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Use of High-Level Questioning to Increase Student Achievement in Reading

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An Action Research Report

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Abstract

This action research project explored the impact of asking students higher-level questions during guided reading instruction to increase reading comprehension and engagement. The study took place with eight students in two different on grade-level guided reading groups in a second and a third grade classroom. Baseline data was collected before students were presented increasingly higher-level questions over the course of six-weeks and a post-assessment was given to monitor students' growth in the areas of comprehension and engagement. Data collected during the study included comprehension pre and post assessments with scoring rubric, pre and post reading attitude surveys, weekly teacher observation checklists, and teacher observation journals. Week by week student comprehension engagement increased and at the completion of the intervention, students demonstrated an overall increased ability to engage with and comprehend what they had read. The intervention of introducing higher-level questioning into guided reading instruction proved effective and will continue to be implemented as instructional best-practice in each of the participating teachers' classrooms.

Keywords: higher-level questioning, reading comprehension, reading engagement

From preschool to high school and all that lies between, questions are a dominant force in the educational world. They are often what sparks conversations, drives thinking and encourages learning in the classroom. Questions, ranging in level of difficulty, are a critical component of learning, yet many teachers think very little about the types of questions they pose to their students each day. Statistics show that most teachers ask an average of 300 to 400 questions on a daily basis; however, 60-80% of these questions are low-level questions that only require students to recall something they already learned (Tienken, et al., 2010). Statistically speaking, this shows that upwards of 18,000 questions asked each year in a classroom do not push students' thinking beyond the point of merely recalling what they know. Questioning comes naturally for teachers, however, to be done effectively, questioning must be planned, structured and systematic.

After a careful examination of our current reading instruction practices, it became apparent that reading was one area in which we desired to see more engagement and comprehension from our students. This consideration led to our research of reading best-practices and continual reflection on our reading instruction. Through our initial research, reflection of our practices, conversations with colleagues and administrators, and reading the literature we gathered information about quality reading instruction and teacher questioning. Through our review of the literature, it was continually reinforced that posing higher-level questions during reading instruction had the potential to increase student comprehension, engagement and metacognition. The analysis of the literature helped us to understand better how to plan for higher-level questions, how to pose higher-level questions effectively, and the outcomes of posing higher level questions during reading instruction. We could then begin to

implement higher level questioning into our reading instruction to reap the benefits we so desired.

Through our review of peer-reviewed literature, we were able to formulate a plan for our action research project that was to take place during guided reading instruction. The students who were to be a part of our study were second and third grade students who were part of the at grade-level guided reading groups, a combined total of eight students. During the study, we planned to meet with the group three times a week for a four-week time span. Each week of the study introduced a progressively higher-level question type from Bloom's Taxonomy of Questioning. The data collected during this study would help to answer the question: what effect will implementing higher-level questioning have on the student's ability to comprehend texts in primary classrooms?

Review of Literature

Although questioning has been long thought of as an important aspect of education, more recent research studies indicate it has been brought to the forefront as a critical component of effective teaching (Hannel, 2009). Strategically structuring questioning in the classroom through careful planning and implementation will provide benefits to both teachers and students (Peterson & Taylor, 2012). Careful timing, varying levels, and using techniques such as wait time and scaffolding are critical in the implementation of high-level questioning (Kängsepp, 2011; Lundy, 2008; Walsh & Sattes, 2005; Tienken et al., 2010). This literature review shows that the use of planned, structured, and systematic questioning teachers can increase reading comprehension, engagement, and metacognition skills.

Various Levels of Questions

Low-level questions are questions which require students to remember, reiterate or find information that is within the text (Tienken, et al., 2010; Vogler, 2005). Although low-level, in-text questions are easier to generate, teachers must ask questions from a variety of levels to ensure student achievement (Tienken et al., 2010). These types of questions do not encourage students to use high-level thinking, but rather require them to just recall what they have read or learned in a manner which produces a "correct" or "incorrect" response (Tienken et al., 2010; Walsh & Sattes, 2005). Research studies show that low-level questions are the easiest for teachers to produce, and, therefore, are the most common form of questioning in the classroom (Tienken et al., 2010). Although low-level questioning may not prepare students to think deeply, they do, however, set the stage for making sure students are ready for higher-level discussion (Walsh & Sattes, 2005).

High-level questions, although most infrequently used, are extremely beneficial for student learning. High-level questions are questions which require students to analyze, synthesize, evaluate, categorize or apply what they have read (Tienken et al., 2010; Vogler, 2005). High-level questions frequently do not have one correct answer, but rather encourage students to produce a response which is unique to their thinking and interpretation of the text (Tienken et al., 2010; Peterson &Taylor, 2012). Research has shown that asking higher-level thinking questions is fundamental to student learning (Lundy, 2008). In addition, teachers who emphasized higher-level thinking through the asking of higher-level questions promoted greater reading growth in their students (Lundy, 2008).

Effects of Higher-Level Questioning

Positive Student Effect

Increased engagement. In a world that is increasingly fast-paced and action-packed, students require more excitement, prompting and inspiration to be fully engaged in the learning process (Caram & Davis, 2005). Questioning is one way to keep students engaged in the learning process. When teachers use questioning effectively, it increases curiosity, piques interest, and causes increased motivation (Caram & Davis, 2005; Lorent Deegan, 2010). When teachers create a classroom culture that requires students' continuous participation through answering complex, high- level questions at their cognitive level, it leaves them no choice but to be engaged (Hannel, 2009; Walsh & Sattes). In particular, in reading instruction, high-level questioning allows students to self-regulate and actively engage in the text for increased comprehension of their reading (Parker & Hurry, 2007).

