SCHEMA AND COMPREHENSION: INCREASING SELF-MOTIVATION IN READING

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Abstract

This review will focus on the effects of schema on upper elementary reading comprehension test scores as well as how to build the desire for upper elementary students to self-question while reading. This deficiency in comprehension skills and practical strategies has been evident in classrooms across the nation. This review investigates scholarly research contrasting striving readers and exceptional readers' schema and characteristics. Next, research is presented to explore the gap between striving and exceptional readers in hopes of finding practical ways to bridge that gap between readers. This research is synthesized to help students build the desire for self-questioning while reading. It is then applied to teaching implications and what a classroom might look like. An inability to monitor metacognitively and apply strategies was found to be a major reason why students struggle with comprehension (Anderson & Pearson, 1984; Pressley, 2000; Snow, Burns, & Griffin, 2002; Mason, 2004). Therefore, teachers must explicitly instruct and model those processes to increase comprehension skills and comprehension test scores.

Keywords: striving reader, exceptional reader, schema, comprehension, self-questioning

Introduction & Research Question

Throughout my time in the classroom as a student and a teacher, I have seen a massive gap between struggling readers and exceptional readers. One of the most startling things about that gap is that many teachers, despite their best efforts, fail to help students with comprehension and fluency. Some teachers do not know the impact that background knowledge has on comprehension and interest in reading. From an educator's point of view, I will be discussing current research to answer the following questions:

What effect does schema have on upper elementary reading comprehension scores? How do we build the desire for upper elementary students to self-question while reading? Herein, I will define struggling readers and exceptional readers. Next, I share how schema plays into comprehension. Thereafter, I will explain how to build the desire to self-question. Finally, I will summarize my conclusions.

Struggling Versus Striving Reader

The term struggling readers does not portray the way students should be seen. Students should be depicted with a growth mindset, while focusing on their potential rather than what they are currently striving to achieve. To help represent students in this way, the term *struggling reader* will not be used in this review. Instead, the term *striving reader* will be utilized (Harvey, 2017).

Striving Reader Characteristics

The term *striving reader* is a broad term, creating many diverse meanings in different people's minds. For the purposes of this article, striving readers will serve to mean students who are reading at a level that is two to three grade levels behind the grade level benchmark (Harvey, Ward, & Pilkey, 2017). While reading, a striving reader will actively "switch back and forth from decoding to comprehension" (Lubliner, 2004, p. 430). Although that process cannot be seen, it can be heard in the student's fluency when reading out loud as well as being visible in students answers to comprehension questions.

Allington (2006), listed specific instructional characteristics that accompany striving readers. They found that while exceptional readers will read difficult content to themselves, striving readers will typically have difficult material read for them. Striving readers were also asked to read orally more frequently along with being asked to focus on accuracy over comprehension (Allington, 2006). They will be interrupted when they misread a word and will be interrupted faster than their exceptional reader counterparts. Lastly, striving readers will pause while reading, waiting for a teacher to prompt, and be told to sound out a word (Allington, 2006). Although these are not all direct characteristics of the reader, these can be included in the guidelines to identify who striving readers may be, considering the term is so broad.

Striving Reader Schema

If a student is having difficulty comprehending materials, then that is an indication that there may be gaps in the student's schema. Generally, students who are striving readers come

into school with less background knowledge than their peers who are on grade-level. This can be attributed to multiple factors such as lack of vocabulary, decoding practice, and fluency knowledge. Moreover, many striving readers have higher listening comprehension skills than reading comprehension skills (Archer, Gleason, & Vachon, 2003).

