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The Effects of Pre-teaching Vocabulary, Along with Peer Collaboration, on Student Comprehension of Social Studies Texts at St. Cloud Tech High School

Submitted on December 9, 2017

in fulfillment of final requirements for the MAED degree

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Abstract

This action research project looked at the impact that pre-teaching vocabulary, along with peer collaboration, had on student comprehension of 5-12 social studies texts. Sixty students in a 10th grade World History class received instruction that included pre-teaching of vocabulary terms that students would be exposed to in a reading of the week through use of direct instruction, elaboration, application, and transfer using the Frayer Model, and group interactions. Student discussions of the article of the week engaged peers in collaborating around the work. Data was collected on vocabulary assessments, comprehension assessments, discussion checklists, and field notes. The students received the intervention four times over four weeks. The findings suggest that pre-teaching vocabulary was effective in helping students learn social studies vocabulary; however, students overall struggled to comprehend readings. Throughout the intervention, some students made improvements in their comprehension discussions; however, almost half of the students did not improve their comprehension through discussing. Future work will investigate differentiated instruction and the team-based learning approach in order to help students of all backgrounds learn the course content. This is important as the data demonstrated that white students benefited most from the intervention.

Keywords: comprehension, vocabulary, social studies, peer collaboration
Complexities in our digitally mediated adult lives require analytical, creative, and evaluative skills to engage fully in social, civic, and financial opportunities. Social studies educators must teach critical thinking skills that will allow students the opportunity to take part in the political process (Ogle, Klemp, & McBride, 2007). Although critical thinking skills are a requirement for future citizens, students cannot apply higher-order thinking to texts that she or he cannot first comprehend (Ogle et al.).

As a high social studies teacher, I see a diverse group of men and women every day. My classroom is composed of students primarily from Africa and the United States. I teach in a setting where over half of my students read below grade level. For several of my students, English is their second, if not third language, and is not spoken in the home. Readings are assigned in my social studies class, but with the diversity and the inability of many of my students to read the materials put in front of them, it is difficult for the students to gain social studies knowledge from the readings.

Social studies textbooks tend to be dry and dense. Moreover, primary source documents tend to be difficult to break down, dissect, and understand. Future citizens of a successful democracy will need to be able to read, understand, and analyze complex texts so that they can be productive in workforce and civic responsibilities. These skills require comprehension first.

Standardized testing data, administrative reflection, and students’ performance on formative assessments all indicate that 10th grade World History students in my setting struggle to comprehend informational texts. Students struggle because they read below grade level and, perhaps, because they are not being taught the reading comprehension skills necessary to analyze complex texts. Because of this, I am looking to apply the teaching strategies of pre-teaching
vocabulary and peer collaboration to determine if they influence students’ reading comprehension in my social studies class.

Evidence in many subject areas and in special educational settings suggests that comprehension improves when students are pre-taught vocabulary terms (Connor & Lagares, 2007) and collaboration occurs (McKeown, Beck, & Blake, 2009). This action research project addressed two questions over the course of four weeks: 1) What effect does pre-teaching vocabulary have on student comprehension in 10th grade social studies? 2) What effect does peer collaboration have on student comprehension in 10th grade social studies?

**Review of Literature**

This literature review highlights the instructional strategies that increase reading comprehension in secondary social studies classrooms and the theory that supports this model of learning. Schema Theory states that students process information by making connections to what they already know (Stott, 2001). Because of this, this literature review highlights strategies, such as pre-teaching vocabulary, that apply Schema Theory. First, comprehension increases when educators focus on strategies that teach vocabulary before beginning instruction of a new unit (Connor & Lagares, 2007; Hall, 2004; Swanson, et al., 2015; Myers & Savage, 2005; McClanahan, 2009, McCollin et al., 2010; Minarik & Lintner, 2011; Vaughn et al., 2013).

Second, comprehension improves when content and comprehension skills are taught simultaneously (Connor & Lagares, 2007; Hall, 2004; McClanahan, 2009; Minarik & Lintner, 2011). Finally, collaborative work such as reciprocal teaching and peer tutoring has been shown to increase student’s reading comprehension (Boardman et al., 2015; Connor & Lagares, 2007; Hall, 2004; Mastropieri et al., 2003; McClanahan, 2009; McCollin et al., 2010; McKeown et al.; Minarik & Lintner, 2011; Myers & Savage, 2005; Swanson et al., 2015; Vaughn et al., 2013).
**Pre-teaching Vocabulary**

The first step to providing students with the tools to be successful in comprehending social studies texts is to teach vocabulary that is relevant to the reading. Comprehension increases when students understand the definitions of the words that they will encounter before reading social studies texts (Hall, 2004). Educators can use many different strategies to teach vocabulary. McCollin, et al., (2010) found using graphic organizers and word maps increased comprehension. Connor and Lagares (2007) and Myers & Savage (2005) found that building new concepts with previous knowledge helped students improve their comprehension. This comprehension strategy has students circle words in a text that are unfamiliar to them. Teachers can then use the circled terms to create student reviews in which the teacher relates the unknown words to students’ unique backgrounds. The Schema Theory also supports the importance of pre-teaching vocabulary by building on what students already know (Stott, 2001). Furthermore, Swanson et al. (2015) found that focusing on short lists of five to seven words for each instructional unit was most effective in increasing student comprehension. However, differences were found in the instructional approaches used to teach the short list of terms, which according to Lewis, Walpole, & McKenna (2014) must be chosen very carefully by the instructor. Swanson et al. (2015) found that this short list of words should be noted and discussed each day of the unit--incorporating both text and visuals--to facilitate students’ understanding of each term. Furthermore, they discovered comprehension improved when group activities were incorporated around the vocabulary terms. Vaughn et al. (2013) incorporated the same instructional methods in pre-teaching vocabulary as Swanson et al. (2015); however, they found short lists should be presented by the teacher first and should be practiced daily with turn and talk activities. Both
Marzano (2004) and (Lewis, Walpole, & McKenna, 2014, p. 69) echo the importance of having students practice the vocabulary throughout the unit.

Although Hall (2004), like Myers & Savage (2005) and Lewis et. al. (2014), supported the importance of teaching unfamiliar vocabulary first, their studies stated that comprehension increased the most when educators used the semantic feature analysis. This method consists of having students work with the vocabulary terms after the teacher provides students with the definitions and a two-column sheet: one column containing the vocabulary words and one listing the ideas students will encounter within the text. Next, students need to predict relationships between the ideas in the text and the vocabulary term, based on the definition they received. The relationships may be positive, negative, or indifferent. While students read, they must confirm or correct their initial thoughts on the relationship, and make corrections when predictions are inaccurate (Hall, 2004).

