehension strategies to infuse reading instruction into social studies. Reed and Vaughn (2012) agreed that other content areas aside from reading and English language arts should incorporate explicit comprehension instruction. Hughes and Parker-Katz (2013) concurred that comprehension strategies should be incorporated because the students with learning disabilities significantly struggle in other content area classes reading difficulties (Hughes & Parker-Katz, 2013). Students with learning disabilities who struggle with reading comprehension should be taught multiple active reading methods because reading comprehension is a skill that is required of all citizens to succeed in society (Williams & Ari, 2011).

### **Purpose Statement**

The purpose of the study was to examine the effects of the post-it note intervention on reading achievement among eighth-grade students with learning disabilities. The study was designed to address a gap in the literature regarding the post-it note intervention as an active outcomes of this study should interest all stakeholders in education such as students, parents, administrators, and teachers regarding best practices for learning to read and analyze texts. The post-it note intervention can potentially assist SWLD in reaching their reading comprehension goals outlined in their IEP's.

### **Research Questions**

**Research Question 1:** Will reading achievement scores of eighth-grade SWLD increase using the post-it note strategy for reading comprehension as compared to students using the think-aloud strategy?

**Research Question 2:** Will reading attitudes of eighth-grade SWLD improve when using the post-it note intervention for reading comprehension compared with students using the think-aloud strategy?

**Research Question 3:** Will the reading engagement of eighth-grade SWLD increase when using the post-it note intervention for comprehension compared with students using the think-aloud strategy?

### **Definition of Variables**

**Post-it note intervention.** The post-it note intervention encompassed student

writing key information on a sticky note from texts read and placing the sticky note on the page in which the information was derived. Some examples of key information the students wrote down on the sticky notes were characters, events/plot, main ideas, themes, and symbolisms. Additionally, the students were encouraged to write down any other information they found meaningful or confusing. If students were confused on a concept or word, they wrote the information on a post-it note. After a chapter was completed, the teacher-researcher went through each page and answered any questions the students put on their sticky notes. Also, the teacher-researcher read students' notes they made on each page and provided feedback. At this time, students were able to add to their sticky notes if their question was answered and if they felt the need to add additional information.

**Think-aloud strategy.** The think-aloud strategy is the practice of asking students comprehension questions and their opinions on topics read and discussing their answers aloud.

**Reading achievement.** Reading achievement refers to student academic achievement on reading assessments. Reading achievement was measured through students' scores on the Scholastic Reading Inventory (SRI) test administered before and after the intervention. The SRI is a generalized, comprehension test that denotes a Lexile level to each student. The Lexile level correlates to the grade level equivalent the student is reading on. The average

eighth-grade Lexile level is 805-1290.

**Attitude toward reading.** Attitude toward reading refers to students' positive and negative feelings toward the content and processes involved in a reading academic course. Students' attitudes toward reading were measured through a survey completed by the students. Students were asked to gauge their feelings toward reading before and after the post-it note intervention was implemented.

**Student Engagement.** Students' engagement refers to student participation and on-task behavior. Student engagement was measured through an engagement checklist that assessed students' participation and on task behavior when using the post-it notes during reading. Twice per week, the teacher-researcher collected data on students' participation and on-task behavior during the post-it note intervention.

## **Methods**

### **Setting and Participants**

The quasi-experimental study was conducted in a suburban, major metropolitan area in the Southeastern United States with a reported population of 235,900 (U.S. Census Bureau, 2015). In the suburban area, the largest ethnic group was Caucasian which was 88.7% of the overall population. The second largest ethnic group was Hispanic or Latino which calculated to 10.1% of the population and the third largest ethnic group was African American with 6.7% of the population (U.S. Census Bureau, 2015).

As stated in the research site's school improvement plan, the school opened in 2005 and was comprised of sixth, seventh, and eighth grades. When the research study was conducted, the school contained approximately 1,200 students. The research site's school improvement plan stated that 13% of students qualified for free lunch and 3% of students qualified for reduced lunch. The research school's demographics were very similar to the community's demographics. Students ( $N=12$ ) in the research study were identified as having a learning disability in reading and were enrolled in an eighth-grade, resource reading class setting based on their IEP service plans. Demographic data for the students who participated in both the Think-Aloud Strategy (TAS) pre-intervention and the Post-It Note (PIN) intervention is displayed in Table 1.