Exceptional Reader Characteristics

The term *exceptional reader* is a broad term that can have various meanings to different people. For this paper, exceptional readers will serve to mean a student who reads two to three grade levels above benchmark. Ordinarily, an exceptional reader will be self-motivated and will voluntarily read when given the choice. Allington (2006) offered common instructional practices seen regarding thriving readers. The thriving reader will read material of an appropriate level of difficulty and be asked to read silently. An exceptional reader will be expected to self-monitor and self-correct while focusing their attention on understanding (Allington, 2006; Harvey, Ward, & Pilkey, 2017). An exceptional reader will be interrupted only after a wait period or at the end of a sentence. They will be asked to reread or to cross-check readings when they are interrupted (Allington, 2006). Again, these are not strict characteristics, but common practices that can be helpful in identifying those readers who are exceptional. According to Gambrell, Palmer, Codling, and Mazzoni (1996), an exceptional reader will display high motivation and they will create their own opportunities to read. Exceptional readers are curious and will read for various reasons that are highly personal such as reading for emotional satisfaction and social exchanges (1996).

Exceptional Reader Schema

Wertsch (2014) described comprehension and retention as easier concepts to attain when incorporated into a clear schema. Students who comprehend materials with ease demonstrate that they already possess a clear schema about the topic that is being presented to them. Therefore, exceptional readers comprehend and retain information furthering their schema.

The Gap Between Readers

What occurs at home from ages 0 to 5 crucially affects students' success in school. This pertains specifically to reading and language skills. Cunningham and Stanovich explained that "exposure to print serves to develop processes and knowledge bases that facilitate reading comprehension" (1997, p. 935). The extent to which children are exposed to literature in their early years matters. If a child is exposed regularly to rich literature, then it will greatly help them when they are learning how to read. If a child is not exposed regularly to rich literature, then reading may be a more difficult skill for them to learn.

Considering reading comprehension and the connection between early reading acquisition and language comprehension, Cunningham and Stanovich (1997) concluded that early reading acquisition can help instill a love of reading, regardless of the reading comprehension capacity that a person may achieve. Despite early literacy exposure and the ability to attain reading skills quickly, those early reading skills were found not to be comprehension indicators. Furthermore, other research stated that a strong correlation between reading fluency and comprehension had been discovered (Fuchs, Fuchs, Hosp, & Jenkins, 2001).

A further, more complex aspect to students' reading comprehension is students' self-perception regarding reading ability (Fisher & Frey, 2014). After conducting a study using close reading as an intervention throughout the year, Fisher and Frey (2014) concluded that close reading played a significant role in boosting readers' self-perception. Those who were in the close reading group scored significantly higher than those in the control group who did not receive close reading instruction. This finding exposed the complexity of students and their abilities.

Comprehension and Self-Questioning

Comprehension is a learned process of reading. Anderson and Pearson (1984), Pressley (2000), and Snow, Burns, and Griffin (2002) all came to the same conclusion that students may struggle to derive meaning from text because of an inability to use strategies and a lack of language knowledge. Additionally, a lack of interest in what students are reading can play a huge role in the inability to comprehend a text. Furthermore, Mason (2004) discussed that reading comprehension difficulties often stem from a student's inexperience in metacognitively monitoring their own reading comprehension. Without explicit instruction in self-questioning and metacognitive monitoring, students miss out on a key component that can assist in their understanding of a text that they are decoding.

According to Anderson and Pearson (1984), constructing meaning stems from prior knowledge and inferencing skills. If there is a gap in either of those two skills, then there will be a gap in meaning-making skills. Both prior knowledge and inferencing skills are skills that must be practiced and built upon consistently. Prior knowledge can include general information about a specific subject as well as precise vocabulary knowledge. Furthermore, McVee, Dunsmore, and Gavelek (2005) acknowledged that the most difficult part of building comprehension is not only presenting students with information, but also presenting them with a way to create relationships between the information to construct relevant meaning.

Decoding and fluency skills, likewise, lay the foundation for reading comprehension and various other skills (Archer, Gleason, & Vachon, 2003). Kim (2015) discussed the influence of text-reading fluency on reading comprehension, explaining that there is a strong relationship between the two processes of reading. Fluency and reading comprehension are mutually dependent processes.