Finally, student comprehension can increase by using mnemonic devices to teach unfamiliar vocabulary words. According to Minarik and Lintner (2011), all research they studied showed that “vocabulary instruction using mnemonic devices was an effective practice for students struggling with reading or learning difficult vocabulary” (p. 54). McClanahan (2009) also discussed the importance of using mnemonic devices but used them in a different way. Minarik and Lintner (2011) explained using mnemonic devices where each letter represents a word that students need to know, such as CHESS to represent culture, human-environment interaction, economics, social structure and state building. In contrast, McClanahan (2009) found it beneficial, when encountering new vocabulary, to use a word which represents an applicable step by step process. Instead of using the word to help remember the meaning, students use the word as a method to dissect new vocabulary.
According to McCollin et al. (2010), mnemonic devices are critical but also important is having students practice the new terms in conversation, hearing adults say the words, and being exposed to the unfamiliar vocabulary throughout a unit. Although all researchers agreed with an emphasis on pre-teaching vocabulary, affording multiple exposures to new terms, and limiting the number of vocabulary words taught, their suggested instructional methods for the instruction of these words used slightly different techniques.

**Teaching Content and Comprehension Simultaneously**

After students have mastered applicable vocabulary, it is important that teachers use instructional strategies that teach students both content and comprehension (Swanson et al., 2015). Several teaching methods have demonstrated effectiveness in secondary social studies classrooms. Mastropieri et al. (2003) found that students had better comprehension when they used the paragraph restatement strategy. Students who use this approach answer basic knowledge questions on the reading and then write a ten-word summary when they finish reading. Boardman et al. (2015), echoed the importance of including brief summaries after reading, but also argued that strategies during reading were important. For example, stopping after each sentence to determine if the sentence was understood and going through a comprehension checklist if not, could aid in comprehension. Pausing after each paragraph, rehearsing new information through highlighting, and taking the new vocabulary and thinking critically about it, aid in comprehension as well. Further studies examine the role of the educator in including and developing thought-provoking questions about the text as critical (McCollin et al., 2010). McCollin et al. (2010) also found that students comprehend more when the students write the questions themselves.
Hall (2004) did not find questioning and summarizing to be the most effective reading strategies to improve student comprehension. Instead, Hall (2004) found text-structure based strategies to be most helpful in improving comprehension. This approach asks students to look at the organization of the writing and for the educator to help students understand how to find the main idea, how to locate supporting evidence and how to put ideas in words that are not directly out of the text (Hall, 2004).

In keeping with the Schema Theory of learning, Connor and Lagares (2007) suggested from their studies that it was not just about students writing down what they read, like the paragraph restatement and text structure based strategies teach, but that they had to make connections to what they already knew to increase comprehension. Because of this, Lagares's students are encouraged to make connections by describing what they find surprising, important, and confusing. Additionally, students must make connections to other readings, class, and self when reading social studies texts (Connor & Lagares, 2007).

According to McClanahan (2009), researchers found the following strategies to be effective in improving comprehension: “using surface structure and organization; accessing previous knowledge, setting purpose, and monitoring progress using a Know-Want to Know-Learn-(K-W-L) type chart (as cited in Ogle, 1989); using context to define words; identifying the main idea; and summarizing” (p. 107). Moreillon (2007) also found the K-W-L chart to aid in comprehension, noting it helps teachers meet students where they begin their learning. Something as simple as reading the text aloud to students can increase their understanding of the text (Reed, Swanson, Petscher, & Vaughn, 2014). Perhaps even more exciting for teachers is that researchers found that it is not so much the strategy that is effective, but that educators teach both content and comprehension skills simultaneously (McClanahan, 2009).
Peer Collaboration and Peer Tutoring

Although research is inconsistent with the best way to teach reading comprehension, nearly all researchers agreed that students have better comprehension when they collaborate with their peers. In fact, Connor and Lagares (2007) stated that “group work is central to creating and maintaining a dynamic, inclusive classroom” (p. 20). Collaboration can be in the form of reciprocal teaching, group discussions, or peer tutoring. According to McClanahan (2009), reciprocal teaching encompasses several steps including making predictions, writing questions, summarizing what you read, and clarifying any uncertainty in the text. The reciprocal teaching strategy is unique from the instructional strategies mentioned above in that students work collaboratively. Vaughn et al. (2013) supported reciprocal teaching and team-based approaches—but discussed different strategies to improve comprehension. For example, he found that the group, of four to five students, needed to engage in activities such as monitoring reading and summarizing to be effective.

Vaughn’s (2013) group reading strategy includes several critical components. First, students should read relevant course texts individually and follow the reading up with a brief quiz. Next, students should engage in discussion with their team about their choices and the correct responses using notes. During this step, teachers should present students with feedback immediately following their responses. Finally, the educator should review the questions students had difficulties with, and follow up with activities that promote higher-order thinking.

While McClanahan (2009) and Vaughn et al. (2013), discussed reciprocal teaching as an effective strategy for increasing comprehension, Hall (2004) found studies had conflicting results. For example, struggling readers made gains in summary writing, but not strong gains in comprehension. Boardman et al. (2015), found collaborative instruction to be meaningful to
student comprehension but noted that educators should group students in an intentional manner and should be assigned roles.

Peer tutoring has been found to be exceptionally beneficial to students that have learning disabilities, but also for students who do not (Mastropieri et al., 2003). Peer tutoring involves having students work through reading the text together. Both Mastropieri et al. (2003) and Maclanhan (2009) discussed this instructional strategy in which the stronger student reads through the passage before the student who is a weaker reader. In this approach, both students read the same passage. The skilled reader may clarify and provide guidance in areas of weakness for the struggling reader. Maclanhan (2009) found that students benefited from discussing comprehension questions together, while Mastropieri et al., (2003) concluded that students should answer the comprehension questions and write summaries individually. Furthermore, groups should receive study sheets. These studies found that students who engaged in peer-tutoring performed much higher on both unit and cumulative exams in comparison to students who received traditional instruction.