***Increased comprehension*.** When teachers predominately use higher-level questioning instead of the suggested basal questions or workbook pages provided, there is an overall positive impact on comprehension and achievement (Lundy, 2008; Kängsepp, 2011). For years, researchers have studied the effect of higher-level thinking questions on reading comprehension (Lundy, 2008). Students' ability to gather meaning from texts they read, or reading comprehension, has been a concern for researchers in many of these studies (McKown & Barnett, 2007). Over the course of time researchers have found that when students have been asked high-level questions while reading, these questions help shape the students' understanding of the text (Lundy, 2008). Questions that are deliberate in probing student's strategic thinking about a text, play a crucial role in aiding comprehension (Fordham, 2006). Too often during

reading instruction teachers ask factual and detail questions that do not drive students to interpret the text. In doing so, student's thinking often focuses on remembering facts or short blips from what they read rather than creating a full picture of the text. These types of low-level, factual questions do not drive students to comprehend what they have read (Lundy, 2008). Instead, studies show that teacher's questioning at a variety of levels including literal, inferential and applied, generate active and proficient comprehension (Fordham, 2006; Kängsepp, 2011).

Increased metacognition. Another tool in supporting students to comprehend what they are reading is metacognition, or getting students to think about their thinking while reading. The National Reading Panel identified metacognition as an important factor in improving reading scores nationally (McKown & Barnett, 2007; Walsh & Sattes, 2005). When a student can tackle their own questioning, they are more likely to make meaning of a text, and make deeper connections (Walsh & Sattes, 2005). Teachers' carefully planned questions encourage students to think more deeply about their thinking while reading (Fordham, 2006). When teachers stop and model their thinking through the use of higher-level questioning, students can apply those questioning skills to their reading when independently working their way through a text (Fordham, 2006). Effective teachers coach through the use of questioning, providing their students with tools that will allow them think deeply about their thinking while reading (Fordham, 2006). As teachers question students while reading, it builds students' metacognitive skills, enabling them to monitor their comprehension as they read (Gunn, 2008). Teachers' modeling of inferred rather than literal questions, allows students to discriminate between the two in order to produce their own inferential questions as they read. This skill encourages students to construct meaning of a text and enhance understanding of the text that leads to improved overall reading comprehension (McKown & Barnett, 2007; Walsh & Sattes, 2005). If

students continually witness teachers asking a variety of questions when working through a text, their ability to ask multi-level questions increases. They are able to see what a 'thin' question looks like versus a 'thick' question (Lewin, 2010). As high-level questions are modeled and applied to students' reading, students use these questioning skills to think about and question their thinking while reading, significantly improving comprehension (Gunn, 2008).

Positive Instructional Effects

In addition to increased student achievement, planning for higher-level questioning also has positive implications on teachers. Teachers must continuously reflect on their instructional practice as a means to increase student achievement. As teachers strive to use higher-level thinking questions, they often reflect on the types of questions they are asking in their classroom. In addition to reflection, teachers' use of high-level questioning is also shown to create increased collaboration among teachers (Peterson & Taylor, 2012; Vogler 2005). Peterson and Taylor (2012) found that when making the transition to include more high-level questioning in their instruction teachers worked collaboratively in this endeavor. Peterson and Taylor (2012) suggest that to increase the level of questioning, teachers should regularly meet in grade-level and cross-grade-level teams to develop higher-level questions and also practice modeling questioning for instruction. Observations by colleagues and coaches were also shown to increase the effectiveness of reflecting and implementation of higher-level questioning (Peterson & Taylor, 2012; Vogler 2005).

Structure of Questioning

Questioning, when used strategically, increases student engagement, comprehension, and metacognition. However, teachers must carefully structure questioning in order for it to be

effective for student learning and achievement. The questioning element of teaching is one that is often less developed, or expressed as critical in teacher education and training (Caram & Davis, 2005). Therefore, much research and literature has been published to assist teachers in more effectively structuring questioning for increased student success.

Planning. Dialogue between teachers and students is ever-present in classrooms, with the majority of the conversation containing questions and responses. Often, this dialogue is not purposeful or meaningful to student engagement and achievement (Caram & Davis, 2005). Teachers who are dedicated to student achievement in reading use careful planning and consideration of the dialogue between themselves and students to ensure that the conversation manages and directs learning (Caram & Davis, 2005; Walsh & Sattes, 2005). As a means to enrich learning and increase student performance, skillfully planned questioning is an essential skill for teachers (Caram & Davis, 2005). Teachers must create a classroom culture which fosters active dialogue and feedback. When planning questions, teachers can better focus the level of questioning based on the needs of students, the curriculum, and the topic (Walsh & Sattes, 2005). Due to the fact that low-level questions are easier to develop, the majority of learning that takes place in the classroom naturally focuses on low-level thinking skills (Tienken et al., 2010). To counter this, when planning for instruction, teachers must focus on preparing questions that require higher-level thinking from their students (Caram & Davis, 2005). Planning questions for instruction allows teachers to phrase questions carefully, concisely, and with purpose to frame the questions in a way that promotes student interest and engagement (Walsh & Sattes, 2005).

Timing. The timing of questions during reading instruction is nearly as crucial as the level of questioning itself (Fordham, 2006; Gunn, 2008; Kängsepp, 2011). A combination of questions asked prior to reading, during reading and after reading ensure that students' thinking

is continuous and constant as they engage with their text. Embedding questioning into reading, stopping students to reflect on reading, and promoting ongoing conversation while reading are all ways that encourage increased comprehension (Fordham, 2006). While students read, teachers are able to probe for further thinking by producing high-level questions which require students to interact deeply with the text. Waiting only until the end of reading incorrectly demonstrates to students that the process of gathering and applying information as you read is not critical to comprehension (Gunn, 2008). While questioning during reading is essential to comprehension, questioning after reading allows students to synthesize information and further encourages higher-level thinking. A study conducted by Pilve Kängsepp (2011) determined that questioning after reading had a positive impact on text comprehension in primary grade levels.