Another major skill that influences reading comprehension is self-questioning. Lohfink (2012) described self-questioning as a skill in which students stop regularly to ask and answer questions to themselves. Self-questioning should be taught by modeling. However, monitoring can become difficult because students, characteristically, self-question silently to themselves. Self-questioning extends well beyond the platitudes of "What is happening in the text right now?" (Lohfink, 2012). It is a critical thinking skill that must be meaningfully cultivated over time (2012).

When a student struggles with reading comprehension, it is usually the result of a lack of active participation cognitively while reading the text. That, in turn, results in comprehension difficulty. Nolan also suggested using self-questioning strategies in cooperation with prediction strategies. The added portion of prediction can produce a sense of motivation for students to want to discover the answer to their question and to discover if their prediction is correct (1991).

Effect On Comprehension Test Scores

Previously, Nolan (1991) discussed the effect of self-questioning regarding comprehension and the relationship to reading comprehension test scores. The results showed that students using self-questioning with prediction scored higher than those who were exclusively using self-questioning and vocabulary knowledge. This was found to be true for students who were only slightly below grade level and those who were severely below grade level (Nolan, 1991).

Additionally, Mason evaluated the Nation's Report Card Test Scores in 2003. She poignantly describes the test scores as follows:

"In 2000, while comprehension scores for students with above-average performance appeared to increase, comprehension scores for students with below-average performance were significantly lower than scores obtained in 1992 (NAEP, 2003)" (Mason, 2004, p. 283).

This below-average performance was the outcome of a lack of clear, explicit reading comprehension instruction (Mason, 2004). The increase in rigor and gap in instruction lead to lower than average scores in reading comprehension. That shows the imbalance between assessment and instruction.

According to the National Assessment of Educational Progress Report Card Reading Assessment scores, between 2017 and 2019 17 states had a score decrease, 34 states had no significant change in score, and only one state had a score increase. When surveyed, approximately one-third of students in fourth-grade believed they could explain the meaning of something they had just read (NAEP, 2019). Those results meant that two-thirds of fourth-grade students did not feel confident in their reading comprehension abilities.

The NAEP assessment had a heavy emphasis on three different targets. The targets included locate and recall, integrate and interpret, and critique and evaluate (NAEP, 2019). The NAEP targets were used in combination with various genres such as the following: fiction, literary nonfiction, poetry, persuasive texts, procedural texts, and documents (NAEP, 2019). The number of questions allotted to each target differed according to developmental differences that were associated with different grade levels (NAEP, 2019).

Bridge the Gap

There are multiple research-based ways to bridge the gap between striving and exceptional readers. Linked text sets were found to be an effective way to bridge the gap in schema and comprehension skills in students who were striving readers (Tatum, Wold, & Elish-Piper, 2009). Linked text sets were described as multiple texts that include print and nonprint. Nonprint sets included music, illustrations, and movies, as well as other forms of media. These linked text sets allowed students to explore a wide range of topics from multiple points of view. Linked text sets made the topic more engaging and presented students with the opportunity to engage in reading about a topic across multiple genres. Because students often choose to read texts in multiple formats, linked text sets naturally play into student interests. Linked text sets provided a distinctly different opportunity for learning about a topic while providing insights across various topics. Since background knowledge can be a substantial predictor of

comprehension ability, linked text sets are a successful way to increase background knowledge about a subject (Fisher & Frey, 2012).

Tatum, Wold, and Elish-Piper (2009) provided three criteria for choosing linked text sets. First, the link text sets need to include characters, events, and people from various cultures and communities around the world. These perspectives and cultures should be represented in the selected texts. Secondly, students of different reading abilities should be able to interact with a multitude of texts including texts with different structures, difficulty levels, and ones that encourage engagement for all students. Lastly, students should be provided with a choice of what they are reading in their linked text sets. Providing students with the prospect of choice increases their engagement in what they are reading, which will, in turn, increase their comprehension of the texts (Tatum, Wold, & Elish-Piper, 2009).

Furthermore, close reading can be used to bridge the gap between striving and exceptional readers. Close reading was shown to measure the depth of students' reading comprehension (Fisher & Frey, 2012). Utilizing close reading annotations helped teachers identify what students were lacking in comprehension and schema. Those student-created annotations initiated rich discussions of the text, while uncovering more questions and expanding students' overall comprehension of the text.