### **Intervention**

Before the research study began, students completed a Scholastic Reading Inventory (SRI) test to determine their current reading levels. During the first four weeks of the research study, the participants used the TAS during a novel study. The students followed along in their book while the teacher-researcher read the novel aloud. After every page, the teacher-researcher stopped reading and engaged students in a discussion regarding the storyline, and then the teacher-researcher continued reading after the discussion ended. The aforementioned process would continue throughout the class period. After a set of two chapters, students were given exploratory questions to complete independently, then the

teacher-researcher engaged students in another discussion about themes, major plot developments, and character relationships within the two chapters. At the end of the four-week period, the students were administered the Scholastic Reading Inventory (SRI) test to monitor their progress.

During the second four weeks of the research study, the participants engaged in the PIN intervention. The PIN intervention was the new strategy that had not been utilized by the teacher-researcher in previous years. The students were given a list with story elements they could use to write down on their post-it notes. The list was only used as a guide if the students needed it. The students were also encouraged to write down any information they found interesting or confusing. The day before the intervention began, the teacher-researcher explained and demonstrated how to use the post-it note strategy while reading the novel.

On the first day of the intervention period, students followed along in their books while the teacher-researcher read the novel aloud and the students used their post-it notes to write down key information independently. When students finished writing, they put a sticky note in the book on the page where the information was gleaned. After a chapter was completed, the teacher-researcher went through each page and answered any questions the students put on their sticky notes. Also, the teacher-researcher had students' read aloud the notes they made on each page and feedback was provided. At this time, students were able to

add to their sticky notes if their question was answered and if they felt the need to add additional information.

The process would continue throughout the class period with the exception of comprehension questions introduced after a set of two chapters. At the end of the four weeks, students were administered the SRI test to monitor progress. The participants were given the SRI test to assess their current grade-level reading ability before and after the TAS and PIN intervention were implemented. The participants' attitudes toward reading were measured through a survey completed by the students. Students were asked to gauge their feelings toward reading before and after the TAS and PIN intervention. Field notes were completed at the beginning and end of each week which denoted observational data for the entire eight-week study. Also, the teacher-researcher collected data using the Student Engagement Checklist every Tuesday and Thursday of the eight-week study which assessed students' participation and on-task behavior during the TAS and PIN intervention.

### **Data Collection**

The teacher-researcher utilized a variety of instruments to measure the effects of the post-it note intervention among eighth-grade SWLD. The teacher-researcher used the data collection instruments to measure reading achievement, attitudes toward reading, and engagement during the intervention.

**Scholastic Reading Inventory (SRI).** The SRI is a computer-based assessment that was funded by the teacher-researcher's school district. The assessment was designed to measure reading comprehension and equated students' reading to a scaled score referred to as a Lexile measure ("Scholastic reading inventory", n.d.). According to the National Center on Intensive Intervention at American Institutes for Research (n.d), the SRI test has undergone validity and reliability tests to prove it was a valid, criterion-referenced assessment of students' comprehension ("Scholastic reading inventory", n.d.). The teacher-researcher's school suggested students earn a Lexile level of 805-1290 during their eighth-grade year. The research participants completed the SRI before and after the TAS was implemented, and again after the PIN was implemented. The teacher-researcher sought to determine which strategy had a greater effect on students' Lexile levels by looking at their overall score improvement before and after each strategy was implemented. The teacher-researcher analyzed the scores to determine if the PIN had a greater effect on students' achievement than the TAS with a paired, two-tailed *t*-test.