Techniques. The use of a variety of techniques for questioning such as planning for and scaffolding questions stimulates student achievement and growth in the classroom (Phillips, 2013). It is necessary that teachers use an assortment of techniques such as wait time, scaffolding and sequencing, to ensure that high-level questioning has the greatest impact on student learning (Craig & Cario, 2005).

Teacher wait time is an essential component for student participation and growth to promote questions that require higher-level thinking and responses (Walsh & Sattes, 2005). Teachers often expect an answer almost instantaneously to the questions they pose to students. They gravitate to the students whose hands are raised and are ready to answer right away, calling on them to speak and share a response. When teachers consider the knowledge and processing required for higher-level thinking questions, it is important that they also consider the wait time allowed for student response. In classrooms where teachers wait five or more seconds for a response from students, the responses are often at higher levels of thinking than in classrooms

where teachers do not allow adequate wait time for students' responses (Craig & Cario, 2005; Walsh & Sattes, 2005). Questions that address higher-level thinking require an even greater wait time than what teachers are used to allowing. Teachers who give wait time that is appropriate for the level of the question can increase analytical and problem-solving skills of students (Caram & Davis, 2005). Studies have shown that increasing wait time, increases students' answers by as much as 300-700 percent (Walsh & Sattes, 2005).

In addition to wait time for allowing students to respond, teachers must also be cognizant of their wait time following students' responses. Teachers who do not immediately reply to a given response from students often draw more complete, correct, and in-depth answers than teachers who immediately respond to a student's answer. Teachers who give students appropriate wait time, beyond five seconds, encourage increased student engagement, thinking, and achievement (Caram & Davis, 2005; Walsh & Sattes, 2005). Allowing time before responding to students' answers also allows teachers more time to formulate the next higher-level questions to guide thinking (Walsh & Sattes, 2005).

In addition to wait time, the way in which teachers scaffold their questioning has been shown to increase student achievement (Deegan, 2010). Lorent Deegan's (2010) study suggests that the flow between low-level and high-level questioning has been shown to improve comprehension in guided reading. When students are asked higher-level questions, 30-50 percent of the time their responses are at a lower level than desired (Walsh & Sattes, 2005). When lower level responses occur, probing may be used to help students connect prior knowledge to create a higher-level response (Walsh & Sattes, 2005; Peterson & Taylor, 2012).

Sequencing can be used to build a teacher's repertoire of ways in which to incorporate more high-level questioning (Vogler, 2005). Question sequencing allows teachers to develop questions based on the student response (Vogler, 2005). Caram and Davis (2005) suggest starting with questions that meet the particular needs of the students and then gradually increasing the level of the questioning when student's responses are sufficient. When sequencing questions in a purposeful and meaningful way, the likelihood of students increased achievement is elevated.

After reviewing professional literature, it was determined that planning and implementing higher-level questions positively impacts both teachers and students (Peterson & Taylor, 2012). Studies have shown that using various components of questioning such a careful timing, varying levels, and wait time and scaffolding are critical in the implementation of high-level questioning (Kängsepp, 2011; Lundy, 2008; Walsh & Sattes, 2005; Tienken et al., 2010). This literature review provides support that the use of planned, structured, and systematic questioning can increase reading comprehension, engagement, and metacognition skills.

Methodology

Implementing higher-level questioning into guided reading groups in the elementary classroom required careful planning and scaffolding of questions each week to slowly introduce students to the highest level of questions. Before beginning the study a parental notification letter was sent home informing them that their child had been chosen to participate in the study. Once consent was achieved, students were then informed that they would be participating in a learning activity and study for their teachers and that we would be using some tools we have learned to help them understand what they are reading and become more engaged in their reading.

Two guided reading groups were chosen to participate, one from each of the two elementary classrooms in which this study took place. Each of the guided reading groups which were chosen to participate in this study were the groups that were "on grade level" for the respective second and third-grade classrooms. In the third-grade classroom this grade-level group consisted of five students, in the second-grade classroom the grade-level group consisted of three students.

The study was executed over the course of six weeks, one of which included collecting pre-assessment, baseline data, and one of which was collecting post assessment data. Students were immersed into reading instruction which incorporated the asking of higher-level questions three times a week. During the study, the methods of research focused around higher-level questioning by the teacher, constructed responses and questions by the students, engagement and comprehension self-surveys by the students, and observational data of engagement and comprehension by the teacher.

During the first week of the study, the students were given a reading survey and asked to indicate how they felt about reading comprehension and engagement (see Appendix A). Students were told to be honest on this survey and completed this survey independently on their own time. During the first week of the study students were also given a grade-level book and were asked to independently read the book during guided reading and answer a variety of comprehension questions about the book from the highest four levels of Bloom's Taxonomy of questions (see Appendix B and C). The pre-assessments were then evaluated based on a question response rubric to determine their achievement level (see Appendix D). These pre-assessment pieces allowed for baseline data collection regarding each student's reading comprehension and engagement with the text. Students were then informed of questioning techniques which were

going to be used over the course of the study and the purpose for the introduction of these techniques into their guided reading groups.

The action research project began with intervention number one taking place during week one. Over the course of this week, guided reading took place as normal, however the questions which were posed by the teacher during this week were questions which were not "right there" questions stated within the text, but rather questions drawn from the "application" level of Bloom's Taxonomy of questioning. During this week, teachers observed students' engagement and comprehension of the text and kept a journal to report student progress. At the end of Week One a checklist was completed which indicated each student's performance in asking and answering higher level questions, as well as each student's engagement with the text and comprehension of the text (see Appendix C).