**Literature Review Synthesis**

A variety of activities increase the reading comprehension of students in grades 5-12 social studies materials. It is important for teachers to begin units providing students with the vocabulary knowledge necessary to complete the readings (Hall, 2004; Connor & Lagares, 2007; Swanson et al., 2015; Minarik & Lintner, 2011; McClanahan, 2009). Teaching vocabulary can be powerful in a variety of ways including: making relationships between the familiar and unfamiliar, using semantic feature analysis, and creating mnemonic devices. Vocabulary lays the foundation, but the unit should provide students with lessons in both content and reading strategies to increase overall comprehension (Connor & Lagares, 2007; Hall, 2004; McClanahan,
Several comprehension strategies are beneficial including paragraph restatement strategy, text structure base, and making connections in reading (Connor & Lagares, 2007; Hall, 2004; Mastropieri et al., 2003).

The strategies mentioned above are useful. Additionally, all research points to a positive correlation between collaborative work and student comprehension (Connor & Lagares, 2007; Hall, 2004; McClanahan, 2009; Mastropieri et al., 2003; McKeown et al., 2009; Minarik & Lintner, 2011). Reciprocal teaching and peer tutoring are two effective ways teachers can engage their students in collaborative work in social studies courses. Although all researchers provided useful strategies to improve comprehension, the overwhelming research that supports pre-teaching of vocabulary and peer collaboration cannot be denied. Furthermore, the Schema Theory states that students learn new information by connecting new information to what they already know (Stott, 2001). Pre-teaching vocabulary and peer collaboration will provide students the opportunity to make the connections prior to, during, and after reading. According to the literature review and the Schema theory, comprehension improves when pre-teaching vocabulary and peer collaboration are used. Because of this, I have chosen to implement these two strategies in my action research project.

**Methodology**

This investigative study combined both qualitative and quantitative design elements. Data was collected through both observations and artifacts for the purposes of triangulation. Tests were given for both understanding key vocabulary and comprehension of social studies texts. For the purposes of triangulation, and to evaluate the extent to which collaboration improved comprehension, observational data was collected through recorded discussions. Field notes were made and collected throughout implementation of the intervention to provide insight into how
INCREASING COMPREHENSION

the new literacy strategies impacted student comprehension and classroom dynamics. Additionally, records were kept reflecting on what worked and what did not as I grew into new practices.

The population of this study included sixty 10th grade students at an urban technical high school. The students were enrolled in a required world history course. The study was administered during the students’ first trimester. The sample contained 31 females and 29 males. The sample population represents the community, which includes a large population of diverse learners. Nine of the 60 students were identified as limited English proficiency. Seventeen of the students came from homes where English was not their first language. Furthermore, over 50 percent of the students qualified for free-and-reduced price lunches.

Assessments were given for both understanding key vocabulary and comprehension of social studies texts. The key vocabulary tests (Appendices A-D) contained three multiple choice questions, each with four options, aimed at identifying the definition of one of the pre-taught vocabulary terms. The comprehension assessments (Appendices E-H) also contained three multiple choice questions, each with four answers to choose from. The questions assessed the students’ understanding of the main idea of the text. Specifically, I wanted to know if through discussing the article, students could develop an understanding of the main idea of the article. The intervention was implemented four times over four weeks. Results from weekly assessments were compared to see if students appeared to be making improvements in their reading comprehension.

Observational data (Appendix K) was collected through student recordings of discussions to provide insight into the extent to which students utilized the group collaboration opportunity effectively to improve their comprehension of the text. Moreover, the recordings provided
valuable insight into the students’ understanding of the vocabulary and social studies text. The recordings were evaluated using a discussion checklist (Appendix I) that listened for the student’s understanding of the text, their use of pre-taught vocabulary words, and their ability to use text evidence in their responses. In addition to evaluating the discussions, scores were compared from the written individual student comprehension assessment with the oral comprehension documented while the groups responded to the discussion questions (Appendix J). This comparison looked to see if the conversation helped facilitate improved understanding for students who did not fully comprehend the text on their own.

Observational data (Appendix K) was collected through field notes/ journals. The field notes were detailed observations made during pre-teaching vocabulary, independent reading, and peer collaboration. The notes were intended to help guide the research in that I could evaluate the process and adjust as needed. Furthermore, the field notes provided insight into how what I observed validated or contradicted what the data showed, and provided evidence of events occurring in the classroom that could have impacted the findings.

The intervention was conducted as illustrated in the following paragraph. Each of the students received a Frayer Model handout (Appendix L) and four key vocabulary terms to explicate. The Frayer Model handout asked for the definition of the term, examples of the term, non-examples of the term, and characteristics of the term. Each of the terms were pre-taught using a PowerPoint presentation that addressed the definitions of each of the ways students needed to work with the vocabulary. Pictures were also used to help students identify the meaning of the vocabulary analysis and application activities. The definitions of the terms were shared with students through direct instruction. The students then spent time writing down their examples, non-examples, and characteristics independently. After students completed the Frayer
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Model handout, they interacted with their classmates to review their responses. The ideas were shared during whole group instruction in which students were called on at random.

- Twenty-four hours after students completed their Frayer Model handout, they engaged in writing a story that incorporated the vocabulary terms.
- Forty-eight hours after students completed the Frayer Model handout, they engaged in a conversation that asked them to apply the new terms. The conversation was structured as a game. The pair that finished the conversation first, having each partner use the four terms, won.
- Seventy-two hours after the students were introduced to the vocabulary terms they completed a three question, multiple choice, vocabulary quiz that assessed them on their understanding of three of the four key vocabulary terms.

Data indicated student understanding of the vocabulary. The data also provided results to compare with the findings of the comprehension assessment. Specifically, it could be determined if there was a correlation between pre-teaching vocabulary and the students’ ability to comprehend a social studies text.

Following the vocabulary quiz, students were provided a handout from a social studies text. Students were required to pre-read all the headings within the text. Then, students followed along while the teacher read the text to the class. After the text was read out loud, the students were instructed on how to annotate the text. Students were required to highlight the main idea of every paragraph, circle words that they did not understand the meaning of (and look up the definitions), and write any aha moments or confusing concepts off to the side.

After students annotated the text, they summarized the reading at the bottom of the article in three to four sentences. The summaries had to contain at least two of the words or phrases that
they had highlighted and two of the four vocabulary terms from their Frayer Model handout. Following independent reading and summarizing of the article, students completed a three question, four option multiple-choice assessment about the main idea of the text.