**Attitudes toward Reading Survey.** The research-participants were asked to complete the ten-question Likert-style Attitudes toward Reading Survey before and after the TAS and after the PIN intervention were implemented. The teacher-researcher read aloud the directions to ensure students understood how to record their answers. Students were asked to circle the number that closely resembled

their opinion for each question and the ratings ranged from one (strongly disagree) to five (strongly agree). Each question was read aloud and thoroughly explained to ensure students understood each question. The research-participants' answers were analyzed to determine whether the intervention improved students' attitudes toward reading. The Attitudes Toward Reading Survey was evaluated for construct validity by peer review. In addition, the survey was administered to a group of non-reading teachers to determine if their scores accurately reflected their beliefs in an attempt to improve internal validity. The non-reading teachers gave feedback to the teacher-researcher on their thoughts regarding the validity of the survey.

**Engagement Checklist.** An engagement checklist was used to record students' participation and on-task behavior during the TAS instruction and the PIN intervention. The teacher-researcher completed the engagement checklist twice per week throughout the eight-week study (four-weeks for the TAS and four weeks for the PIN intervention). Each student earned between zero- and two-points during data collection to denote his or her specific level of engagement. Students earned zero points if engagement was non-existent, one point if engagement was inconsistent, and two points if students were consistently engaged. Overall, students could earn a maximum of 16 points during the TAS instruction and 16 points during the PIN intervention totaling 32 points for the entire eight-week study. Engagement data were analyzed after each four-week

period to determine if the PIN intervention improved students' engagement during reading with a comparison of percentages.

**Field notes chart.** The teacher-researcher created a field notes chart to take observational data notes during the TAS instruction and the PIN intervention periods. The observational notes were organized by date and included information such as specific student reactions, emotions, participation, interactions (peer and teacher), questions, and the teacher- researcher's thoughts. The teacher-researcher collected data twice per week during the eight-week study. The field notes were analyzed after each four-week period to determine the major and minor themes of the research study. Field notes were used to triangulate findings from other data sources, and anecdotes were used to support and add nuances to other findings.

## Results

The SRI was administered as a pretest and posttest for the TAS and the PIN intervention to measure students' growth. Student progress for the SRI was measured by growth of Lexile points. The scores from the pretest were compared to the scores of the posttest for both the TAS and the PIN intervention to determine which teaching strategy had a greater effect on reading achievement for the participants. The achievement data for the TAS and PIN intervention pretests and posttests are compared in Table 2. Table 2 displayed the results of an independent-samples *t*-test of scores from the SRI for both the TAS and the PIN

intervention. When students participated in the TAS, growth in Lexile scores were lower ( $M=35.58$ ,  $SD=22.05$ ) than the growth in Lexile scores of students when they used the PIN strategy ( $M=104.08$ ,  $SD=42.70$ ). There was a statistically significant difference ( $t(11) = -8.44$ ,  $p < .001$ ) in growth of Lexile scores between the TAS phase and the PIN phase of this study. The PIN intervention proved to have a huge effect ( $d=2.11$ ) on students' reading achievement. Students showed more growth when using the PIN strategy than when students used the TAS. Students demonstrated significant growth in Lexile scores by 193% when using the PIN strategy. The Attitudes Toward Reading Survey was analyzed to determine whether the intervention improved students' attitudes toward reading. The ten-question Likert-scale survey was administered before and after the TAS and after the PIN intervention. The results from the survey are displayed in Table 3.

Before the TAS period began, most students had a more negative perspective of the varying aspects of reading. At the beginning of the study, zero students denoted a "strongly agree" for survey item one or survey item two. After the TAS, the teacher-researcher administered the survey to determine if students' attitudes changed midway through the study. Attitudes changed very slightly with a 0.3 change in the mean. During the TAS, there were two questions that had the same means. Survey items three and six showed no change in attitudes from the beginning of the TAS to the end of the TAS. Since the teacher-researcher did not

require students to write down important information from the book during the TAS, students' attitudes remained the same. Also, on survey item six, there was no change in attitudes regarding understanding the information read aloud in class because the TAS was the original strategy that had been used previously in the teacher-researcher's classroom. During the TAS, students were not taught any new strategies. However, during the PIN intervention, there were increases in six survey items and no change in attitudes for one survey item. There were four survey items that reflected a slight decrease. Survey item number seven had a mean decrease of 0.6. Students were not required to use the PIN intervention when they read independently, so that is a possible reason for a decrease. There was a 1.1 mean increase from the beginning of the study compared to the end of the study which showed that students improved when using the PIN intervention for reading comprehension compared with students using the think-aloud strategy. With a Cohen's  $d$  (0.22), the PIN intervention was proven to have a small effect on student's attitudes toward reading. However, the teacher-researcher noted some significant changes in behavior and attitude through the engagement checklist and the field notes data.