Week Two introduced the next tier of higher-level questions from Bloom's Taxonomy. During Week Two, questions were taken from the "analysis" level. Students continued to read and respond to the text using specific questions which were teacher directed, and were also encouraged to think of their own questions about the text. Observational data was collected over the course of the week and documented using a checklist (see Appendix C). In addition to observational data, teachers continued to document student progress and reflect on the research through journaling.

To continue with the scaffolding of higher level questions, Week Three presented students with the proceeding step of higher level questions, the "synthesis" level. Over the course of the week, students continued to engage in apply and analyze questions, but focused greatly on questions which required them to synthesize the knowledge taken from their text. During Week

three teachers continued to observe and document student reading behavior and questioning, and at the conclusion of week three teachers completed a checklist for the week (see Appendix C).

The final intervention portion of the study took place during Week Four. Week Four required students to interact with the highest level of questions from Bloom's Taxonomy: "create" questions. In addition to engaging with the previous three levels of questions, Week Four gave students the opportunity to take what they gathered from the text and create something new. During this week the teachers continued to monitor students' engagement and comprehension, documenting their observational data through the use of journaling and checklist at the end of the week (see Appendix C).

The research study ended with a post-assessment. During this week students were given a different grade-level book than they were given for the pre-assessment. Students were asked to read the book independently and were given comprehension questions from each of the four levels of questioning. The post-assessments were then evaluated based on a question response rubric to determine achievement level of the students following the study (see Appendix E). Students were also given the same reading survey, as in the beginning of the study, and were again asked to indicate how they felt about reading comprehension and engagement (see Appendix A), students were told to be honest on this survey and completed this survey independently on their own time. The reading surveys were then evaluated and compared to the previous base-line data.

As the study progressed, the teachers continually reflected on students' engagement with the text as well as their answers to higher-level questions, analyzing the effectiveness of the study and keeping a watchful eye out for any changes or alterations that would make the practice

of implementing higher-level questions during reading instruction more effective in the future. One change we made to our initial plan was the process in which we presented the higher-leveled questions. During the first conference each week, students read a leveled text with their teacher and then discussed lower-level comprehension questions in order to gain a base-level understanding of story features such as characters, problem, and solution. The next two sessions each week were then used to build on participants' basic-level of understanding to discuss higher-level questions and thinking. This tiered approach was one which was not initially built into our study, but it became apparent that it would be necessary for students to actively engage in higher-level questioning.

Analysis of Data

Once the study was concluded we were able to analyze the data. These data sources included pre and post assessment reading comprehension questions with a scoring rubric, pre and post reading attitude surveys, weekly observational checklists, and teacher journaling of the study's progress. The study took place over a span of six weeks, two of which were pre and post assessment weeks and four of which the higher level questions were implemented and observational data collected.

At the onset of the study the students were given an initial reading attitude survey (see Appendix A). The survey responses were taken as baseline data prior to beginning the study. When examining the reading attitude survey it became apparent that although most students enjoyed reading, several did not believe they were always engaged in their reading, and many expressed they lacked comprehension for the books they read. In addition, many students noted that they rarely, if ever, partook in metacognition while reading (Figure 1).

After the six week study was completed students were again given the same reading survey after the intervention was complete. The results of the post-study survey show the number of students who thought positively about their understanding of what they read (comprehension) had increased by 50%. The number of students who noted they asked questions as they read (metacognition) had increased by 37%. The number of students who indicated they enjoyed reading also increased by 13%. The number of students who indicated that their mind wanders while reading (engagement) increased slightly by 13% (Figure 2). This may be attributed to the fact that during the pre-assessment students were unaware of what it meant to be "engaged" in their reading. During the study the students were given instruction on and became familiar with what it meant to be engaged while reading and therefore became more aware of whether or not

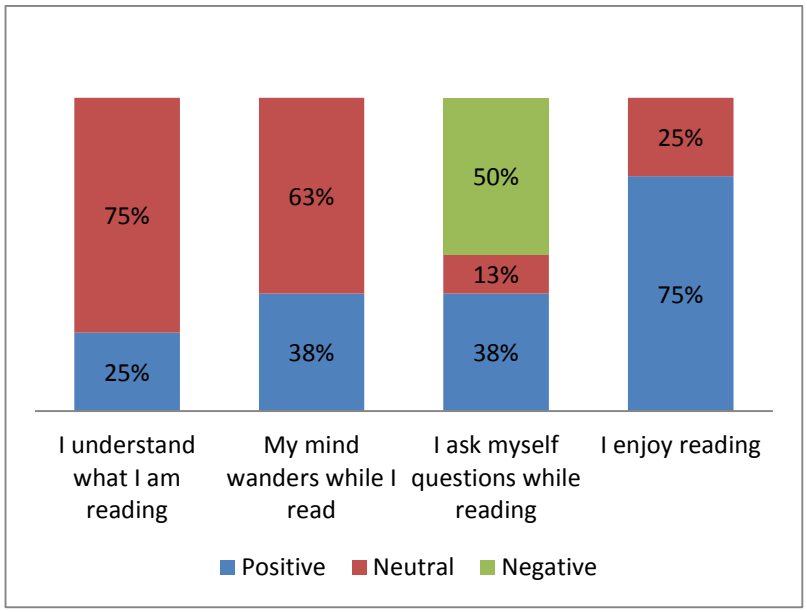

Figure 1: Reading Survey Prior to Study.

they were in-fact engaged. When taking the post-assessment students had a new found understanding of reading engagement, and although they did not indicate they were more engaged, they became more aware of the fact that their minds were wandering during reading. Although a growth in reading engagement is not present, this positive outcome shows students

are more attune to their reading behavior, are aware of their lack of engagement at all times, and now have the tools necessary to do something about it. At the conclusion of the study the majority of students indicated that they understood what they read, ask themselves questions while they read, and enjoy reading, while the majority of students stated that their minds still wandered while reading.