This data was compared with the results on the vocabulary test to identify correlations between pre-teaching of vocabulary and comprehension of social studies texts. Following the comprehension assessment, students were assigned to groups that had been established randomly. Once in groups, students assigned each other one of four roles: timer, recorder, manager, or note taker. The timer made sure that the group devoted two minutes to each question and provided a reminder at the one minute mark. The recorder provided the computer for recording the discussion, started the recording when the discussion began, and stopped the recording when the discussion was over. The manager kept the group on task and ensured that the group members were fulfilling their responsibilities as assigned. The note taker wrote down key phrases and/or ideas as the discussion was happening and asked group members for clarification/restatement.

Once assigning roles, students were to record their conversation using the discussion feature on Schoology, answering the following questions about the reading:

- What was the main idea of the text?
- How were people who lived at this time impacted by what happened?
- How would history have unfolded differently, had this event never happened?

Groups received instructions to spend two minutes discussing each question. A checklist was used to review recordings for evidence of students’ use of key comprehension strategies. Recordings and the checklist were gathered to help the teacher understand the extent to which the discussions and peer collaboration were helping the students to understand the text.
Furthermore, the results were meant to help account for differences in student learning. For example, it was hoped that some students verbalize better than they can complete a multiple-choice assessment and they might be able to demonstrate their understanding in the context of a dialogue with peers.

Throughout the study, field notes were created. The field notes identified observations made during pre-teaching vocabulary, independent reading, and group collaboration to guide each of the four cycles and to provide valuable insight into student actions and interactions throughout the intervention.

The qualitative data gathered--field notes and observation records--were analyzed to identify themes emerging from the first completed observation cycle for *Prehistoric Times: Using Fire and Tools in the Stone Age*.

Remaining field notes were coded based on the categories that emerged after the first cycle. Themes were identified and patterns that emerged throughout the intervention were documented and evaluated for potential relationships and implications. Field notes were also coded and analyzed, then compared to facilitate triangulation.

The quantitative data gathered--vocabulary assessments, comprehension assessments, and discussion checklists--were analyzed. The checklist addressed the following prompts to evaluate students’ discussions (See Appendix I):

- Did students participate in the discussion by answering the questions effectively?
- Did students support their responses using evidence from the text?
- Did students include pre-taught vocabulary terms in their discussion?

The mean and median scores, and overall results from each of the four interventions were considered. Specifically, the scores students received on both the vocabulary and comprehension
Running head: INCREASING COMPREHENSION

assessment were recorded. Then, the mean and median scores were calculated for each assessment to determine the success of the intervention each week. The mean and median scores were compared to see if vocabulary knowledge correlated positively with student comprehension of the texts.

Analysis of Data

The purpose of this study was to determine the effects pre-teaching vocabulary and peer collaboration had on student comprehension of tenth grade social studies texts. Students completed multiple-choice vocabulary quizzes after an introduction to vocabulary terms using direct instruction, peer collaboration, and applying their knowledge by completing a Frayer Model graphic organizer.

A checklist of key comprehension strategies was used to tally the number of students exhibiting these behaviors during a recorded small group discussion of the reading (Appendix I). These discussion checklists provided insight into students’ comprehension. Comparing findings with both the vocabulary and comprehension assessments elicited evidence of potential impacts of the group discussion on individual student’s comprehension. Perhaps most importantly, teacher field notes from vocabulary instruction and student discussions guided re-instruction of individual students, small groups or whole class curricular responses, and identified areas for improvement in the intervention.

The subjects of this study were 10th grade students enrolled in a required world history course in the fall of 2017. Data was gathered during two class periods. Table 1 demonstrates that 60 students were subjects in the study: 31 were female, 29 were male.
Pre-teaching vocabulary to improve student comprehension

To determine the effect that pre-teaching vocabulary had on student comprehension in 10th grade social studies, several instructional strategies were used to reinforce vocabulary knowledge including: direct instruction, peer collaboration, and application of knowledge by completing a Frayer Model graphic organizer on selected terms. The terms were carefully selected from the social studies texts that students were going to encounter during the week’s readings (please refer to the methodology for details regarding this selection process).

Week one students read *Prehistoric Times: Using Fire and Tools in the Stone Age*. The second week the students read the article *Civilizations Emerge on the World Stage*. During the third week, students focused on reading *How and Why the Egyptians Made their Mummies*. Finally, during week four, the students read *Ancient Greek Thinkers, Truth Seekers*. 
Table 2

Weekly Median Score on Vocabulary Assessment

<table>
<thead>
<tr>
<th>Median Score</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Score</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

*Figure 1. Student Scores Each Week.*
Based on the teacher’s experience with the students’ word knowledge generally, more students seem to have learned the new vocabulary using this intervention than was happening with prior methods. Lower results in week four may have been the result of the Frayer Model having been assigned as homework, rather than being completed in class as it was for the previous three weeks, due to conflicts with homecoming events at the school. Students did not receive the same amount of pre-teaching of the terms in week four, and it would appear that our failure to discuss and review the terms as a class resulted in students receiving lower scores on their assessment. This supports a conclusion that effectively pre-teaching vocabulary terms in class improved students’ understanding of social studies terminology.
Table 3

Comprehension Quiz Results as Averages

<table>
<thead>
<tr>
<th></th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Score</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 3: Student Comprehension Scores Throughout the Study

Although students performed relatively well on their vocabulary assessment (Figure 1), they did not do well on the reading comprehension assessments which were measured by a three question, multiple-choice assessment completed at the end of each week of the intervention. The complexity of the comprehension questions was high. Teacher observations and data analysis identified language proficiency as one of the barriers to reading comprehension. Nine of the 60 students in the class have limited English proficiency according to school records. Those nine students never scored over a one on the comprehension assessments, and the vast majority scored a zero on each assessment.
Of those nine students, all but one showed proficiency on their vocabulary assessments (see Appendix A-D), suggesting that knowing the vocabulary was not enough to facilitate their overall comprehension of the assigned readings. When students are reading well below grade level, the few critical vocabulary terms were not enough to help them comprehend complex questions of an entire text written at a tenth-grade reading level.

Data collected during cycles one and two from the completed Frayer Model handout positively correlated with the results on the comprehension assessment. Students who did well on the Frayer model, also did well on the comprehension assessment.