The Engagement Checklist was used to assess students' engagement during the TAS and during the PIN intervention. Data were collected twice per week on each student for the entire eight-week study. Each student earned between zero- and two-points during data collection to denote a specific level of engagement.

Students earned zero points if engagement was non-existent, one point if engagement was inconsistent, and two points if students were consistently engaged. Data were gathered to determine if students' reading engagement increased when using PIN intervention for comprehension compared with students using the TAS. A comparison of engagement for students during the TAS and PIN intervention is displayed in Table 4.

During the first, four weeks of the research study when students used the TAS, 25% of students remained consistently engaged. However, during the second, four weeks of the research study when students used the PIN strategy, students remained consistently engaged 65% of the time. Overall, the percentage of consistent, student engagement increased 40%. In addition, the percentage of students who displayed non-existent engagement behavior decreased 29% from the TAS to the PIN intervention. There were 46% of students who were inconsistently engaged during the TAS, but only 35% of students who were inconsistently engaged during the PIN intervention which demonstrates an 11% decrease. That data revealed that students were more engaged when using the PIN than when using the TAS. The PIN intervention proved to have a greater effect on student engagement than the TAS.

Field notes were collected twice per week during the research study and were analyzed after each four-week period to determine major themes. The field notes data demonstrated that students' behavior improved when students

participated in the intervention phase. During the first four weeks of the research study, students received more classroom discipline infractions when they participated in the TAS. Conversely, when students participated in the PIN intervention phase, there were significantly fewer classroom discipline infractions.

In addition, students were more willing to participate during the intervention phase. A few students stated that they felt more confident participating when they had information written down on the post-it notes. One student said, “I feel like I know the answers to the questions you ask because I have notes written down. I feel more confident answering out loud in class.” When the TAS was utilized, the same students dominated the conversation during discussions. Also, students were more motivated at the beginning of class during the intervention period. Students began offering to pass out the books to their peers and they were ready to start the lesson immediately. During the TAS, students were slow to come into class and needed teacher-prompting to retrieve their books. Overall, students’ body language, behavior, attitudes, and motivation were all positive when students participated in the intervention phase.

## **Discussion**

### **Conclusions**

The teacher-researcher compared data from four-weeks of using the Think Aloud Strategy (TAS) to four-weeks of using the Post-It Note (PIN) intervention.

The data were analyzed to determine if the PIN intervention yielded higher reading achievement scores, yielded improved attitudes toward reading, and yielded an increase of engagement for eighth-grade Students with Learning Disabilities (SWLD). Students with learning disabilities perceive and process information differently than students without learning disabilities (Hughes & Parker-Katz, 2013). Therefore, the teacher-researcher sought to determine if the PIN intervention had a greater effect on students' reading achievement, attitudes, and engagement.

In order to determine if achievement scores of eight-grade SWLD would increase using the PIN intervention for reading comprehension compared the TAS, the teacher-researcher administered a pretest and posttest after four weeks of each instructional strategy. The Scholastic Reading Inventory (SRI) test was administered at the beginning of the research study, after the TAS, and after the PIN intervention. Students showed an increase in their Lexile levels after both the TAS and after the PIN intervention. However, students' Lexile scores improved significantly more when the PIN intervention was used. The teacher-researcher believes the statistically significant gains from the PIN intervention were attributed to students learning a way to actively read text. Through the PIN intervention, students learned to grapple with text to understand its' meaning. The data demonstrated that achievement scores of eighth-grade SWLD increased for reading comprehension when using the PIN intervention as compared to the TAS.