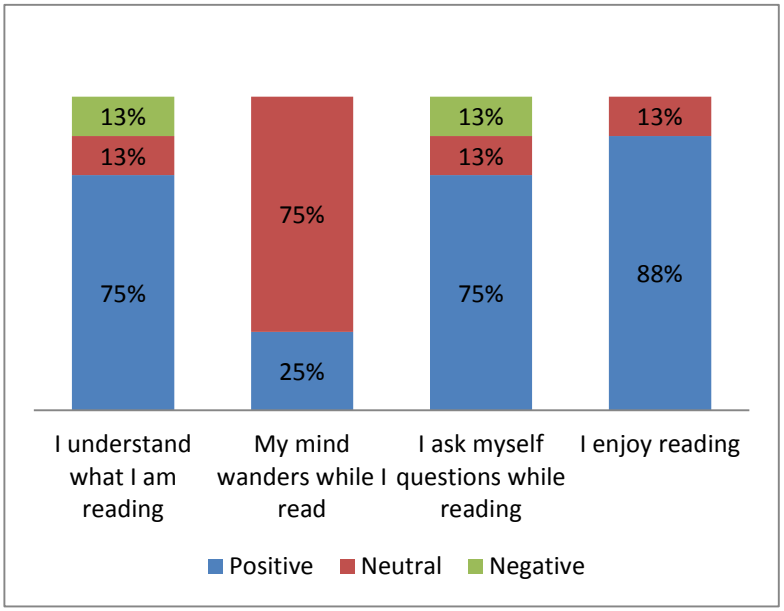

Figure 2: Reading Survey Following Study.

In addition to the reading attitude survey, a reading comprehension assessment was given prior to the study (see Appendices B and C) as a baseline collection of students' reading comprehension. This assessment contained four questions, one question each drawn from the top four levels of Bloom's Taxonomy. These pre-assessments were scored using a rubric in which students were able to receive up to four points per question for a total of 16 points (see Appendix D). The preliminary data of the reading pre-assessment indicated that although many students

had a slight understanding of what they were reading and ability to answer the increasingly higher-level questions, most were still novice in their comprehension. As the data was deconstructed further, it became apparent that students struggled more with the higher two tiers of questioning, the synthesize and evaluate levels, than they did with the previous two, the apply and analyze levels in the initial pre-test (Figure 3). We hypothesized that this may be due to the fact that students were rarely, if ever, exposed to those types of higher-level questions prior to the pre-test.

Upon completion of the study students were again given a reading comprehension assessment. This post-assessment contained questions from the same four levels of Bloom's Taxonomy but were taken from a different book to ensure that growth was not due to recognition of the contents or questions. The post assessment data indicated that all students increased their comprehension and ability to answer high-level questions from their reading (Figure 4) and also showed that students' improved comprehension of the text gave them an increased ability to answer questions from the synthesize and evaluate level of Bloom's Taxonomy (Figure 3).

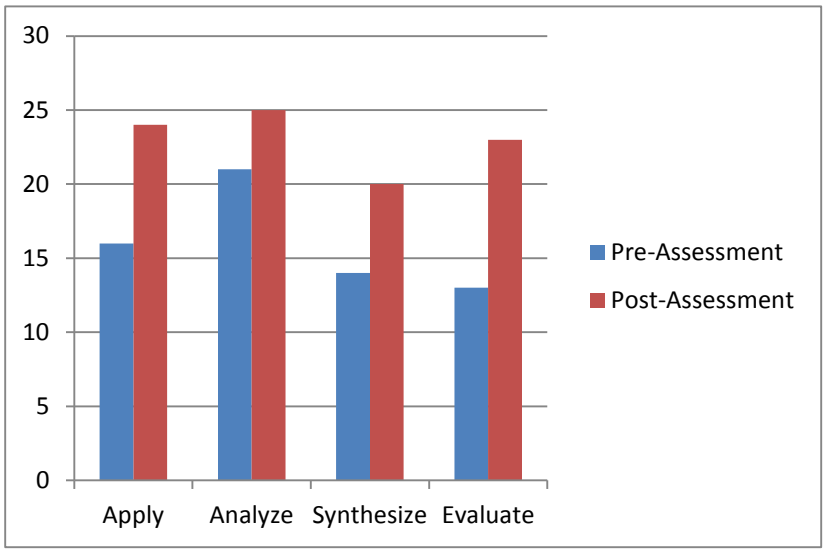

Figure 3: Student's Comprehension Question Scores by Level.

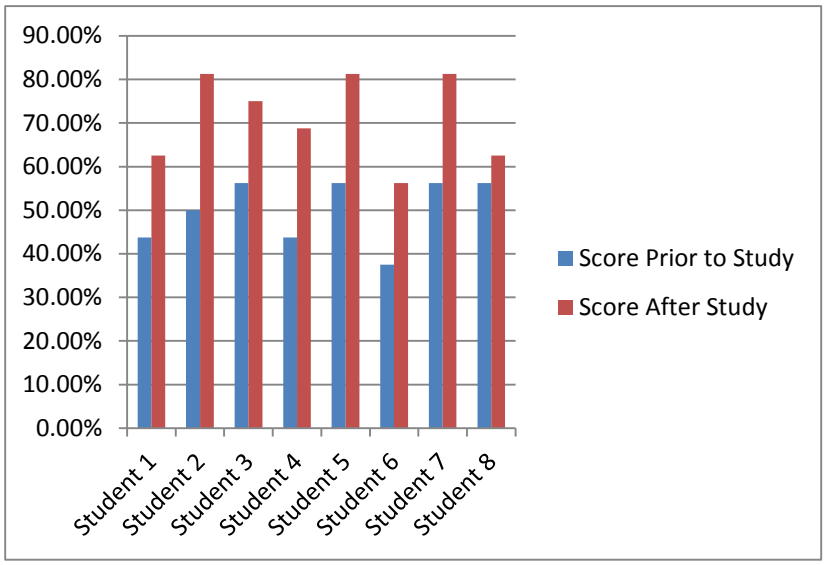

Figure 4: Student's Overall Comprehension Scores.