Field notes taken during pre-teaching of vocabulary and the comprehension assessment indicated that students struggled with more than just the few terms covered. Some students may have memorized the terms for the vocabulary assessment, but did not truly understand their meaning and were unable to understand them in the context of the article. The fact that students could define the critical terms, but could not pass the comprehension quiz or the Frayer Model handout made it clear to me that I needed to revamp the process of the study.

Consequently, in weeks three and four, the assigned readings were differentiated. The Frayer model was not used as an assessment during these weeks. The first two weeks of data helped me understand that several students were reading six or seven years behind grade level. Students who demonstrated a low-grade equivalent were assigned the same article with a reduced lexile level using NEWSELA, a website that allows articles to be assigned at multiple lexile levels.

Results indicated that despite the changed intervention, students still struggled to comprehend their readings (Table 3 and Figure 3). The median score during weeks two and three remained unchanged, and week four actually saw a decrease (Table 3). Field notes indicate that
during week four attention and engagement was low due to homecoming activities. Having to make up quizzes and assignments proved challenging as students missed in-class instruction.

The data on the comprehension assessments makes it clear that the intervention produced few gains in reading comprehension—even when instruction was changed and reading level was adjusted. Based on the results I would conclude that students need several instructional strategies to increase their reading comprehension and that differentiation needs to be about more than simply reducing the Lexile levels for the students. Instead, the differentiation needs to happen through the design of the lesson itself. Specifically, some students would benefit from varied means of being able to take in new content information such as pictures, video, or making learning concrete or kinesthetic, rather than relying on reading as the source of new content information.

*Figure 4. Changes in Comprehension by Ethnicity*
According to changes in their reading comprehension scores, just 23 percent of the students demonstrated growth during the intervention. When comparing growth by ethnic groups, students who improved the most consistently as a result of the intervention were disproportionately white (Figure 4). Specifically, 64 percent of the most significant improvement scores happened for white students, despite the fact that only 42 percent of the students in the study were white. Somali students overwhelmingly saw little or no growth with just 13 percent of the total Somali population seeing any growth at all. 18 percent of the African American students saw growth, while 36 percent of all white students seeing growth. When thinking about the little growth seen in the Somali population it needs to be taken into account that of the 23 Somali students, nine, or 39 percent of the Somali students in the study, are limited English proficient. Two of those 13 students saw growth, while 11 did not. The students who are limited English proficient need a whole different set of comprehension strategies than students in my class who are not. Examining comprehension strategies for ELL students will be useful to explore in future studies.

African America students made limited gains as well. Only 18 percent of African American students included in the study saw growth. Again, this references back to understanding that the strategies that work for some students do not work for all. The strategies implemented to increase comprehension in this study benefited white students the most. Perhaps African American students’ backgrounds call for a different set of instructional strategies based on their experiences.
The study was adjusted during week three for the purposes of ensuring students were reading articles at their level. Furthermore, after two weeks of gathering data that demonstrated students were not comprehending the text as illustrated in Figure 5, I found it necessary to adjust the order students received the intervention. Additionally, I redesigned the process of the intervention by having students engage in their discussion prior to taking the comprehension assessment, instead of directly after reading and completing their summary. My field notes determined that students had some understanding of the text when they verbalized their knowledge. I wanted to allow students the opportunity to clarify and elaborate on their understanding. After adjusting the design; however, students did not make gains. Throughout the four week intervention, fewer than 30 percent of the students comprehended the social studies texts. The peak week was week two where 28 percent of the students answered all the comprehension questions correctly. This compares with weeks one and four where 15 percent answered three comprehension questions correctly and week three where 25 percent did.
Peer collaboration and student comprehension

Table 4 and Figure 6 demonstrate the student’s understanding of the social studies texts as shown by answering questions effectively, citing text evidence, and using pre-taught vocabulary terms in their discussion.

Table 4

Percentage of Students Who Included the Following in their Discussion

<table>
<thead>
<tr>
<th>Week</th>
<th>Answered questions effectively</th>
<th>Cited text evidence</th>
<th>Included pre-taught vocabulary terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38%</td>
<td>17%</td>
<td>10%</td>
</tr>
<tr>
<td>2</td>
<td>38%</td>
<td>35%</td>
<td>42%</td>
</tr>
<tr>
<td>3</td>
<td>58%</td>
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<td>4</td>
<td>37%</td>
<td>38%</td>
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Figure 6. Discussion Results by Week.
Students made gains each week in both answering questions effectively and citing text evidence, except for week four. Students also made gains from week one to week three on including pre-taught vocabulary terms in their discussions. Although students showed gains over time, 42% of the students still did not verbalize their comprehension by week three, and week four proved even more difficult. Included in the 42% were students who refused to participate as recorded during observations. Only two of the English learners in the class attempted to engage in the discussion also noted from field notes.

Although more than half of the students did not show growth in their discussion participation, those that did show growth were varied by socio economic status, race, and gender. This is important in that it appears that discussion had a broader impact than the other elements of the intervention. There is not one group that benefits more than the other. When comparing the results of the comprehension assessment with the discussion component, the comprehension assessment benefited white students most; whereas the discussion benefited all students equally. This provides important insight into designing interventions that promote growth for all students.

Despite modest growth across diverse populations, the results however, are hard to analyze as I couple them with field notes. Field notes note that in both weeks one and three students struggled with the technology necessary to effectively record their discussions. Students spent class time trying to get a device to record, instead of discussing. Once the technology worked, the students appeared rushed. This could explain why students did not see gains in including vocabulary terms during week three. Field notes also provide insight to the lack of comprehension demonstrated in week one. I failed to pre-teach the checklist so students did not know what I was looking for. When the checklist was shown to students prior to discussing in week two, several more students demonstrated their understanding of the text during their
recorded discussions. As students became more comfortable with the process of recording discussions, they supported one another more in their roles and helped one another to comprehend the text. Although some groups became more supportive over time, some groups had a member that did not participate in the discussion throughout the intervention. This caused stress in the group as other group members demonstrated frustration towards the non-participant during the discussion. Feelings of anger could impact performance for all of the participants.

It should be noted that several students were absent on the days of discussion and had to make it up later, with most students missing during week four. Because of this, the results include students who did not follow the typical intervention, in that much more time had passed since the article was assigned. This could have contributed further to the decrease in the number of students who could answer the questions correctly during week four.