Lubliner (2004) conducted a study in upper elementary grades with three striving readers. Using a wide variety of reading activities, she found a solution to help students increase their comprehension;

"[The provided] instruction in language arts and social studies was integrated, weaving together the core literature novel, *The Sign of the Beaver* (Speare, 1983), and a unit on Native Americans and European settlement. Thematically related instruction was designed to help children acquire background knowledge that would strengthen comprehension of the literature and textbook" (Lubliner, 2004, p. 432).

Lubliner (2004) recognized the importance of building students' schema on subjects that were less familiar to them. This not only allowed students to become familiarized with what they were learning about, but it also provided them with confidence when it came time to learn about that specific subject. Additionally, language arts and social studies were woven together, which provided more exposure to the subject to increase the students' comfortability while learning.

Along with thematic related instruction, Hansen and Pearson (1983) found that striving readers profited more from explicit inference instruction than exceptional readers. Teaching striving readers how to inference is an essential skill that, generally, comes more naturally to exceptional readers. Inferencing heavily involves accessing students' schema. When accessing that schema, it is vital that the text that students are reading is relevant to them. Students should have applicable background knowledge on the subject. If there has been a deficiency in background knowledge, then students should be given the opportunity to research what they are reading about to build schema. This not only allows the student to be more comfortable with the material, but it gives them more autonomy in their learning. In support of Hansen and Pearson (1983), Hall (2016) found that striving readers who were unable to make inferences displayed comprehension failure. Failure to make inferences directly demonstrated that there was a lack of comprehension of the material. To boost comprehension and inference-making, Hall (2016) discussed that students should have relevant schema that aligned with what they were learning.

According to the National Reading Panel (2000), a lack of skillful reading was often attributed to phonological deficits. To combat this deficit in students, there must be a balance between explicit comprehension strategies and phonological skills instruction (Mason, 2004;

National Reading Panel, 2000). To begin to bridge the gap between striving and exceptional readers, teachers should start with vocabulary instruction (Kucan, 2012). Without a solid basis of vocabulary, students struggled to make meaning from a text because they were focused on understanding the meaning of the words they were reading instead of understanding the meaning of the text as a whole (Kucan, 2012).

Build the Desire to Self-Question

Building the desire to self-question and use various reading strategies can stem from enjoyment in reading. This can be paralleled to the "snowball effect." Students who like to read will want to read more and learn more. In order to learn more, they must be equipped to self-regulate and use strategies to help comprehend what they are reading. According to Mason (2004), self-regulation includes self-instruction, setting goals, self-monitoring, and self-reinforcement. In Mason's study, explicit self-regulating comprehension strategies were taught to students (2004). These strategies assisted students in monitoring their learning, while steadily increasing comprehension.

Another way to build the desire to self-question is through read-alouds. Lohfink (2012) suggested introducing self-questioning through read-alouds to elementary students. Read-alouds allow students to use illustrations to predict aspects of the text, surpassing surface level answers in response to surface level questions. Additionally, O'Neil (2011) suggested that students inspect other elements of illustrations such as line, color, and tone to infer and self-question as the text continued. This allowed for more expansive predictions and self-questioning.

To build the desire to self-question in students, there must be a level of ownership from the students. For example, ownership from students could look like being given voice and choice in what they read. This offers students ownership of their learning and automatically engages them in what they are reading. In collaboration with this ownership, teachers can model a think-aloud to show their own self-questioning strategies and processes (Lohfink, 2012). After sufficient time modeling, the teacher should then gradually release the self-questioning responsibilities to the student (2012).

An alternative way to increase the desire to self-question in students is to use Lohfink's (2012) picture-investigation partner activity. In this activity, students were allowed to work together with a partner to investigate the pictures in a picture book while deriving questions on sticky notes. Then, after creating those questions, students read the book together and searched for the answers to those questions they originally asked. Students were given the chance to take ownership of their learning by choosing the questions that they asked and searched for in the text. This activity can build the desire to self-question by making it into a fun game while gradually releasing the students to self-question on their own.