The next piece of data collection was teacher observation of increasing comprehension, engagement, and metacognition, and was implemented during the carryout of the study. Throughout the week the teacher would observe each of the students' participation in discussion, answers to comprehension questions and engagement in what they were reading and at the end of the week would fill out a checklist (see Appendix E) noting these behaviors. As the study took place, each subsequent week showed an increase in the average scores for desired reading behaviors, indicating that students were more engaged in their reading, and could better comprehended and express their thoughts about their reading (Figure 5).

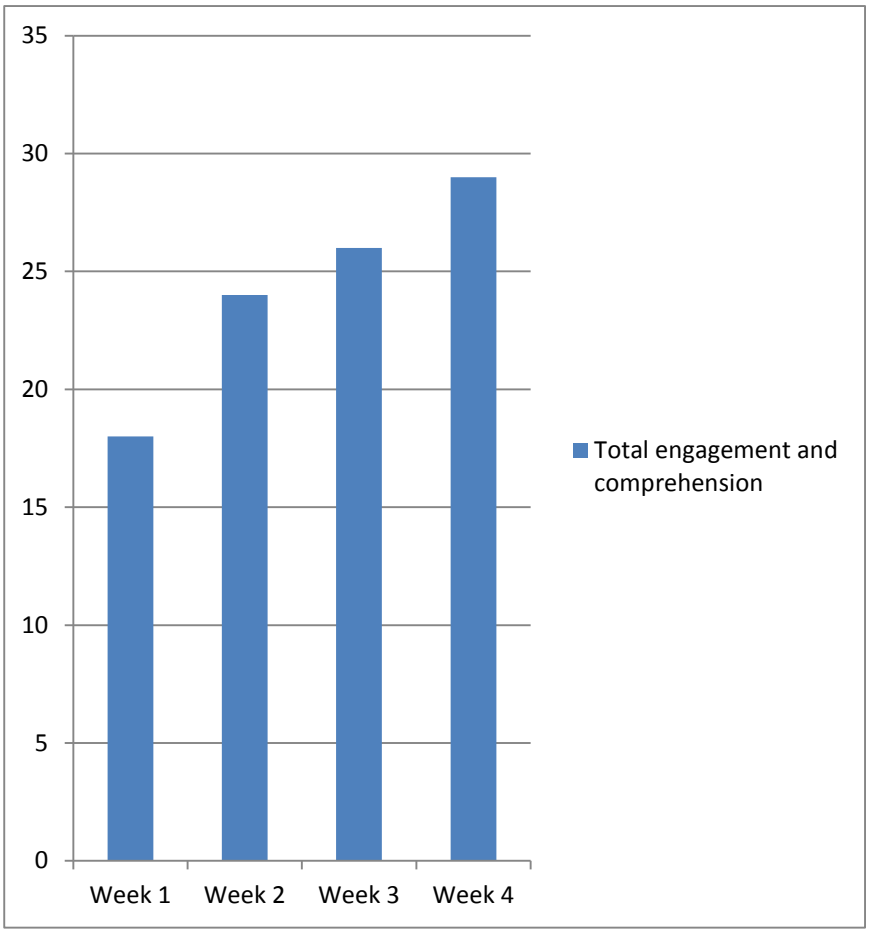

Figure 5: Reading Comprehension and Engagement Weekly Observational Data

When broken down by desired skill, it becomes increasingly clear that students' comprehension increased dramatically as their ability to answer high-level questions from week one to week four shows the greatest growth. In addition, it can be observed that students were increasingly able to come away with questions from their reading, and had a very slight increase in engagement with their books between weeks one and four of the study. Students' participation in discussions related to the book increased initially between weeks one and two, and leveled off for the remainder of the weeks (Figure 6).

During the course of the study teachers also kept a journal documenting observations they noticed during the interventions. While reading through the qualitative data, a couple of themes emerged. Throughout both teachers' observations, they noted that each week students needed less prompting to participate in the discussion of the texts and were more willing to participate and answer comprehension questions on their own. They also noticed that students were more engaged in the discussions due to a greater understanding of what they had read. Over the course of the first two weeks all students became increasingly involved in the discussion and by week 4 both teachers noted that all students were participating equally providing in-depth and relevant conversation about the texts. The conclusions that were drawn from the teachers' reflections can be supported by noting that each of the themes that emerged correlate directly with the findings within the weekly observational data (Figure 5 and Figure 6). For example, the teachers noted that each week students were increasingly able to answer higher-level questions. At the onset of the study, both teachers noted the students' inability to thoroughly answer higher-level questions, and as the study progressed teachers noted an increased willingness and ability to answer high-level questions. Teachers observed that by the fourth week of the study students' ability to answer high-level questions had increased dramatically and students were offering in-depth answers to many of posed high-level questions. This same trend can be seen in the pre and post assessment data as students' ability to comprehend what they read and respond to high-level questions about the text increased as well.