Overall, this data provides little evidence that peer collaboration improves comprehension as an isolated strategy, as it is hard to know if students performed better on the discussion because they knew the expectations or if they truly comprehended the text. Still, the evidence suggests that diverse populations may benefit from peer collaboration and, when done correctly, could promote student learning.

**Action Plan**

Teaching in secondary classrooms presents unique challenges to educators. When students get to the secondary level, they are expected to have reading comprehension skills sufficient to be able to gain new content knowledge through reading. The truth is, many students do not come prepared. One student may be reading at a first-grade reading level, while the student next to him (who may appear to be fluent in higher-level texts) may also struggle to comprehend grade level texts. Because of this challenge, secondary level-educators need to do
more than assign readings and cover content through direct instruction. Teachers must use several instructional strategies focused on increasing reading comprehension skills for all students.

The purpose of this action research was to investigate the effects that pre-teaching vocabulary and student discussion had on comprehension of social studies texts. The evidence in my study did not support a correlation between being pre-taught vocabulary and an ability to comprehend a complex social studies text.

Addressing the correlation between peer collaboration and student comprehension of social studies texts proves less disappointing, there were some students from all ethnicities, genders, socio-economic status, and special education needs who demonstrated some improved skills in peer collaboration assignments over the four-week intervention.

This action research has provided me with insight into the strategies of pre-teaching vocabulary and peer collaboration. Evidence of teaching strategies that work in an educational setting have been noted as well as a new action plan to make the process of peer collaboration even more effective.

First, although the comprehension assessment results were disappointing each week, students’ knowledge of vocabulary improved through pre-teaching. Swanson et al. (2015) discussed the importance of creating short list of words and discussing them each day of the unit, incorporating both text and visuals to facilitate students’ understanding of each term. This was evident in the data that was gathered throughout the intervention. For example, students who were exposed to the vocabulary 24 and 48 hours after first being introduced to the terms in a meaningful way had great success on the vocabulary assessment. Furthermore, the Frayer model proved to be impactful to student’s learning of important vocabulary in that the application
forced them to find relationships between the unfamiliar and the familiar. McCollin, et al., (2010) found that using graphic organizers and word maps increased comprehension. Moreover, Connor and Lagares (2007) and M & Savage, (2005), found that building new concepts with previous knowledge helped students improve their comprehension. The Frayer model incorporated both strategies suggested through the review of the literature and proved successful strategies in pre-teaching vocabulary. Last, pre-teaching vocabulary by including pictures and description of the words was valuable to the students. Field notes point to student engagement and deeper understanding of terms when introduced using the pre-teaching strategies mentioned above. This is incredibly encouraging and provides me with an area of professional growth as students in grades 5-12, in my setting, can benefit educationally from expanding their vocabulary knowledge.

Second, in analyzing the data and looking at how pre-teaching vocabulary impacts student understanding of social studies texts, it is important to note that the observations made through field notes, along with the data, indicate that some students improved their comprehension when there was an extrinsic motivator: specifically, a grade. Through field notes during week one, I determined that students were not engaged in the reading process and that several students did not finish reading the article prior to taking the comprehension assessment. This was made clear when I heard students discussing that they did not read the entire article or try on the comprehension assessment because they did not think it was going to be graded on accuracy. Students who engaged in this conversation moved from not comprehending the reading at all to answering all questions accurately by week two. In week two, 35 of the 60 students received a two or a three on the quiz, while in week three 28 students also answered two or more questions accurately. This is far greater than the 19 students who showed proficiency in
week one. Furthermore, the number of students who did not answer any of the comprehension questions accurately declined by almost 75% from weeks one through three. Lack of effort and poor homework completion, which was noted in field notes, could explain this phenomenon.

Moving forward, I need to continually remind students of the why and to provide clarity into what the purpose of the assignment and/or assessment is to set them up for success. Poor homework completion shed light however, on the lack of motivation from several students within my setting. Through field notes, it was noted throughout every lesson that many students lacked motivation to complete any part of the intervention, especially completing the annotations and reading the text. Perhaps these students would comprehend social studies texts if they were open to the strategies presented and engaged in the material. This is an idea for further research: Will a more engaging lesson, that motivates students in my setting to read, produce better results? The results of the intervention make it clear that I need to carefully review my curriculum and make sure that what I teach is engaging to students. This is an area of growth for me to consider as I move forward. I must find relevant articles that spark student’s natural curiosity as the article on mummification and early civilizations produced better results than the articles on prehistoric peoples and ancient Greece.

Third, analyzing the data solidifies the importance of differentiated instruction. This intervention did not aim to assess differentiation so all the students received the same instruction, except for the adjusted Lexile leveled readings introduced in week three. Still, adjusted Lexile levels could not be reduced enough to meet my student’s needs. Specifically, data indicated that both English learners and special education students understood the four terms I pre-taught. But they still didn’t appear to comprehend the readings. Lack of vocabulary knowledge was evident in reviewing the student’s readings where they were required to circle words that they did not
Running head: INCREASING COMPREHENSION

understand. Many students in the study could have benefited from exposure to more terms. Not only were the English learners and special education students put at a disadvantage because differentiation did not occur, but my students reading above the lexile of the assigned article were as well. Field notes demonstrated that students that read on or above grade level were disengaged during the read out loud and could have made better use of their time. These students also could have been pushed to higher levels of learning through more complex texts as comprehension was not an issue for them. Taking into consideration the diverse population I work with, it became evident that differentiation must occur in my setting. Specifically, small group and individualized learning are instructional approaches I would like to explore as I continue to comprehension strategies in my course.

Fourth, peer collaboration allowed some students to demonstrate comprehension not evident in the written assessment, but many students were not successful. Field notes provide insight to the lack of comprehension demonstrated during instruction in week one. I failed to pre-teach the checklist so students did not know what I was looking for. When the checklist was shown to students prior to collaboration in week two, several more students demonstrated understanding of the text through discussion. Furthermore, as students became more comfortable with the process of recording discussions which was noted in observations, they better supported one another in their roles and helped push their peers to comprehend the text. It is critical, as I move forward, to pre-teach not only the vocabulary, but also what peer collaboration looks like. It is important to provide students with an example for them to follow so they are clear on the expectations. I also would like to provide an opportunity for students to engage in a practice round before being graded. The large gains made in demonstrating understanding of the main idea through collaboration between weeks two and three demonstrate the role that practice plays.
in supporting student comprehension in this way. Because this intervention took place over just four short weeks, there was insufficient time to develop fully the peer collaboration skills of my students.