The achievement data findings agree with Harvey and Goudvis (2013) who stated that students have a greater understanding of a text when they actively participate with it. For example, when students used the PIN intervention, they had to draw conclusions, analyze the information they read, question their findings, and make meaningful connections. Harvey and Goudvis (2013) stated that grappling with text in a hands-on manner increases student comprehension which proved to be true based on the achievement data from the research study.

The research findings for achievement data also agreed with Hughes and Parker-Katz (2013) who stated that SWLD need explicit instruction in order to make significant gains in comprehension. The PIN intervention was an explicit strategy that was taught to the research participants to increase reading comprehension. However, the research findings of Mahdavi and Tensfeldt (2013) suggested that teachers need to use multiple modalities to teach reading comprehension because students are diverse, and one strategy may not reach all learners. In the research study, there was only one instructional strategy in place at a time and it was used with a small number of students, therefore, it differed from Mahdavi and Tensfeldt's (2013) larger scale study. Although the teacher-researcher's study did not include multiple modalities like Mahdavi and Tensfeldt (2013) suggested, students still saw significant gains because the teacher-researcher differentiated the PIN intervention to accommodate all learners in the classroom.

Also, there were significant gains during the PIN intervention because students actively participated in reading text, and students were given explicit instruction for reading comprehension. To determine if attitudes improved for eighth-grade SWLD when using the PIN intervention for reading comprehension compared with the TAS, the teacher-researcher administered a ten- question, Likert scale Attitudes Toward Reading Survey. Overall on the Attitudes Toward Reading Survey, students denoted positive changes in their attitudes on the majority of the survey items. Students began to consider themselves as active readers and agreed that actively engaging in challenging text enables them to comprehend more information. Cohen's  $d(0.34)$  demonstrated that the PIN intervention had a small effect on student's attitudes toward reading. However, the teacher-researcher noted a positive change in attitudes toward reading through fieldnotes data. The teacher-researcher believes there was a difference between the Attitudes Toward Reading Survey and the fieldnotes because students were limited to only ten questions on the survey to demonstrate their attitude changes. The fieldnotes were collected with a broader lens which uncovered more positive attitude changes toward reading.

Since fieldnotes were collected twice per week throughout the eight-week study, the teacher-researcher was able to glean major themes. The data demonstrated that one of the major themes was that students appeared more confident when participating in class when using the PIN intervention as

compared to the TAS. Also, students demonstrated more positive body language during the PIN intervention, such as eagerness to begin class, sitting up straight, staying awake while reading, and smiling more often. Students' statements during class were more positive than those stated during the TAS. Based on the teacher-researcher's observations during the study, students were more positive when using the PIN because students were confident in grappling with a text when they learned the PIN strategy. Students were able to analyze a text independently and discuss it with confidence using their post-it notes.

These findings are consistent with Wolff, Isecke, Rhoads, and Madura (2013) who expressed that students who struggle with comprehension risk losing motivation. The fieldnotes from the research study showed that students were less motivated when using the traditional means of instruction (TAS), than when using the PIN intervention. When students were struggling with comprehension during the TAS, more students were receiving classroom discipline infractions and were falling asleep in class. Wolff et al. stated that if students continue to struggle with comprehension and therefore, lose motivation, they run the risk of dropping out of school.

In addition, Fisher and Frey (2014) conducted a study on a reading intervention for middle school students that was based in an after-school setting. Although the parameters of the setting were different, Fisher and Frey (2014) stated that students were more motivated to come to the after-school intervention

than students not participating in the intervention. Fisher and Frey (2014) stated that the students participating in the intervention were more motivated due to the success they were feeling. Fisher and Frey's (2014) findings agreed with the teacher-researcher's findings in that students were more motivated and confident when the intervention was implemented. Fisher and Frey (2014) and the teacher-researcher both observed students participating more in class and having an overall most positive demeanor when the respective interventions were in place. Students who are provided with an organized and consistent intervention are more motivated because they are experiencing success.