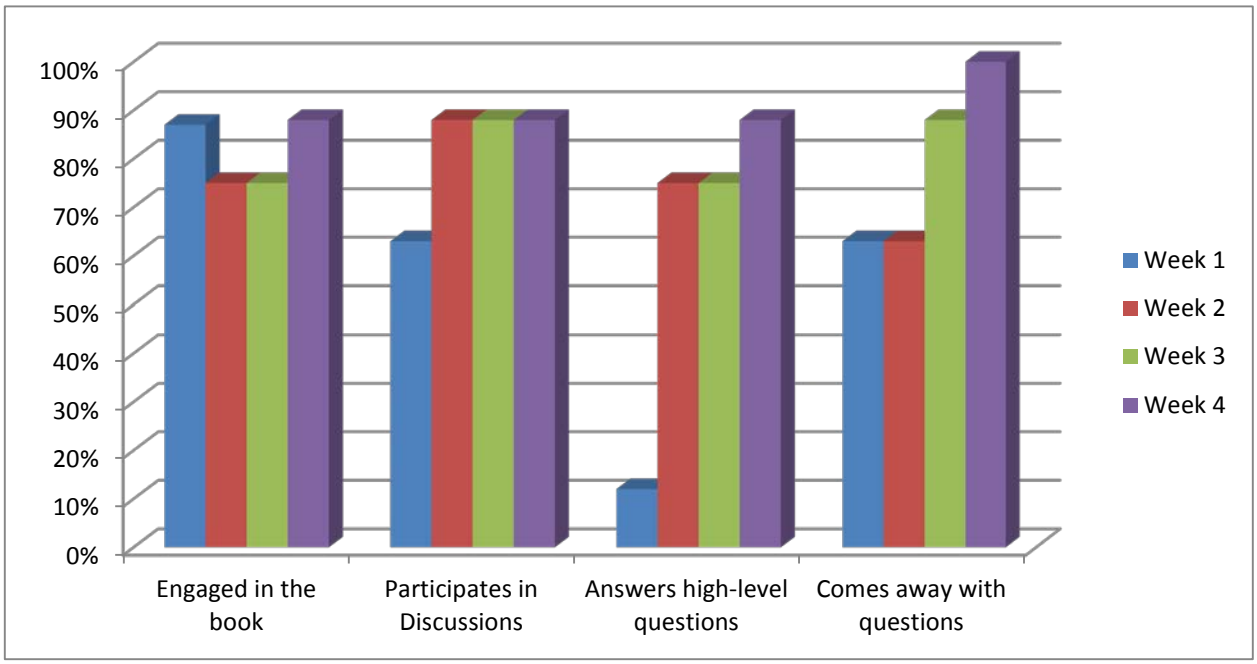

Figure 6: Weekly Observational Data.

Action Plan

The question posed at the beginning of this study, does implementing higher-level questions during guided reading instruction increase student engagement and comprehension, was answered by analyzing and triangulating quantitative as well as qualitative data collected from the action research project. The conclusion can be drawn that when elementary students are given the opportunity to interact with their reading through asking and answering of higher-level questions, their ability to engage with and comprehend what they read increases. By implementing the interventions outlined in this study, educators can assist students in increasing reading comprehension, engagement, and metacognition.

The results of the research have positively changed the practice of the participating teachers. Due to the gains they saw in student comprehension throughout the study, the participating teachers plan to continue scaffolding and implementing higher-level questions during guided reading instruction with all students. Questioning will no longer be simplistic

questions which students can find easily and quickly in their text, but rather well thought out questions which require students to partake in higher-level thinking. Teachers will also continue to track progress of desired reading behaviors by using self-surveys and pre and post assessments as used in the study. By tracking students' reading behavior progress, teachers are able to guide their instruction to better meet the needs of their students. Teachers are also able to time the scaffolding of higher-level questions appropriately to better guarantee that students grasp total comprehension of a text. In addition, as teachers and students become familiar and comfortable with higher-level questioning in small-group settings the teachers will be able to implement higher-level questions during instruction across the curriculum potentially increasing engagement and comprehension in multiple areas of study.

The repercussions of this study reach beyond improving teaching practices. Student learning will also be greatly impacted by the results of this study. By making it normal teaching practice to use higher-level questioning in reading instruction, students become more engaged in the text and their comprehension increases as well. Although these desired reading behaviors were examined during guided reading instruction, it is likely that over time students' engagement and comprehension will increase in all areas of their reading life: during independent reading, in small groups, and during whole group instruction. Furthermore, the increase of student comprehension and engagement during reading instruction is likely to span multiple subject areas and improve comprehension and engagement in other areas of study as well.

In addition to increasing comprehension and engagement, it was also observed that after participating in discussions where higher-level questions were asked, students were also more likely to ask higher-level questions themselves during independent reading and in other content areas, thus becoming more engaged in their learning. This is something that would continue to

positively impact student learning as students became increasingly better at independently engaging in educational conversations where they are posing high-level questions of their own. Although these outcomes were observed on a small scale, further research could be done moving forward to solidify suggested implications of implementing higher-level questioning.

Further action research should be conducted to determine the long lasting impacts higher-level questions have on student comprehension and engagement. Looking at the impact of the research over a longer period of time, such as an entire school year, would show more validity in the findings. Using a large group, such as a whole class, as a sample would also help increase validity in the results of the study. More research should also be conducted on the impact of students' self-sufficiency in writing and asking their own higher-level questions. One participating teacher noted the impact higher-level questioning had on the new found ability students had in creating and asking their own questions across curricular areas. This self-sufficiency in questioning would also be an important area to study when looking at student engagement and comprehension in subjects other than reading.