Finally, the process that was used to collect data during peer collaboration put students at a disadvantage. Students were so hung up on filling the requirements listed on the checklist that their discussions lacked the depth, breadth, and discovery that truly should occur during peer collaboration. Furthermore, the two minute time limit set on each question cut students off in the middle of good discussions where a deeper understanding could have led to greater comprehension on the part of struggling students. Even more, struggling students did not have enough time to provide their input or demonstrate understanding of the text as everyone processes at a different speed. Overall, the requirements for the discussions were too cumbersome to let the students demonstrate their knowledge on the article and to truly explore the ideas. Moving forward, students will explore articles in my course through peer collaboration by using the team-based learning approach that has been proven to be effective (McLanahan, 2009; Mastropieri et. al., 2003; Vaughn et al., 2013). This approach incorporates many elements of the intervention including reading, completing a quiz, and engaging in discussion, but collaboration occurs around the quiz itself to promote student comprehension. I believe that a collaborative quiz could provide a framework for providing an in-depth understanding of the article. Furthermore, this model asks students to engage in follow up activities that promote higher-order thinking (Vaughn et al., 2013).
References


Marzano, R. J. (2004). *Building Background Knowledge for Academic Achievement: Research*


Minarik, D. W., & Lintner, T. (2011). The push for inclusive classrooms and the impact on


Appendix A
Vocabulary Assessment: Prehistoric Times: Using Fire and Tools in the Stone Age

Directions: Prior to reading the article Prehistoric Times: Using Fire and Tools in the Stone Age, students will answer the questions below. Chose the answer or phrase that best answers the question.

1. To revolutionize something is to
   a. follow through
   b. make a big deal
   c. make a major change
   d. give up

2. The term subsequent means something that
   a. comes after
   b. comes before
   c. changes
   d. stays the same

3. The Inca were civilized, they
   a. were well organized and well ordered.
   b. were well mannered.
   c. liked to help others.
   d. hunted and gathered for survival.
Appendix B
Vocabulary Assessment: The First Civilizations Emerge on the World Stage

Directions: Prior to reading the article The First Civilizations Emerge on the World Stage, students will answer the questions below. Chose the answer or phrase that best answers the question.

1. The Romans used a system of coerced labor to build roads. Coerced means
   a. hard work
   b. great pay
   c. forced work
   d. negotiated work

2. They were an agrarian society. Agrarian means
   a. they were industrialized
   b. they were farmers
   c. they hunted and gathered
   d. they had settled societies with large cities

3. When humans first domesticated the cow they
   a. tamed them and kept them for use on the farm.
   b. started hunting them for food.
   c. watched them in the wild.
   d. drove them into new lands.
Appendix C
Vocabulary Assessment: *How and Why the Egyptians Made Their Mummies*

Directions: Prior to reading the article *How and Why the Egyptians Made Their Mummies*, students will answer the questions below. Chose the answer or phrase that best answers the question.

1. She never **ceases** to amaze me means she never
   a. continues
   b. likes
   c. stops
   d. begins

2. Someone’s **divine** nature is another word for
   a. like a god
   b. hopeful
   c. beautiful
   d. Pessimistic

3. A **noble** is a person with
   a. high social and political status.
   b. the king or queen.
   c. great accuracy when hunting.
   d. kindness and devotion.
Appendix D
Vocabulary Assessment: *Ancient Greek Thinkers, Truth-Seekers*

Directions: Prior to reading the article *Ancient Greek Thinkers, Truth-Seekers*, students will answer the questions below. Chose the answer or phrase that best answers the question.

1. **Innovative** is the same as
   a. new and original
   b. habitual
   c. customary
   d. well refined

2. It is one of our **fundamental** principles means it is
   a. radical
   b. an essential part
   c. attractive
   d. for everyone

3. Those are **democratic** ideas means that they are
   a. equal.
   b. liberal.
   c. restrictive.
   d. tyrannical.
Comprehension Assessment

Prehistoric Times: Using Fire and Tools in the Stone Age

Directions: After reading the article Prehistoric Times: Using Fire and Tools in the Stone Age, students will answer the questions below. Chose the answer or phrase that best answers the question.

1. Read the paragraph from the introduction [paragraphs 1-3]. Today, we don’t necessarily think of fire or tools as technologies. However, the definition of technology is the "practical application of knowledge in a certain area." So, learning how to tame and use fire was a very important technological advance. It helped the human race move forward. How does the paragraph support a MAIN idea of the article?
   a. It describes the important role of controlled fire in our lives today.
   b. It explains how the use of fire can be thought of as a technological breakthrough.
   c. It defines technology and shows how modern technology has improved the human race.
   d. It shows how early humans learned to use fire before the development of technology.

2. Which excerpt BEST supports the article’s central idea?
   a. People of the Stone Age did not have the luxury of turning on the TV. They could not watch programs that offered home repair tips.
   b. Uncontrolled fire terrified our ancestors and still has the power to terrify today. Forest and house fires are still terrible problems.
   c. There is disagreement as to exactly when humans first controlled the use of fire. If early humans controlled it, how did they start a fire?
   d. Advances in tool-making technology led to advances in agriculture, and farming revolutionized the world and set early humans on a course toward modernity.

3. Based on the article, what is one reason scientists think the earliest humans did not know how to make fire?
   a. Scientists have found cookware from less than 50,000 years ago.
   b. Evidence of controlled fires dates only to about a million years ago.
   c. Flint stones have only been found where Cro-Magnons lived.
   d. Evidence of campfires can be dated to about 2 million years ago.

Write the words you highlighted in the reading here:
Write a sentence using .... in the box below PRIOR to your group discussion activity. You will be reading this sentence aloud in the part of your recorded conversation.

The main idea of this reading is:

Check your sentence. Did you include evidence from the text to support your idea?
Comprehension Assessment

The First Civilizations Emerge on the World Stage

Directions: After reading the article The First Civilizations Emerge on the World Stage, students will answer the questions below. Chose the answer or phrase that best answers the question.

1. Which of the following sentences from the article BEST develops a central idea?
   a. Four of the earliest agrarian civilizations occurred in fertile river valleys, utilizing plants and animals that had been domesticated earlier as their foundations.
   b. At the same time, ambitious priests and rulers could take opportunities to control the food surpluses to increase their own power.
   c. Small islands in the Pacific did not have the resources to create full-scale agrarian civilizations, but their smaller states and chiefdoms had features similar to those around the world.
   d. All early civilizations engaged in warfare except, perhaps, in the Indus Valley, where some arrowheads and spears have been found but no swords, helmets, shields, or chariots.