In order to determine if engagement of eighth-grade SWLD increased when using the PIN intervention for comprehension compared with students using the TAS, the teacher-researcher collected data using an Engagement Observation Checklist. The teacher-researcher collected engagement data on each student twice per week denoting a zero for non-existent engagement, a one for inconsistent engagement, and a two for consistent engagement. The data were collected and analyzed after the TAS and after the PIN intervention. Students' consistent engagement increased 40% from the TAS to the PIN intervention. In addition, students' non-existent engagement decreased 29% and students' inconsistent engagement decreased 11% from the TAS to the PIN intervention. Comparisons of the two instructional strategies showed that the PIN intervention yielded higher levels of consistent engagement of reading comprehension of

eighth- grade SWLD. The conclusion was also supported by analysis of fieldnotes, which indicated that students during the PIN intervention participated more in class than when the TAS was utilized.

Unrau and Quirk (2014) agree with research findings that engagement is directly related to reading comprehension. Students who consistently engaged in the PIN intervention showed the most achievement gains. Wolff et al. (2013) also expressed that comprehension improves when students are actively engaged in a text. The PIN intervention showed students how to actively engage in a text which improved their overall comprehension. Wolff et al. (2013) elaborated that technology should be implemented to increase engagement. Although the teacher-researcher's study did not include any forms of technology, engagement still increased when the PIN intervention was implemented. Unrau and Quirk (2014), Wolff et al. (2013), and the teacher- researcher's results were similar because students who demonstrated high and consistent levels of engagement yielded higher achievement results in each of the respective studies.

After collectively analyzing all data sources regarding the current research findings, the teacher-researcher noted that there was an increase in reading achievement, attitudes toward reading, and engagement. Based on the research findings, the PIN intervention had a significant impact on the research participants.

### **Significance/Impact on Student Learning**

According to Williams and Ari (2011), reading comprehension is a necessary skill to master because it is a skill necessary to negotiating society, and taking one's place in it successfully. Students with learning disabilities struggle with comprehending text because they process information differently than students without learning disabilities (Hollenbeck, 2013; Hughes & Parker-Katz, 2013; Jitendra & Gajria, 2011; Kim, Linan-Thompson & Misquitta, 2012). In the research school, the school improvement plan addressed the achievement gap in reading. Also, 100% of the students in the teacher-researcher's resource classroom have an Individualized Education Plan (IEP) goal of increasing their reading comprehension skills. The teacher-researcher sought to examine the effects of active reading using the PIN intervention to determine if it positively affected students' achievement, attitudes, and engagement. It became apparent that the intervention helped students learn ways to actively engage in a text to improve their comprehension.

The results are important because they help demonstrate that the PIN intervention is a successful way to improve students' reading comprehension in terms of achievement, attitudes, and engagement. Lack of proper reading strategies, motivation, and engagement could hinder SWLD from understanding text they read (Hollenbeck, 2013; Hughes & Parker-Katz, 2013; Jitendra, Burgess, & Gajria, 2011; Jitendra, & Gajria, 2011, & Unrau & Quirk, 2014). Discovering

ways to help struggling readers become active participants in the process is imperative for any teacher of SWLD, and the post-it note strategy is one means of achieving this goal.

### **Implications and Limitations**

The research findings impacted the way the teacher-researcher teaches novel studies to SWLD. Before the research study, the teacher-researcher only utilized the TAS, however, the teacher-researcher learned the importance of incorporating active reading strategies into novel studies. The data demonstrated that reading achievement, attitudes, and engagement improved when students used the PIN intervention. The teacher-researcher has continued to use the PIN intervention with SWLD as the primary form of instruction. The teacher-researcher shared the research findings with the other English Language Arts teachers at the monthly department meeting and shared the findings with all special education teachers during the special education department meeting. The teacher-researcher emphasized the importance of teaching students' ways to actively read a text, such as using the PIN strategy. In order to share the research findings with other teachers in the school district, the teacher-researcher shared the information with the special education facilitator to disseminate to all schools in the county. In general, this research study demonstrated the importance of teaching students' ways to actively engage in reading to improve reading comprehension.