Additionally, the impact of higher-level questions on students' metacognition during reading is an area that could also be further explored. During the study students were asked about their thinking during reading, and were asked to document their thinking on different occasions. It seemed as though, when reading to answer higher-level questions, students were thinking more carefully about their thought process than when they were simply reading to answer low-level, simplistic questions. This could be researched further to determine the correlation of high-level questioning on students' metacognition.

Through the implementation of interventions to answer the question of whether high-level questioning during reading instruction increases student engagement and comprehension, our study demonstrates that asking higher-level questions during guided reading instruction positively impacts student learning. In our study, it was determined that reading comprehension and engagement did increase with the interventions, and additional positive outcomes were also discovered during the study.

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Appendix A

Student Reading Engagement and Comprehension Inventory

1. When reading a book how often do I understand what I am reading?

 I always understand the books I read

 I usually understand the books I read

 I sometimes understand the books I read

2. As I read a story, how often does my mind wander to other things?

 Never, I am really engaged in everything I read

 Sometimes, I can get distracted but I usually don't

 Always, I try to make it look like I am reading but I am usually not engaged

3. When I am reading, how often do I ask myself questions, "talk back" to the book, or think about what I am reading?

 I always ask myself questions and "talk back" to the book when I read

 I usually ask myself questions and "talk back" to the book when I read

 I never ask myself questions and "talk back" to the book when I read

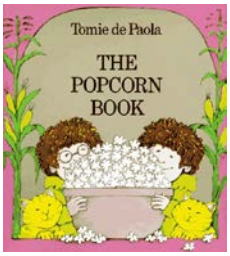
4. How much do you enjoy reading?

 I love reading!

 Reading is okay.

 I do not like reading!

Appendix B



The Popcorn Book

Apply

1. At the end of the story there is popcorn everywhere, what could the boys have done differently when they discover all this popcorn?

Analyze

2. Give 4 character traits of the boy in the story, and give evidence from the text that helped you pick each trait.

Character trait Evidence

_____:

_____:

_____:

_____:

Synthesize

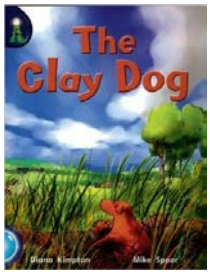
3. Imagine the little boy in the story (the one with glasses) discovered peanut butter in his cupboard for the very first time, write a story telling what he does.

Evaluate

4. Do you think this story could have happened in real life? Give evidence from the story to support your answer.

Appendix C

The Clay Dog



Apply

1. At the end of the story Marcus is found by Tim and his dad. What questions do you think they would ask Marcus if he could speak?

Analyze

2. What do you think might have happened if Marcus was never buried underground? Use evidence from the book to support your answer.

Synthesize

3. If you could, what changes would you make to the story? Would your changes affect the ending? How?

Evaluate

4. Do you think this story could have happened in real life? Use evidence from the story to support your answer.

Appendix D

Question Response Rubric		
Achievement Level	**Score**	**Criteria**
Advanced 4		• Answers the question correctly and completely • Uses many examples of information from the text to answer the question • Uses specific details to support response when appropriate • Shows thorough understanding of the text
Proficient 3		• Answers the question correctly and completely • Uses some examples of information from the text to answer the question • Uses some general details to support some examples • Shows good understanding of the text
Basic 2		• Answer is partly correct • Answers only some of the question • Uses few or no examples of information to support answer • Uses few or no details to support answer • Shows some understanding of the text
Emerging 1		• Does not answer the question • Response is incoherent • Does not show understanding of the text

Appendix E

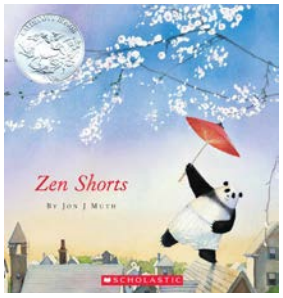
Date of Observation ____

Teacher Observing ____

Student Name	Is engaged in the book 100% of the time without any prompts. (engagement)	Participates in discussions about the book with meaningful responses (engagement)	Answers high-level questions in complete sentences citing evidence from the book (comprehension)	Comes away from the text with opened ended, relevant questions (metacognition)
	☺ ☹	☺ ☹	☺ ☹	☺ ☹
	☺ ☹	☺ ☹	☺ ☹	☺ ☹
	☺ ☹	☺ ☹	☺ ☹	☺ ☹
	☺ ☹	☺ ☹	☺ ☹	☺ ☹
	☺ ☹	☺ ☹	☺ ☹	☺ ☹

Appendix F

Zen Shorts



Apply

1. What events in the story could happen in real life? What events in the story could not happen in real life? Explain.

Analyze

2. Give 4 character traits of Stillwater, and give evidence from the text that helped you pick each trait.

Character trait Evidence

_____:

_____:

_____:

_____:

Synthesize

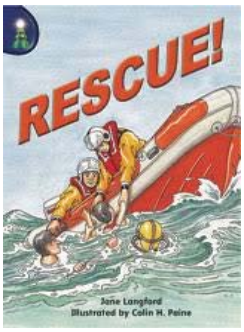
3. For each problem Stillwater told a short story to explain (or solve) the problem. Imagine another child came to Stillwater and was upset because he had to do chores for his mom. Write a story that Stillwater might tell the child.

Evaluate

4. Think of another story you have read in the past and compare this story to that story. Give evidence from both stories about why they are similar and different.

Appendix G

The Rescue



Apply

1. Give an example of someone you know who is like Tom's dad. How are they alike?

Analyze

2. What might have been another possible outcome to this story?

Synthesize

3. Create and explain a new title to this story.

New Title: _____

Explain why you chose this title:

Evaluate

4. Do you think this story could have happened in real life? Use evidence from the story to support your answer.