Implications for Teaching

A possible implication for teaching that McVee, Dunsmore, and Gavelek (2005) discussed in *Schema Theory Revisited* is the use of book clubs and discussion groups. These

provided students with the opportunity to scaffold in various ways, including orally, written, and socially. Those opportunities afforded students the chance to interact with that knowledge on an individual basis. Mindfully integrating these rich activities in classrooms provided students with the additional scaffolds they needed to succeed in building upon their schema while increasing comprehension.

A major implication for teaching is the reality of student choice in reading. If students choose what they are reading, then they will undoubtedly be reading different books than the teacher would predict. This means that there will be more planning on the teacher's part. However, if students are not genuinely interested in the text that is being presented to them, then they will not be engaged in what they are reading and they will struggle to make meaning from the text. Students will be actively engaged if they are interested in what they are reading.

Mills, Stephens, O'Keefe, and Waugh (2004) revisited Rosenblatt's argument that meaning is made when the reader and the text come together to create new meaning, or as Rosenblatt refers to it, a poem. This poem is a non-negotiable aspect that is essential to teach reading to students. Allowing student choice is the easiest way to get them engaged in what they are reading. In turn, this will motivate them to want to come together with what they are reading to create their own unique poem.

All of these strategies should be implemented for students of various reading levels. This provides all students with an opportunity to increase their comprehension and have the tools to continue to develop their meaning making skills. Using linked text sets will automatically mean that there will be more texts than usual in a classroom curriculum. In turn, the teacher will have to take the time to choose complex texts from a wide variety of genres and media types. This extra work will provide the students with a rich opportunity to receive a well-rounded education regarding numerous topics. Additionally, student engagement will increase because of the variety of texts and media presented.

Future Research

There is a wealth of research opportunities in some aspects of reading comprehension. Mason discussed some research that needs to take place. She explained that there is not much research regarding the utilization of several self-regulated strategies for elementary students (2004). That is a vital area that needs to be researched more.

Likewise, Nolan (1991) explained that there is very little research regarding the combination of two strategies into one single intervention. Further research needs to be conducted to identify combinations of strategies to determine which strategies are most effective and yield the best results when paired together. Furthermore, there could be more than two strategies combined to create an intervention.

There is a gap in the research surrounding fostering the desire to self-question. There is a great deal of research with reference to self-questioning strategies, but not enough exploring how to explicitly build self-questioning desires in students in younger grades. Moreover, there is an absence of research regarding linked text sets in elementary classrooms and the effects of linked text sets on reading comprehension.

Additionally, there is little research exclusively surrounding students' schema, whether they are an exceptional reader or a striving reader. The research that is published is not all-

encompassing, meaning, it does not show how it affects elementary students' reading and language skills. One drawback of this research would be the inability to continually monitor students in their self-questioning and schema construction because it is a silent process that takes place in students' minds.

Finally, there is a gap in longitudinal studies following students from young children to adulthood. There needs to be more research in this format, analyzing comprehension test scores and following students who have used self-questioning and comprehension strategies throughout their schooling. The results of that research could be applied to the topics presented in this literature review.

Conclusion

This literature review explored the role of schema in reading comprehension, while exploring the benefits of self-questioning in upper elementary grades. Additionally, this review presented the effects of schema on reading comprehension test scores in the U.S.. Furthermore, it defined striving and exceptional readers while evaluating their respective schema and characteristics. Research was then presented to bridge the gap between striving and exceptional readers followed by solid, research-backed ways to build the desire for students to self-question while reading. Following aforementioned research, this literature review applied research to teaching implications to explore how a classroom curriculum can be best created. The research presented in this literature review is current and widely referenced when discussing reading comprehension, schema, and self-questioning. Although there has been a lot of literature on many of the topics presented in this literature review, there is still a lot of research to be done surrounding the more specific topics presented in the recommendations for future research.

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