2. Read the following sentence from the article.
   It seems that only centralized state control can effectively integrate and support large populations of people.
   Which of the following selections from the article BEST supports the given statement?
   a. It would have political, social, and economic hierarchies, meaning that a few elite people at the top, maybe about 10 percent, had more wealth and power than the remaining 90 percent.
   b. The increased cultivation and development of available resources caused the world's population to grow dramatically, from perhaps 6 million in 8000 BCE to maybe 50 million in 3000 BCE.
   c. We can only guess that people needed leadership to manage projects like large-scale irrigation or distribution of surplus food. They also needed armed protection against neighboring groups.
   d. Small islands in the Pacific did not have the resources to create full-scale agrarian civilizations, but their smaller states and chiefdoms had features similar to those around the world.

3. Which answer choice is an accurate and objective summary of the article?
   a. Due to lack of resources, civilizations failed to develop and thrive in certain areas of the world; it was the responsibility of neighboring civilizations to help them to develop.
   b. Cities, states and civilizations all developed at the same time in different areas of the world; the ability of these societies to function depends on how close they are to coastal areas.
c. The domestication of animals such as dogs and horses had a huge impact on the development of early civilizations; societies that were unable to organize themselves were conquered.

d. All civilizations require organization of resources, central authority, and social classes to thrive; how they developed and used these things differed from place to place.

The main idea of this reading is: 

Write a sentence using .... in the box below PRIOR to your group discussion activity. You will be reading this sentence aloud in the part of your recorded conversation.

Check your sentence. Did you include evidence from the text to support your idea?
Comprehension Assessment

How and Why the Egyptians Made Their Mummies

Directions: After reading the article How and Why the Egyptians Made Their Mummies, students will answer the questions below. Chose the answer or phrase that best answers the question.

1. Based on information in the article, which of these statements is TRUE?
   a. Thoth judged the dead in the Hall of Truth.
   b. During mummification the heart was weighed.
   c. The Egyptians believed the brain was special.
   d. Souls that were waiting to be judged were in limbo.

2. Overall, the article is organized around ........
   a. a person and an event.
   b. a belief and a practice.
   c. a person and a practice
   d. a belief and a person.

3. Which of the following aspects of the article is NOT thoroughly discussed?
   a. how we know about the Egyptian practice of mummification
   b. why Egyptians embalmed bodies as a part of mummification
   c. what the Egyptians believed about the soul and afterlife
   d. how Egyptians embalmed bodies as a part of mummification

Write the words you highlighted in the reading here:

Write a sentence using .... in the box below PRIOR to your group discussion activity. You will be reading this sentence aloud in the part of your recorded conversation.
The main idea of this reading is:

Check your sentence. Did you include evidence from the text to support your idea?
Comprehension Assessment

_Ancient Greek Thinkers, Truth-Seekers_

Directions: After reading the article _Ancient Greek Thinkers, Truth-Seekers_, students will answer the questions below. Chose the answer or phrase that best answers the question.

1. Which of the following MOST influenced the abundance of new ideas in ancient Greece?
   a. wealth  
   b. democracy  
   c. intelligence  
   d. Business

2. Plato would be MOST likely to agree with which of the following statements?
   a. Everyone has the right to an education so that they can help rule.  
   b. Although democracy is not perfect, it is the best form of government.  
   c. All classes within Athenian society should be part of decision making.  
   d. Only educated individuals should have the right to rule the Athenian society.

3. Read the introduction [paragraphs 1-3]. What purpose does the introduction serve in developing the main idea of the article?
   a. It highlights that ancient Greek philosophers had innovative ideas that sometimes challenged societal traditions.  
   b. It introduces the reader to the risk involved with being an Athenian philosopher who used the Socratic method.  
   c. It summarizes the advancements made by one of ancient Greece's most controversial and renowned philosophers.  
   d. It introduces the reader to the political instability in Athens that shaped the lives of philosophers at that time.

Write the words you highlighted in the reading here:

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Write a sentence using .... in the box below PRIOR to your group discussion activity. You will be reading this sentence aloud in the part of your recorded conversation.
The main idea of this reading is:

Check your sentence. Did you include evidence from the text to support your idea?
### Appendix I
#### Group Collaboration Checklist

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<td>Student supported their responses using text evidence.</td>
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<td>Student included pre-taught vocabulary terms in their discussion.</td>
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Appendix J
Group Discussion Questions

Directions: In your small groups, discuss the answers to the following questions. Allow only two minutes to discuss each of the questions. Assign the following roles in your group:

- _________________ **Timer**- Makes sure that the group devotes two minutes to each question. Provides a reminder at the one minute mark.
- _________________ **Recorder**- Provides the computer for recording the discussion. Starts the recording when the discussion begins and stops the recording when the discussion is over.
- _________________ **Manager**- Keeps the group on task. Ensures that the group members are fulfilling their responsibilities as assigned.
- _________________ **Note Taker**- Writes down key phrases and/ or ideas as the discussion is happening. Asks group members for clarification/ restatement.

Before you begin, complete the following tasks individually:

1. Complete the three questions vocabulary assessment.
2. Listen to the text being read aloud to the class.
3. Read the text again, highlighting ONE word or phrase in each paragraph that is important to the main idea in that paragraph.
4. Write a sentence at the bottom of the reading using at least TWO of the words or phrases you have highlighted that explains the main idea of the reading. Circle the evidence in the text that supports your conclusion.
5. Complete the post-reading comprehension assessment.

As a group, arrange yourselves around the recording device. Proceed through the following questions.

1. Each person share in one sentence what you believe the main idea of the text is. You must use evidence from the text to support your statement.
2. How were the people who lived at this time impacted by what happened or what was invented?
3. How would history have unfolded differently, had this event or discovery not happened?
Appendix K
Field Notes/ Journal

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|       | 1. *Prehistoric Times: Using Fire and Tools in the Stone Age*  
|       | 2. *The First Civilizations Emerge on the World Stage*  
|       | 3. *How and Why the Egyptians Made Their Mummies*  
|       | 4. *Ancient Greek Thinkers, Truth-Seekers* |

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Proposed changes for next cycle based on observations?
## Frayer Model Handout

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