A limitation of the study was the narrow population of students who participated. The study was conducted with 12 eighth-grade SWLD. The research results may have been different if the population was bigger and the participants were more diverse. Another limitation of the study was the teacher-researcher's bias in relation to the participant's backgrounds and learning preferences. The teacher-researcher was aware of the students' abilities, motivators, and direct weaknesses that were detailed in each student's IEP.

In conclusion, the PIN intervention improved students' achievement, attitudes, and engagement toward reading. All students improved their Lexile scores significantly when using post-it notes while reading. Since students in the resource, reading classroom were reading below grade-level, the significant gains in Lexile were important in closing the achievement gap.

Results from the Attitudes toward Reading survey and field notes showed that students approached reading with a more positive attitude after participating in the PIN intervention. When students had a positive attitude, they were more open to learning and growing as a reader. In addition, students showed significant improvements in engagement during the intervention period. When students were engaged during the intervention, they were gleaning more meaning from the information they read which improved their overall comprehension. The PIN intervention proved to be successful with improving eighth-grade, SWLD achievement, attitudes, and engagement in reading.

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Table 1

*Demographic Data for the Think-Aloud Strategy Group and the Post-It Note Intervention Group*

Characteristic (N = 12)	N	%
<b>Race</b>		
White	9	75%
Black	3	25%
Hispanic	0	0%
Asian	0	0%
<b>Gender</b>		
Female	10	83%
Male	2	17%
Students with Disabilities	12	100%
Economically Disadvantaged	6	50%

Table 2

*Comparison of Think Aloud Strategy and Post-It Note Intervention Achievement*

Strategy	n	M	SD	t-value	p	d
Think aloud Strategy (TAS)	12	35.58	22.05	-5.59	< .001***	2.11
Post-It Note (PIN) intervention	12	104.08	42.70			

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\*\*\*p < .001 \* p < .05, \*\*p < .01,

Table 3  
 Comparison of Attitudes Toward Reading Survey Results

Survey Item	TAS		<i>M</i>			PIN		<i>M</i>		
	Pre M	Post M	Pre SD	Post SD	Gain Loss	Pre M	Post M	Pre SD	Post SD	Gain Loss
1. My attitude toward reading is positive	7.6	9.2	7.5	6.2	1.6	9.2	11.6	6.2	14	2.4
2. If I am getting confused while reading, I know how to use strategies to help me understand it better.	9.2	9.8	10.4	7.7	0.6	9.8	11	7.7	13.3	1.2
3. I understand reading more when I write down important information from the book.	7.8	7.8	4.5	5	0	7.8	10.4	5	10.3	2.6
4. I ask myself questions when reading a text.	7.2	8.8	6.1	8	1.6	8.8	10	8	9.4	1.2
5. I take time to reflect on what I read after each chapter, paragraph, or section of a book	7	8.4	3.1	4.3	1.4	8.4	9	4.3	9.3	0.6
6. I understand what I read when we read together as a class.	12.4	12.4	13.6	18.8	0	12.4	11.6	18.8	16.3	-0.8
7. I understand what I read when I read independently.	9	9.2	4.9	6.3	0.2	9.2	8.6	6.3	5	-0.6
8. I consider myself to be an “active” reader instead of a passive reader.	9	9.2	4.9	6.3	0.2	9.2	8.6	6.3	5	-0.6
9. I choose books that I know are easier for me (below my targeted Lexile Level)	10.8	9.8	11.5	7.8	-1	9.8	9.8	7.8	7.8	0
10. I can comprehend challenging books if I actively engage in a text	10.4	10.2	7.5	11.3	0	10.2	10	11.3	8.2	-0.4
Total Questions 1-10	9	9.3	3.4	4.1	0.3	9.3	10.0	4.1	3.5	0.8

*M and SD*

Table 4

*Engagement Observation Checklist Results*


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Think Aloud Strategy	Percentage of Engagement
Percentage of Non-Existent Engagement (0)	29%
Percentage of Inconsistent Engagement (1)	46%
Percentage of Consistent Engagement (2)	25%
Post-It Note Intervention	
Percentage of Non-Existent Engagement (0)	0%
Percentage of Inconsistent Engagement (1)	35%
Percentage of Consistent Engagement (2)	65%

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